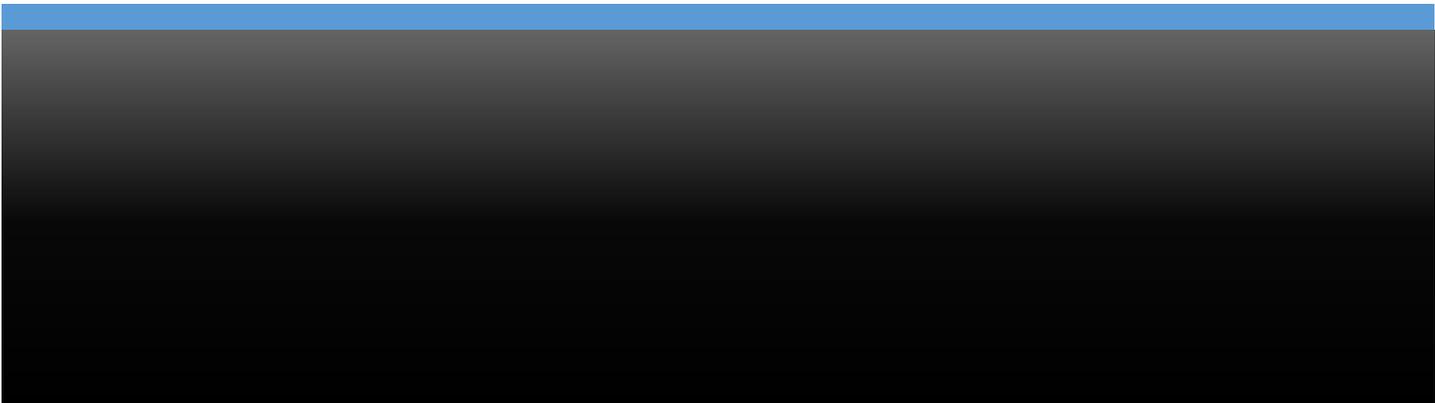


To Migrate or Not to Migrate? Mobility of Migrant Farmworkers in US Agriculture and Its Effects

IRRC LITERATURE REVIEW 2016



Purpose of this Review



It is essential for Migrant Education Program (MEP) staff, and policy makers to be well-informed concerning trends in agriculture, especially those related to migrant labor. The MEP program must be poised to help meet the needs of the students and their families in these changing times. This review will probe what current factors are affecting the migrant farmworker populations and how these factors are causing specific trends and outcomes in agriculture and the farmworker community across the country.

Program services must be designed around the needs of the eligible population and these needs can shift and change as the population itself changes. The National MEP program has seen close to a 10% decrease in the number of migrant students each year since 2007. This review will specifically focus on issues of why the migrant population continues to decline in numbers and what factors are contributing to this change.

School Year	# of Eligible Migrant Students Nationally	Percent Decrease in overall population
2013-2014	347,634	=9.6 % decrease from 2012
2012-2013	360,279	=9.5 % decrease from 2011
2011-2012	376,801	=9.3 % decrease from 2010
2010-2011	401,362	=9.3% decrease from 2009
2009-2010	429,540	=9.3% decrease from 2008
2008-2009	461,627	=9.5% decrease from 2007
2007-2008	485,039	Source: Ed.gov- Ed Data Express Tools ¹

Migrant Education Program (MEP)

In 1965, the Elementary and Secondary Education Act (ESEA) was passed and it committed the Federal government to help schools, with a focus of providing extra help to children who were disadvantaged by poverty and its effects. In the Fall of 1966, Congress amended the ESEA to create the Migrant Education Program to specifically address the special needs of mobile farm worker children. The following year an allocation of \$9 million was used in the first programs that were implemented for migrant students. This funding has increased to an allocation in 2015 of \$364,751,000.²

There have been many shifts in migration since the program first started. Statistics reported in 1994 from the National Commission on Migrant Education suggested that about 800,000 students would be eligible for Migrant Education Program services by the year 2000--an increase of about one third over 1990 (III.1). In 1991-92, about 80 percent of the migrant students were Hispanic.

¹ <http://eddataexpress.ed.gov/data-elements.cfm>

² <http://www2.ed.gov/programs/mep/funding.html>

Another 11 percent were non-Hispanic white, and three percent belonged to other ethnic groups (III.4). Their reported countries of birth were: U.S.--67 percent; Mexico--29 percent; Other--4 percent. Twelve percent of the students were in preschool or kindergarten; 56 percent in grades 1-6; and 32 percent in grades 7-12 (III.2). Nearly two-thirds of eligible children lived in five states. States with more than 10,000 participants were California, Texas, Florida, Arizona, Michigan, Oregon, and Washington which, with the addition of Puerto Rico, accounted for 73 percent of total program participants (III.3).³

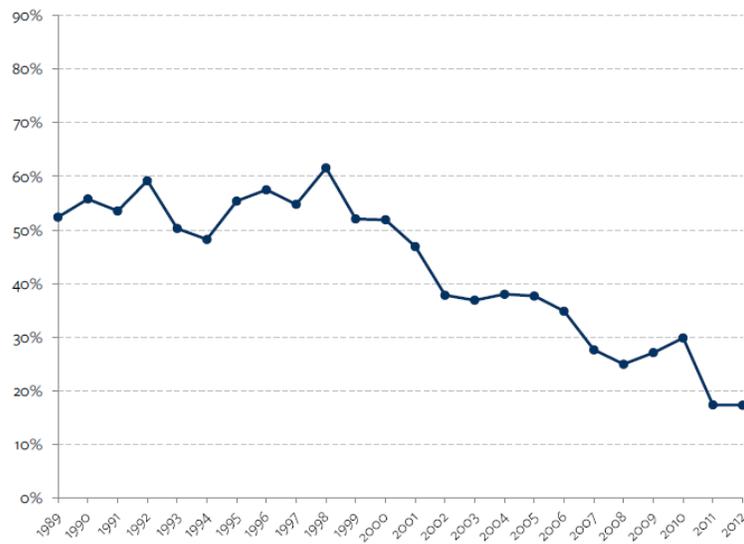
Department of Education figures show for the 2013-2014 school year there were 347,634 migrant students that were eligible.⁴ Much less than the 800,000 that was suggested by the National Commission on Migrant Education in 1994. According to statistics from the Department of Education there continues to be close to a 9% decrease in the number of migrant students identified each year since 2007.

(Table Source: Policy Brief: Where Did all the Migrant Farm Workers Go? Fan and Perloff. 2016)⁵

Farm Workers Demographics

“Between 1 and 3 million migrant farm workers leave their homes every year to plant, cultivate, harvest, and pack fruits, vegetables and nuts in the U.S. Although invisible to most people, the presence of migrant farm workers in many rural communities throughout the nation is undeniable, since hand labor is still necessary for the production of the blemish-free fruits and vegetables that consumers demand.”⁶

Figure 1 Percentage of Farmworkers Who Are Migrants



Source: Authors' calculations using National Agricultural Worker Survey (NAWS) data.

According to recent reports from the USDA, hired farmworkers make up less than 1 percent of all U.S. wage and salary workers, but they play an essential role in U.S. agriculture. Wages, salaries, and contract labor expenses represent roughly 17 percent of total variable farm costs and as much as 40 percent of costs in labor-intensive crops such as fruit, vegetables, and nursery products. Hired

³ <https://www2.ed.gov/pubs/Biennial/102.html>

⁴ <http://eddataexpress.ed.gov/data-element-explorer.cfm>

⁵ Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

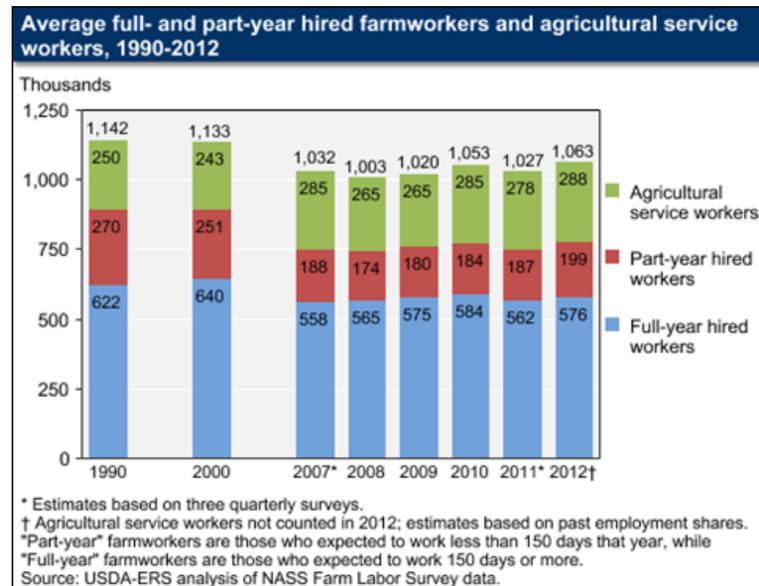
⁶ Eduardo Gonzalez, J. (2015). *Migrant Farm Workers: Our Nation's Invisible Population*. Extension.

farmworkers continue to be one of the most economically disadvantaged groups in the United States.⁷

Migrant farmworkers plant and pick most of the fruits and vegetables eaten in the United States. Seasonal crop farmers, who employ workers only a few weeks of the year, rely on workers who migrate from one job to another within the United States. Because finding migrants to pick their crops before they spoil is becoming increasingly difficult, seasonal crop farmers are struggling.⁸

(Table Source: Policy Brief: Where Did all the Migrant Farm Workers Go? Fan and Perloff. 2016)⁹

From 1989 through 1998, roughly half of all seasonal crop farmworkers migrated at least 75 miles within the United States (see Figure 1). Since then, the share of workers who migrate has dropped by more than half, hitting 17% in 2012.¹⁰ According to the Farm Labor Survey (FLS) of the National Agricultural Statistics Service (NASS), hired farmworkers (including agricultural service workers) make up a third of all those working on farms; the other two-thirds are self-employed farm operators and their family members. The majority of hired farmworkers are found on the nation's largest farms, with sales over \$500,000 per year.¹¹



The average number of hired farmworkers has steadily declined over the last century, from roughly 3.4 million to just over 1 million. Because the U.S. labor force grew, agricultural employment as a proportion of total employment has declined even more sharply. According to the FLS, the annual average number of people employed as hired farmworkers, including agricultural service workers,

⁷ <http://www.ers.usda.gov/topics/farm-economy/farm-labor.aspx>

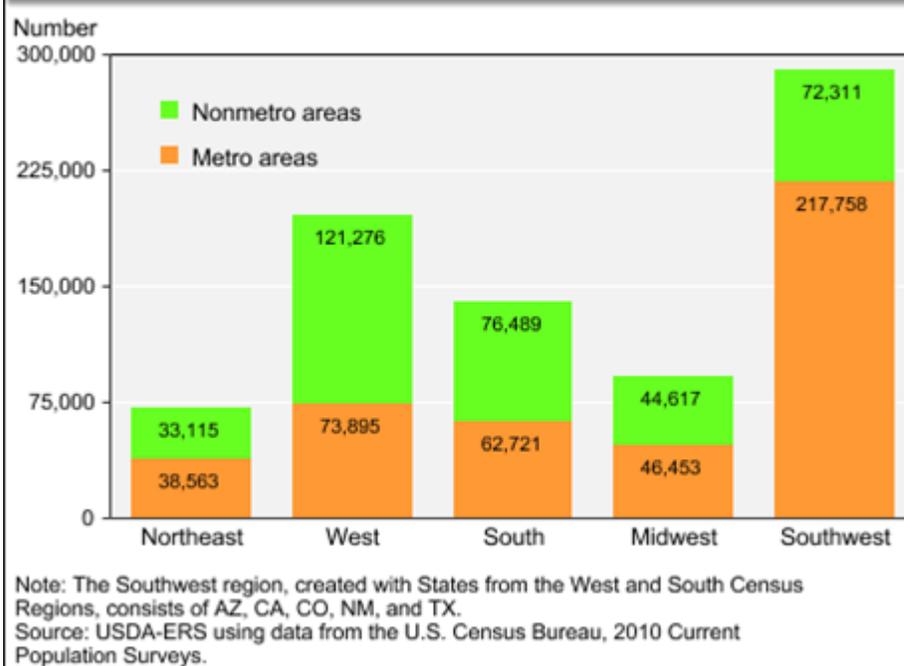
⁸ Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

⁹ Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

¹⁰ Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

¹¹ <http://www.ers.usda.gov/topics/farm-economy/farm-labor.aspx>

Hired farmworkers by region and metropolitan status, 2012



decreased from 1,142,000 in 1990 to 1,032,000 in 2007. Since then it has held steady at just above one million. In 2012, the total was 1,063,000 of which 576,000 were full-year positions, 199,000 were part-year positions, and an estimated 288,000 were agricultural service workers brought to farms by contractors. Employment is highly seasonal: in January

of 2011, there were 808,000 workers, while in July the figure stood at 1,184,000.

Farm employment was less affected by the 2007-09 recession than nonfarm employment was. According to the Bureau of Economic Analysis, farm wage and salary employment fell by 1.5 percent between 2007 and 2009, compared to 4.7 percent for the nonfarm economy. The Farm Labor Survey found that average farm employment in 2012 was above 2007 levels.

The Current Population Survey (CPS) counts farmworkers using a household rather than a farm survey, and provides more demographic detail. In 2012, the CPS estimated average hired farm employment at 787,000, which is close to the FLS total excluding agricultural service workers (775,000).

Of these farmworkers, 56 percent work in crop agriculture and the remaining 44 percent work in livestock. Roughly 37 percent of all hired farmworkers live in the Southwest (defined to include California), and 25 percent live in the Midwest region. Two States—California and Texas—account for more than one-third of all farmworkers.¹²

More farmworkers are located in metropolitan areas (56 percent) than in non-metro counties. In California, 99 percent of farmworkers are located in metro areas, and in Washington State the figure is 95 percent.

The table below divides the hired farmworkers found in the 2012 CPS into two groups: (i) laborers and field supervisors, and (ii) hired farm managers. About half of all laborers and supervisors are

¹² <http://www.ers.usda.gov/topics/farm-economy/farm-labor/background.aspx#Numbers>

Hispanic, while managers are mostly non-Hispanic whites. Thirty-one percent of laborers and supervisors have less than a ninth grade education, compared to 6 percent for farm managers and 3 percent for the U.S. workforce as a whole. Laborers and supervisors are also younger and less likely to be married than either hired farm managers or the average U.S. worker.

Note that figures for these and other characteristics differ somewhat depending on the set of workers being analyzed and the data sources used. Livestock farmworkers, for example, have more stability and less seasonal employment, and consequently, their traits more resemble those of all wage and salary workers than of field crop farmworkers. Similarly, data from the Current Population Survey reflects a more established and native-born population than data collected from the National Agricultural Workers Survey (NAWS).

Fifty-nine percent of farm laborers and supervisors found in the CPS are U.S. citizens, compared to 91 percent for managers, and for all U.S. wage and salary workers. The CPS data does not indicate how many of those without citizenship are legally authorized to work, although some information on this question may be found in the NAWS, discussed below.

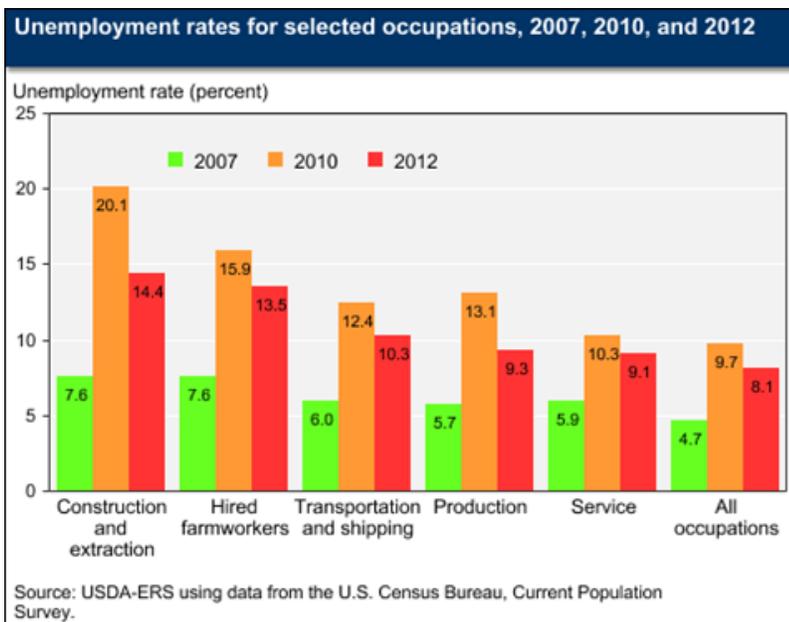
Demographic characteristics of hired farmworkers and all wage and salary workers, 2012

Item	Farm laborers and supervisors	Farm managers	All hired farm workers	All U.S. wage and salary workers
Number	676,000	111,000	787,000	142,653,000
Percent male	82	81	82	53
Median age in years	34	38	35	42
Percent under age 25	27	15	25	13
Percent over age 44	30	41	31	44
Percent married	51	61	53	56
Percent White (race)	91	96	92	81
Percent Hispanic (ethnicity)	50	16	45	15

Demographic characteristics of hired farmworkers and all wage and salary workers, 2012

Item	Farm laborers and supervisors	Farm managers	All hired farm workers	All U.S. wage and salary workers
Percent foreign-born	47	11	42	16
Percent with U.S. citizenship	59	91	64	91
Percent with less than 9th grade education	31	6	27	3
Percent with some college	20	51	25	64

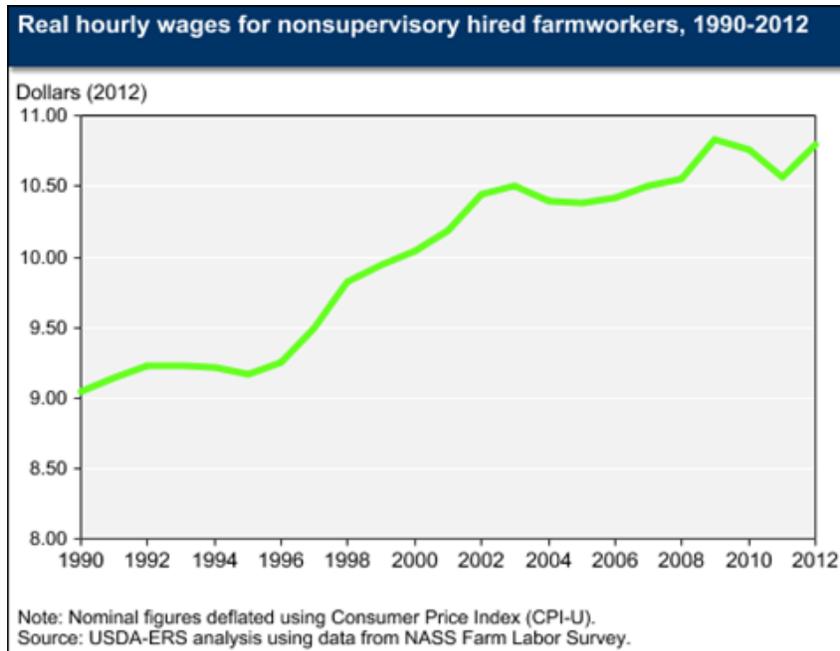
Source: USDA, Economic Research Service analysis of data from U.S. Census Bureau, Current Population Survey.



Unemployment Rates by Occupation

Hired farmworkers have historically experienced above-average unemployment rates. This is partially due to the highly seasonal nature of agriculture; however, their low levels of education and often limited English-language skills compared with the general population also explain much of their labor market disadvantage.

Unemployment rates for hired farmworkers, as for many other major occupational groups, more than doubled between 2007 and 2010, to 15.9 percent. Only construction and extraction occupations saw a greater increase and higher resulting levels of unemployment in 2010. *Employment* levels for hired farmworkers, however, did not decrease over this period. This apparent disparity may be due to several factors, including greater turnover in the farm labor market and a larger number of former farmworkers rejoining the labor force. Since 2010, the unemployment rate for hired farmworkers has fallen slightly, and in 2012 it stood at 13.5 percent, compared to 8.1 percent for the national average of all occupations.



According to the FLS, the real average hourly earnings of non-supervisory farm laborers has been between \$10.50 and \$10.80 since 2007 (in constant inflation-adjusted dollars, at 2012 prices), and stood at \$10.80 in 2012. Real farmworker wages have risen at 0.8 percent per year since 1990.

The Bureau of Labor Statistics' Occupational Employment Statistics program provides an alternative estimate of

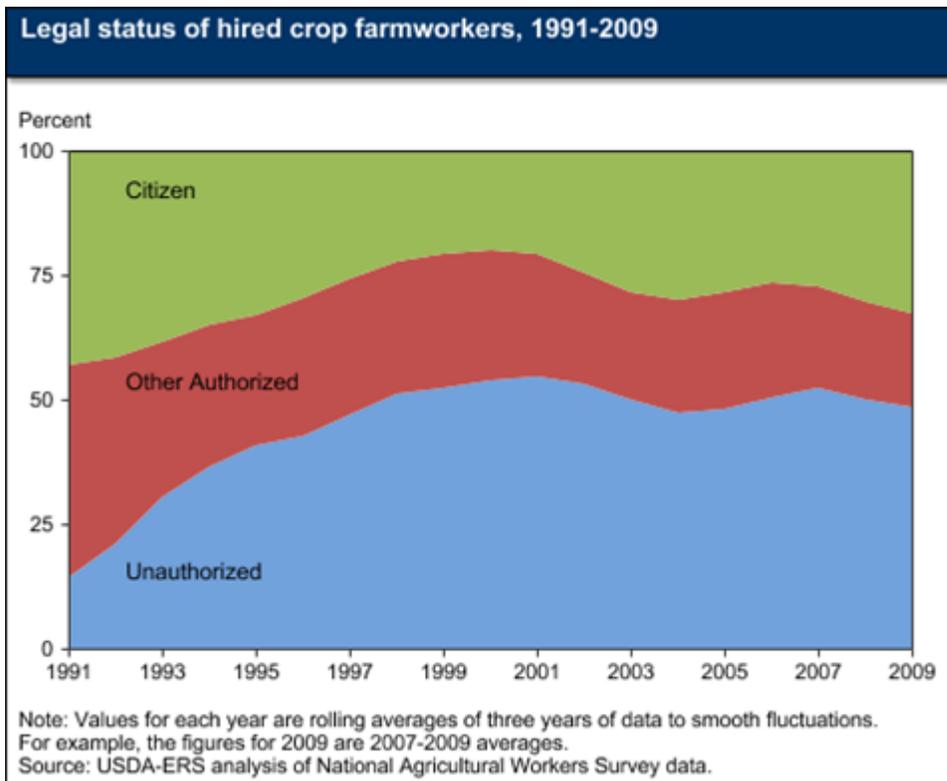
farmworker wages that permits a comparison between farm occupations, and with low-wage occupations in the nonfarm economy.

Hourly and annual earnings, selected occupations, May 2011

Item	Average wages		Median hourly wage
	Hourly	Annual	
Farm occupations			
First-line supervisors of farming, fishing, and forestry workers	21.97	45,690	20.48
Agricultural inspectors	20.25	42,120	19.90
Animal breeders	18.11	37,670	16.79
Graders and sorters, agricultural products	9.95	20,690	9.17
Agricultural equipment operators	12.90	26,830	12.13

Farmworkers and laborers: crop, nursery, and greenhouse	9.62	20,020	8.99
Farmworkers: farm, ranch, and aquaculture animals	11.60	24,130	10.62
Agricultural workers, all other	13.91	28,940	12.16
<i>Selected nonfarm occupations</i>			
Maids and housekeepers	10.31	21,440	9.32
Construction laborers	16.43	34,170	14.30
Landscaping and grounds keeping workers	12.33	25,650	11.23

Source: USDA, Economic Research Service using data from Bureau of Labor Statistics.



The U.S. Department of Labor's National Agricultural Workers Survey (NAWS) is the only survey that ascertains the legal status of noncitizen farmworkers, and the only survey that identifies hired farmworkers as migrant or settled. However, NAWS is limited to hired crop farmworkers and excludes hired livestock farmworkers.

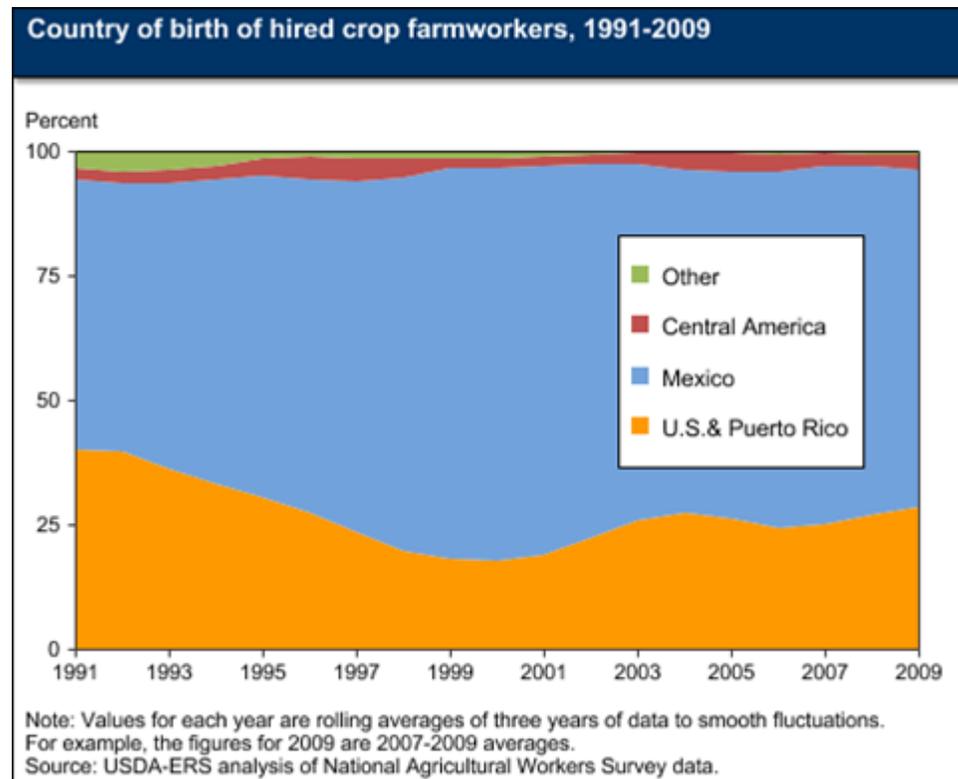
The share of hired crop farmworkers

who were not legally authorized to work in the U.S. grew from roughly 15 percent in 1989-91 to almost 55 percent in 1999-2001. Since then it has fluctuated around 50 percent. Since 2001, the share who are citizens has increased from about 21 percent to about 33 percent, while the share who hold green cards or other forms of work authorization has fallen from about 25 percent to close to 19 percent.

The share of hired crop farmworkers who were born in the United States or Puerto Rico fell from close to 40 percent in 1989-91 to a low of about 18 percent in 1998-2000, while the share born in Mexico rose from 54 percent to 79 percent over the same interval. Since then, the U.S. and Puerto Rican share has rebounded to about 29 percent and the Mexican share has fallen to approximately 68 percent. The share from Central America and other countries has never exceeded 6 percent.

From 1998 to 2000, around 80 percent of all field and crop workers in the country were foreign-born, and more than 60 percent of those workers were recent immigrants who had been in the country for fewer than 10 years.¹³

However, since 2000 Hispanic workers have also been employed in increasing numbers in the dairy industry (not covered by NAWS). One study found that 75 percent of Hispanic dairy workers in New York State were from Mexico, 24 percent were from Guatemala, and one percent were from Honduras.¹⁴



Decreases in the Farmworker Population

USDA’s Farm Labor Survey (FLS)¹⁵, which reports farm employment separately by broad occupations shows a steep decline in field and crop workers. The survey finds that from 2002 to 2014, the total number of full-time equivalent field and crop workers hired by farms declined by 21.8 percent. In other words, the size of the workforce farmers had to draw from dropped by more than a fifth. A drop was seen among both full-year field and crop workers and seasonal workers involved in shorter harvest seasons. From 2002 to 2014, the number of full-year field and crop workers dropped by 22.8 percent, while the number of full-year equivalent seasonal employees dropped by 18.5 percent. Survey data show that between 2002 and 2014 the number of full time equivalent field and crop workers in the US decreased by 146,000 and 164,000 people.

Key findings from a report produced by the Partnership for a New American Economy, “A Vanishing Breed”, 2015 show the following trends:

The supply of workers available to U.S. farmers has been rapidly declining. Between 2002 and 2014, the number of full-time equivalent field and crop workers has dropped by at least 146,000

¹³ U.S. Department of Labor, Employment and Training Administration. National Agricultural Workers Survey, 1998–2000.

¹⁴ Survey of Hispanic Dairy Workers in New York State, Cornell University, February 2005

¹⁵ The Farm Labor Survey reports hours worked per week and number of employees in each of the four survey weeks per year.

people, or by more than 20 percent. Wage patterns indicate that this caused a major labor shortage on U.S. farms.

The labor shortage has hurt our country's ability to produce labor-intensive fruits, vegetables, and tree nuts. Had labor shortages not been an issue, production of these crops could have been higher by about \$3.1 billion a year. Given that farm revenues often trickle down to other industries in our economy, that \$3.1 billion in additional farm production would have led to almost \$2.8 billion in added spending on non-farm services like transportation, manufacturing, and irrigation each year. That spending would have created more than 41,000 additional non-farm jobs in our economy annually.

The number of potential farmworkers immigrating to the United States has greatly slowed over the last decade. Between 2002 and 2012, the number of new field and crop workers immigrating to the United States fell by roughly 75 percent. This led to a drop in the number of entry-level workers available for difficult jobs like hoeing, harvesting, and planting.

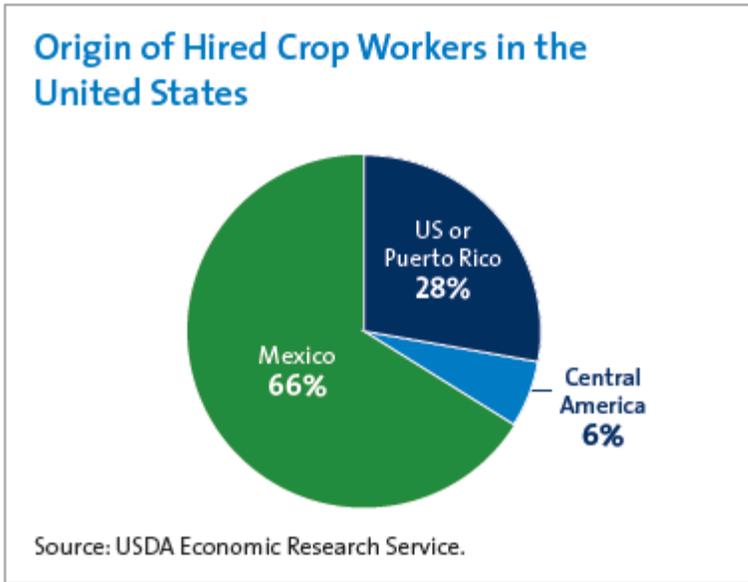
Some parts of the country were particularly hard hit by the recent labor decline. The number of full-time equivalent field and crop workers in California declined by about 85,000 people between 2002 and 2014. The vast majority of this decline happened before the drought started in 2011. The southeastern part of the United States was also hard hit. Alabama, Georgia, and South Carolina lost about 8,500 workers total, or more than one in four of the crop workers employed in 2002. Colorado, Nevada, and Utah lost 36.7 percent of their full-time equivalent field workforce, or 7,029 people.

“In the parts of the country where the most labor-intensive fresh fruits and vegetables are grown, the size of the full-time equivalent workforce has shrunk by almost a fifth.” – Partnership for a New American Economy

Today's field and crop workers are rapidly aging, signaling even greater potential future challenges when the current generation of workers retires. While 36.1 percent of field and crop workers during the 1998–2002 period had arrived in the United States within the past five years, just 11.5 percent were in that situation by 2008–2012. Because many new immigrant farmworkers tend to be young, this has caused the workforce to age dramatically. While 14.2 percent of farmworkers were 45 years old or older in the 1998–2002 period, by 2008–2012, that figure had more than doubled, reaching 27.1 percent.

U.S.-born workers are not filling labor gaps on American farms. From 2002 to 2014, the increase in U.S.-born workers offset less than three percent of the dramatic decline in field and crop workers on U.S. farms caused by dwindling foreign-born workers.¹⁶

¹⁶ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, 2016. Web. 16 Aug. 2016.



In the last few years, many Americans have heard stories about the difficult labor situation faced by many U.S. farmers. Despite unemployment rates remaining high in some parts of the country, news reports have described farmers in Texas losing dozens of acres of carefully cultivated squash due to a lack of available field hands. In Georgia, blackberries have been left to rot in the field, while in California, asparagus and cantaloupe farmers have been forced to abandon fields of otherwise

healthy crops, even during a time of drought when crop yields are unusually low. Past research from the Partnership for a New American Economy (PNAE) and the Agriculture Coalition for Immigration Reform has found such labor challenges have created a frustrating reality in the U.S. farming industry: At a time when more Americans are trying to eat fresh and locally grown produce, farmers don't have the labor they need to expand their operations and keep pace with rising demand. In fact, from 1998 to 2012 the share of American fresh produce that was imported grew by more than 79 percent.¹⁷

In the last decade, as fewer young agricultural workers have come to the United States, the number of field and crop laborers available to farms has been rapidly declining. This drop has created a severe labor shortage in many key parts of the country vital to American farmers and iconic crops. It has also had an impact far beyond rural America: The lack of workers has not only hurt the ability of U.S. farms to grow and expand, it has cost our economy tens of thousands of jobs in related industries like trucking, marketing, and equipment manufacturing. When the drought on the West Coast ends and crop production returns to normal levels, the labor shortages documented there could be even more dramatic—producing greater economic pain for the region and the country as a whole.¹⁸

Each area of the country has been hit in different ways. The Midwest, for example, has struggled due to labor shortages. As of 2003, half of the 440 “farm-dependent” counties throughout the United States—those relying on agricultural activities for at least 15 percent of their earnings—are within the Midwest region. Agriculture accounted for 6.6 percent of the Midwest economy in 2012, about twice the national share. This share ranges within the region from a high of 31.3 percent for

¹⁷ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, 2016. Web. 16 Aug. 2016.

¹⁸ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, 2016. Web. 16 Aug. 2016.

South Dakota to 2.6 percent for Ohio. These shares are two to five times higher than farm operators' share of the state populations, meaning that farmers are punching above their weight in terms of economic output.

The Midwest dominates many parts of American agriculture, boasting the nation's top state in production of corn, soybeans, hogs, and eggs (all in Iowa); wheat and grain sorghum (Kansas); and oats and turkeys (Minnesota). Combined, Midwest states account for about 16 percent of the country's specialty crop production by value, less than half of California's specialty crop market value. Three Midwest states (Michigan, Minnesota, and North Dakota) rank among the top 10 in the value of specialty crops produced. What's more, Midwest livestock farmers account for 55 percent of the nation's hogs and pigs, 39 percent of the nation's beef cattle, and 35 percent of the dairy cows.

On average, the percentage of Midwest farms that use hired labor is quite close to the national share, about one in five farms. The Midwest overwhelmingly relies on immigrant labor for year-round animal care, which has different characteristics from labor demand for seasonal specialty crop operations in other parts of the country.

Over the last century, on average roughly three million migrant and seasonal farmworkers were in the United States at any one time. But as of 2012 that number had dropped to 1.06 million, including part-time and full-time workers, according to the Farm Labor Survey conducted by the US Department of Agriculture's (USDA) National Agricultural Statistics Service. Of the roughly 800,000 farmworkers in that total, about 56 percent work in crop production, and the remainder work in livestock production. Even with an imported labor force of more than one million, farms still face up to a 30 percent shortage in labor. US farmers find it difficult to fill available farm labor jobs with native-born workers, even with the 9.7 million unemployed US citizens over the age of 16 (3.2 million of whom are long-term unemployed), as estimated by the US Bureau of Labor Statistics July 2014.

Several factors—both real and perceived—contribute to the reluctance of native-born workers to seek jobs in agriculture, either on farms or in processing facilities. These include low wages compared to those paid for other occupations involving hard physical labor, difficult working conditions, often transitory employment opportunities, and the prospect of extensive travel for

Table 1: Change in the Number of Hours Worked by Field and Crop Workers, 2002–2014

Region	States	Change In Annual Hours Worked
Northeast I	CT, ME, MA, NH, NY, RI, VT	-16.4%
Northeast II	DE, MD, NJ, PA	-21.0%
Appalachian I	NC, VA	-3.8%
Appalachian II	KY, TN, WV	-15.0%
Southeast	AL, GA, SC	-26.3%
Lake	MI, MN, WI	-8.1%
Cornbelt I	IL, IN, OH	-25.5%
Cornbelt II	IA, MO	-18.3%
Delta	AR, LA, MS	-13.5%
Northern Plains	KS, NE, ND, SD	1.5%
Southern Plains	OK, TX	-23.3%
Mountain I	ID, MT, WY	2.8%
Mountain II	CO, NV, UT	-22.0%
Mountain III	AZ, NM	-10.1%
Pacific	OR, WA	19.4%
Florida	FL	-15.3%
California	CA	-41.9%
Hawaii	HI	-5.8%
Overall	-	-22.4%

undertaking seasonal work as many farmworker jobs are located in metropolitan areas in the West and Southwest regions of the United States.

Some workers are being pulled away from agriculture into other sectors. The inflation-adjusted hourly wage for construction workers has consistently been two to three times higher than for crop farmworkers over the last few decades, according to data collected by USDA and the US Department of Labor. But there are less concrete factors as well. Princeton University Sociologist Doug Massey has found that the public identification of farm labor in the United States as an “immigrant job category” over the last few decades has created a stigmatization of that type of work among native-born Americans, making it unattractive to many even as an employment opportunity of the last resort.”¹⁹

These findings suggest the need for changes in policies and dire consequences to the agriculture sector if the shortage of workers is not addressed. According to the same report, “The ongoing labor troubles faced by farmers also present major questions about how sustainable it will

be for small farmers to continue growing the most labor-intensive fruit and vegetable crops for the long term. Anecdotally, many farmers say they have already shifted some of their acreage to mechanically harvested commodities like corn, alfalfa, and wheat. These crops on average require fewer workers, generate less revenue for the community, and create fewer ancillary jobs. Between 2002 and 2012, some 300,000 acres of farmland previously used to grow fresh fruit, vegetables, and tree nuts were taken out of production altogether.”²⁰

¹⁹ Mercier, Stephanie. *Employing Agriculture: How the Midwest Farm and Food Sector Relies on Immigrant Labor*. The Chicago Council on Global Affairs, Web 8 August. 2016.

²⁰ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, 2016. Web. 16 Aug. 2016.

How do the Decreases in Available Farmworkers Affect Different Regions of the Country?

Table 1²¹ outlines the decreases in the number of hours worked by field and crop workers between 2002-2014 by region. Data used for this table includes the Farm Labor Survey and Census of Agriculture statistics. In California alone between 2002 and 2015 the state lost 87,219 total field and crop workers. This loss shrinks the workforce by close to 40%.

Not every region decreased. Three areas saw modest to large increases. The Northern Plains states of KS, NE, ND, and SD saw a modest increase of 1.5% workers. Oregon and Washington saw the greatest increase of 19.4% with the only large gain and the states of ID, MT, and WY saw a small gain of 2.8%. All other areas showed a decrease in annual hours worked by field and crop workers with a national average of -22.4%.

Table 2: The Magnitude of the Decline in Employment of Full-Time Equivalent Field and Crop Workers Nationally and by Region

Region	States	Change in Number of Field/Crop Workers Employed 2002-2014		Percent Change
		Farm Labor Survey	Census of Agriculture	
California	CA	-87,219	-85,301	-39.4%
Mountain II	CO, NV, UT	-4,244	-7,029	-36.7%
Cornbelt I	IL, IN, OH	-9,043	-14,235	-31.7%
Southeast	AL, GA, SC	-6,956	-8,667	-26.9%
Appalachian II	KY, TN, WV	-4,777	-6,170	-25.4%
Cornbelt II	IA, MO	-3,619	-6,100	-24.5%
Northeast II	DE, MD, NJ, PA	-5,716	-7,243	-19.5%
Florida	FL	-8,504	-9,196	-18.5%
Northeast I	CT, ME, MA, NH, NY, RI, VT	-5,027	-5,926	-17.9%
Southern Plains	OK, TX	-5,669	-7,133	-17.6%
Delta	AR, LA, MS	-3,950	-4,803	-17.0%
Lake	MI, MN, WI	-4,434	-7,412	-14.9%
Mountain III	AZ, NM	-1,853	-2,860	-14.0%
Appalachian I	NC, VA	-3,798	-4,431	-13.4%
Mountain I	ID, MT, WY	233	309	2.1%
Northern Plains	KS, NE, ND, SD	1,129	2,000	6.3%
Pacific	OR, WA	7,595	9,838	12.7%
Overall	-	-145,851	-164,361	-21.8%

Source: Farm Labor Survey and U.S. Census of Agriculture

Table 2, also from the report from a Partnership for an American Economy (pg. 11), clearly shows the change in numbers of workers by both surveys between 2002 and 2014.

How do the Decreases in Available Farmworkers Affect Farmers’ Payroll Costs?

²¹ This table is also from *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms* page 10

“One consequence of the reduced supply of available farm labor is that it has become much more expensive for farms to hire seasonal farmworkers, a development that has placed a strain on many U.S. farms. Studies have shown that foreign-born farmworkers are much more likely to hold seasonal jobs than U.S.-born field and crop workers, who make up a small share of the industry. It should be little surprise then that in recent years—as immigration has slowed—wages for seasonal positions have increased. What is surprising, however, is by how much such wages have grown. Using Census of Agriculture data, we estimate that the average payroll cost per seasonal employee increased by 89 percent between 2002 and 2012 while the average cost per full-year employee increased by 33 percent in nominal, non-inflation adjusted, terms. This has meant that seasonal workers have increasingly taken up a larger and larger share of total farm payroll costs. In 2012, 42 percent of growers’ payroll costs were being used to pay for seasonal labor, compared to just 36 percent in 2002.

It is worth noting that some of the wage increase that occurred between 2002 and 2012 is likely due to longer duration seasonal jobs. Using U.S. Census of Agriculture data, we estimate that in 2002 the average seasonal job lasted four or five weeks, compared to the six-week average duration in 2012. The addition of one or two weeks to the average seasonal worker’s schedule, however, cannot alone explain the full wage increase that has occurred in recent years. Offering jobs with a longer duration may also be a sign that farmers are trying to better compete for a limited number of workers, who can be more selective about the jobs they choose.

To understand the different dynamics at play in the farm sector, it is useful to look at how the real, inflation-adjusted, wages of field and crop workers changed compared to the real wages of other less-skilled jobs during the 2002 to 2014 period. Figure 2 shows that between 2002 and 2014 the average hourly wage of field and crop workers increased by 7.9 percent. While that figure might sound small on the surface, it is notable how much it differs from the eight other occupations

considered.”²²

Figure 2: Hourly Wages of Field and Crop Workers Have Risen Faster than Wages for Other Less-Skilled Positions

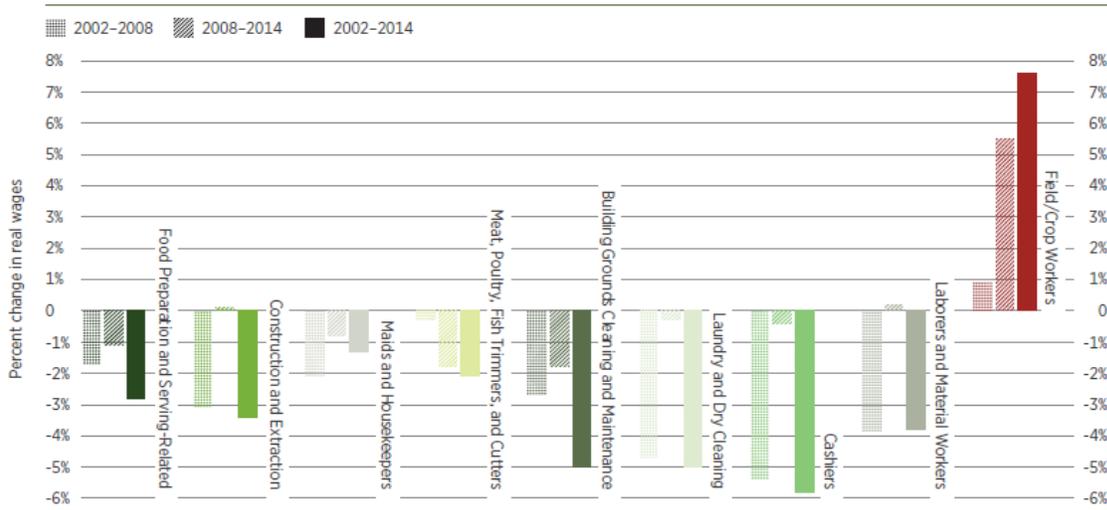
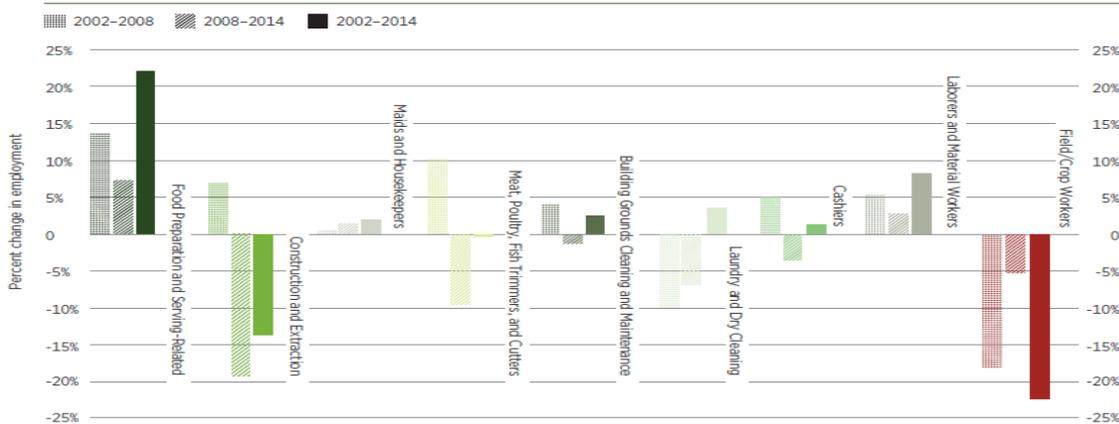


Figure 3: Employment of Field and Crop Workers Has Declined More than Other Less-Skilled Positions



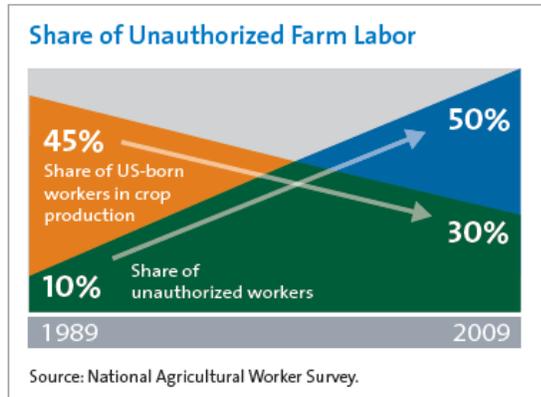
Source: U.S. Farm Labor Survey and Bureau of Labor Statistics, Occupational Employment Statistics

With limited workers available it has made it more competitive for farmers to have the workers they need. “One sign of how acute the situation has been in recent years for growers is that farmers have raised the wages of field and crop workers despite a variety of outside pressures that have made it difficult for them to do so. Between the 1998 and 2012, the amount of fresh fruits and vegetables imported into the United States grew by 94.6 percent. The amount of fresh fruits alone grew by 58.1 percent. That surge in imports—and the downward pressure they placed on prices—hindered the ability of farmers to raise the cost of their goods. From 1998 to 2012, for instance, the price of fresh fruits in the country grew by 39.0 percent— almost 2 percentage points slower than inflation. The price of fresh vegetables grew by 41.5 percent. Had prices grown more rapidly, it

²² Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Web. 16 Aug. 2016.

would have been easier for farmers to raise wages for their workers; as it is, they had to do so despite it being potentially harmful to the bottom line.”²³

Effects of Changes in Rates of Immigration

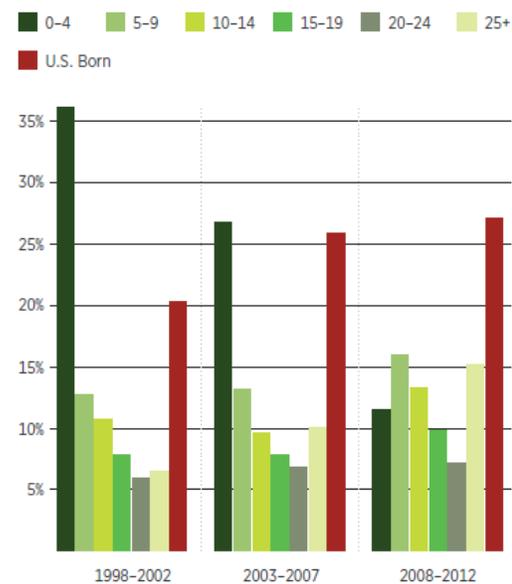


One reason why farmers today struggle to fill field and crop laborer jobs has to do with a simple reality: In recent years, fewer young immigrants have come to the United States and entered into farm work. Some of this likely has to do with a slowdown in the number of undocumented immigrants attempting to enter the United States in the aftermath of the Great Recession. In the years since 2008, the number of Mexicans apprehended trying to cross the border has hit historic lows, an indicator that immigration is slowing. While the Border Patrol apprehended 1.6 million such immigrants in 2000, the figure hit just 229,000 in

2014.²⁴

“The other notable trend in Figure 4 is the increase in the share of field and crop workers who are foreign-born individuals who have lived in the United States for long time periods. During the 1998–2002 period, only 6.5 percent of field and crop workers were immigrants who had arrived in the United States at least 25 years ago. By 2008–2012, more than 15.2 percent of field and crop workers fell into that category, or almost one in six of them. The decline in recent years of immigrant field and crop workers was partially offset by the increase in employment among foreign-born workers who had been in the United States for at least 25 years. However, for each additional foreign-born field and crop worker who had been in the United States for at least 25 years there were 5.3 fewer workers who recently arrived from a foreign country—showing that the decline in immigration was far greater than more experienced workers could effectively compensate for.

Figure 4: U.S. Field and Crop Workers by Foreign Born Status and Length of Time in United States, 1998–2012



²³ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Web. 16 Aug. 2016.

²⁴ Krogstad, Jens M. and Passel, Jeffrey S. 2014. “U.S. Border Apprehensions of Mexicans Fall to Historic Lows,” Pew Research Center, December 30.

In Table 3 we bring together some of the figures described above to produce hard estimates of how the field and crop worker population has declined in recent years among immigrants in the United States for various time periods. These figures show that almost *all* of the decline in field and crop workers in the United States can be explained by the lack of recent immigrant arrivals. Specifically, from 2002 to 2014, the number of foreign-born full-time equivalent field and crop workers who had been in the United States for less than five years declined by roughly 170,000 to 190,000 people. At the same time, the number of foreign-born field and crop workers who arrived in America between five and 25 years ago declined modestly, while the number of foreign-born field and crop workers in the United States for longer than 25 years increased by roughly 35,000 people, slightly offsetting the decline in other immigrant categories.

Table 3: All of the Decline in Employment of Field and Crop Workers has Been due to an Immigration Slowdown

Years In U.S.	Change in Full-Time Equivalent, Foreign-Born Field/Crop Workers, 2002-2014	
	Farm Labor Survey	Census
0 to 4	-169,123	-190,586
5 to 9	-3,145	-3,544
10 to 14	-3,372	-3,800
15 to 19	-1,875	-2,112
20 to 24	-2,667	-3,005
25+	31,635	35,650
U.S. Born	2,695	3,037
Total Change	-145,851	-164,361
Total Change Foreign-Born	-148,546	-167,398

The slowdown in the number of new immigrant workers has had an impact on farms all across the country. Immigrant workers are the backbone of the hired farm labor force in the United States, filling a labor shortage estimated at 80,000 people or more nationwide in the fresh produce sector alone.²⁵

Table 4 shows that the trend towards fewer recent arrivals of foreign-born workers is apparent in all six of the geographic regions included in the NAWS. (It is worth noting here that the NAWS divides the country into only six regions, whereas the FLS we used earlier to estimate the size of the decline by region divides the country into 18 areas, making their figures not directly comparable.)²⁶

²⁵ Stephen Bronars, *No Longer Home Grown*, Partnership for a New American Economy and the Agricultural Coalition for Immigration Reform, April 2014, <http://www.renewoureconomy.org/wp-content/uploads/2014/03/no-longer-home-grown.pdf>.

²⁶ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Web. 16 Aug. 2016.

Table 4: Distribution of Foreign-Born Field and Crop Workers by Length of Time in the United States by Region, 1998–2012

	Foreign-Born 0 to 4 years In the U.S.	Foreign-Born 5 to 9 years In the U.S.	Foreign-Born 10 to 14 Years In the U.S.	Foreign-Born 15 to 19 Years In the U.S.	Foreign-Born 20 to 24 Years In the U.S.	Foreign-Born 25+ Years In the U.S.	U.S.- Born
East							
1998–2002	39.41	13.29	8.16	3.82	2.18	2.32	30.83
2003–2007	26.07	11.94	6.88	4.4	4.35	3.96	42.39
2008–2012	13.7	15.54	8.8	6.83	4.43	10.74	39.96
Southeast							
1998–2002	45.56	10.72	8.01	5.11	3.02	1.66	25.91
2003–2007	26.95	13.79	8.08	6.97	4.48	4.39	35.33
2008–2012	13.66	16.22	14.66	10.69	4.98	8.38	31.41
Midwest							
1998–2002	22.01	8.49	8.73	5.89	5.84	5.47	43.57
2003–2007	13.96	9.07	5.81	4.84	3.51	7.55	55.26
2008–2012	5.95	10.4	11.64	6.54	3.15	6.38	55.95
Southwest							
1998–2002	24.74	8.27	14.07	11.16	7.33	12.33	22.09
2003–2007	17.4	8.49	6.12	8.49	11.6	17.36	30.55
2008–2012	6.42	9.35	9.38	8.34	9.55	22.32	34.62
Northwest							
1998–2002	33.69	18.27	14.39	6.82	7.07	6.89	12.87
2003–2007	18.92	18.08	13.91	11.03	9.07	12.72	16.27
2008–2012	7.46	17.28	14.51	13.72	9.31	18.09	19.64
California							
1998–2002	41.32	14.51	11.96	11.26	8.19	9.5	3.26
2003–2007	38.33	14.97	12.36	9.78	8.48	12.98	3.09
2008–2012	16.49	20.45	16.01	11.13	10.13	22.13	3.67

“According to the NAWS, the largest relative declines in the share of recent arrivals occurred in the Northwest and the Southeast regions. The largest relative increase in foreign-born workers who arrived in the United States at least 25 years ago occurred in the Southeast and the East.

While the trend towards fewer recent immigrants might seem like a positive development for U.S. farms, particularly if it meant that employers would have access to more experienced and skilled workers, the change has actually translated into significant staffing challenges and shortages, particularly for entry-level positions. The length of time that a foreign-born worker has lived in the United States is highly correlated with the length of time the individual has been working in U.S. agriculture. Inexperienced field and crop workers, a group largely comprised of recent immigrants, tend to work on certain entry-level tasks. Table 5 shows that harvest work is the most common task performed by foreign-born workers who have been in the United States for less than five years, followed by pre-harvest tasks. (Pre-harvest work includes hoeing, thinning, and transplanting crops, while harvest tasks are typically the hand picking of crops.) With fewer new immigrants arriving, these are the positions farmers often have the most trouble filling.

More experienced workers, on the other hand, tend to work in semi-skilled tasks, which include more technical jobs such as pruning and irrigating. Semi-skilled work is also more likely to involve some farm equipment. The other type of work represented in Table 5 includes post-harvest tasks,

which can include the sorting and grading of crops, and even packing of the crops if it occurs in the field.

The recent trends in the agricultural workforce have also led to a sharp decrease in the number of migrant farmworkers. Recent arrivals are more than twice as likely as those who have been in the United States 25 years or more to work as migrant farmworkers, or workers who “follow the crop” throughout the year. Figure 6 shows that almost half of recent immigrant field and crop workers are migrant workers. The definition of a migrant farmworker in the NAWS data is someone who works on a farm that is at least 75 miles from their residence. Only about a quarter of foreign-born workers who have been in the United States for 25 years or more work as migrant laborers. This is likely because foreign-born field and crop workers who are long-term residents of the United States are older and more likely to be assimilated into their communities. However, it does not match the reality of the U.S. farming sector, where many jobs include short harvests in relatively remote parts of the country.

Chalmers Carr, the owner of Titan Farms, the East Coast’s largest peach growing operation, says that in recent years, he’s seen the supply of migrant farmworkers moving north through his area start to dry up. “It used to be that you’d see guys who’d finished the citrus season in Florida moving North as far as New Hampshire and New York to pick apples and blueberries,” says Carr, whose farm is based in Ridge Spring, South Carolina, “You can’t really count on that anymore.”²⁷

Increasing Need for Hired Labor, Even as Available Workers Decrease

In the 2007 USDA survey for special crops, about one-fifth of all Midwest specialty crop farms employed hired labor, primarily for picking and packaging fresh produce on a seasonal basis, a figure consistent with the national average. Yet the average number of workers per farm was well below the national average in every Midwest state but Michigan. In August 2013 a large Ohio tomato grower (Charles Jones Produce, LLC) closed its operations because the owner could not find enough workers to harvest his crop.²⁸

Midwestern row crop production has unique labor needs. The region produces mostly grains and oilseed crops, and most such farms are highly mechanized in their operations. However, major companies such as DuPont-Pioneer and Monsanto, which provide about 60 percent of seed for US corn producers, raise much of their seed in the Midwest. Production of seed corn is somewhat different from field corn. Because of the need to control fertilization, fields with seed corn require manual detassling of the corn stalk during the growing season. These crews, once primarily filled by local high school students, are increasingly made up of migrant workers.²⁹

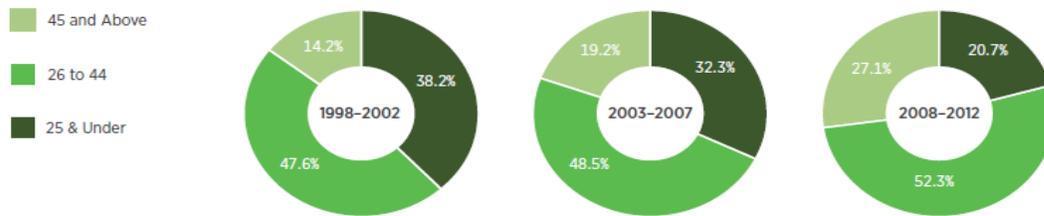
²⁷ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Web. 16 Aug. 2016.

²⁸ Amy Antiepics, “Labor and Law,” *Produce Grower*, August 9, 2013, <http://www.producemag.com/pg0813-editor-labor-law.aspx>.

²⁹ Mercier, Stephanie. *Employing Agriculture: How the Midwest Farm and Food Sector Relies on Immigrant Labor*. The Chicago Council on Global Affairs, Web 8 August. 2016.

Table Source: ³⁰

Figure 5: Age Distribution of Foreign-Born Field and Crop Workers, 1998–2012



Livestock production includes cattle, poultry, and hogs, among other animals. Increasingly, both family-owned farms and larger farms (those with annual receipts of \$1 million or more) rely on hired labor, much of it from immigrant workers. In 2012, hired labor expenses accounted for 12.3 percent of total cash expenses for the largest dairy farms. On farms with receipts between \$250,000 and \$500,000, hired labor accounted for 7.1 percent of expenses,³¹ a number that will continue to grow as younger generations of would-be family farmworkers opt for employment in other industries.

Animal care is very labor intensive. While many in the Midwest dairy industry point to a standard of at least one worker to care for 40 cows, that ratio results in long hours for workers, more than a 40-hour week. Other reports suggest a higher ratio of workers to animals. A 2009 survey of the US dairy sector found that dairy farms with at least 50 milking cows employed on average six hired workers on their operations, with just under half of farms reporting that they employed immigrant labor.³² While large-scale farms may be able to replace labor with machines and automation—an Indiana-based dairy farm with 36,000 cows operates at a ratio of approximately 150 to 170 cows per worker—such infrastructure is often cost-prohibitive for small- and medium-sized farms. Between 2006 and 2010 hired labor costs account for up to one-sixth of the total variable expenses for livestock operations, ranging from 16 percent for poultry farms to 8 percent for cattle farms.³³

Data from the 2010 Census indicate that at least one-third of US meatpacking jobs are held by immigrants.³⁴ Research indicates that most of those immigrant workers are from Latin America,

³⁰ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Page 19 Web. 16 Aug. 2016.

³¹ Donald Stull and Michael Broadway, *Slaughterhouse Blues: The Meat and Poultry Industry in North America* (Belmont, CA: Wadsworth, Cengage Learning, 2012).

³² National Milk Producers Federation, “The Economic Impacts of Immigration on U.S. Dairy Farms,” June 2009.

³³ Stephen Zahniser et al., *The Potential Impact of Changes in Immigration Policy on U.S. Agriculture and the Market for Hired Farm Labor*, U.S. Department of Agriculture, May 2012, http://www.ers.usda.gov/media/619408/err135_1_.pdf.

³⁴ Georganne Artz, “Immigration and Meatpacking in the Midwest,” *Choices* 27 (2), 2012. The actual figure is probably higher, as Census data typically under-report undocumented workers.

primarily Mexico.³⁵ Annual labor turnover rates in the meatpacking industry have been estimated to be as high as 80 percent.³⁶

The sector is strong in the Midwest, with US companies such as Cargill and ConAgra headquartered in Minnesota and Nebraska, respectively. Meatpacking facilities are increasingly located in rural areas with small local labor pools, thus needing external recruitment to fill the shifts. Line workers at these facilities handle intake of live animals, slaughter the animals with a captive bolt stun gun, move the carcass onto the facility floor, and man “disassembly lines” to butcher and box the meat and poultry cuts prized by American consumers. Other workers are hired on a contract basis to clean the facility.³⁷

Table 5: Fraction of Foreign-Born Field and Crop Workers Performing Various Farming Tasks, 1998–2012

1998–2002				
Years In U.S.	Pre-Harvest	Harvest	Post-Harvest	Semi-Skilled
0 to 4	26.7%	45.1%	9.9%	18.4%
5 to 9	19.9%	38.3%	12.8%	29.1%
10 to 14	19.5%	36.6%	12.9%	31.0%
15 to 19	19.6%	34.9%	11.1%	34.4%
20 to 24	17.8%	33.4%	8.9%	39.9%
25+	19.1%	41.0%	4.7%	35.2%

2003–2007				
Years In U.S.	Pre-Harvest	Harvest	Post-Harvest	Semi-Skilled
0 to 4	28.6%	43.6%	15.0%	12.8%
5 to 9	21.0%	40.3%	18.3%	20.4%
10 to 14	22.1%	34.7%	20.5%	22.6%
15 to 19	22.5%	36.0%	18.8%	22.7%
20 to 24	19.1%	34.6%	13.9%	32.4%
25+	21.4%	30.5%	13.9%	34.2%

2008–2012				
Years In U.S.	Pre-Harvest	Harvest	Post-Harvest	Semi-Skilled
0 to 4	35.8%	28.8%	16.3%	19.1%
5 to 9	37.8%	24.3%	17.9%	20.0%
10 to 14	32.0%	25.5%	17.7%	24.9%
15 to 19	30.9%	23.9%	22.7%	22.5%
20 to 24	30.0%	19.8%	19.0%	31.2%
25+	24.5%	23.0%	16.6%	35.9%

³⁵ William Kandel, “Meat-Processing Firms Attract Hispanic Workers to Rural America,” *Amber Waves*, USDA Economic Research Service, June 1, 2006, <http://www.ers.usda.gov/amber-waves/2006-june/meatprocessingfirms-attract-hispanic-workers-to-ruralamerica.aspx#.VIHwFCPF9u4>.

³⁶ Eric Schlosser, *Fast Food Nation*, (New York: Mariner Books, 2012).

³⁷ Donald Stull and Michael Broadway, *Slaughterhouse Blues: The Meat and Poultry Industry in North America* (Belmont, CA: Wadsworth, Cengage Learning, 2012).

Table 5 Source ³⁸**Can US-born workers fill the need for agricultural labor?**

“Given that many outside agriculture often argue that unemployed, U.S.-born workers should be filling American farm jobs, it is worth examining this issue by presenting information about the role U.S.-born workers played filling field and crop positions during the period examined in this study. According to the NAWS data, in the 1998-2002 period, about 20 percent of field and crop workers were born in the United States. By 2008-2012, that figure had risen to roughly 27 percent. As discussed in Section III, this occurred during a period when overall employment of field and crop workers dropped by more than a fifth. Using the distribution of field and crop workers by foreign-born status from the NAWS, we estimate that the increase in employment of U.S.-born field and crop workers offset only 2.7 percent of the decline in field and crop workers that occurred between 2002 and 2014. Our findings echo what growers often say anecdotally—that many native-born workers are unwilling or unable to do farm jobs.

In California, the state that saw the greatest decline in full-time equivalent field and crop workers, U.S.-born farm laborers played a very different role. In the 1998–2002 period, U.S.-born workers made up 3.26 percent of California’s field and crop workforce. By the 2008–2012 period, that figure had risen only marginally, growing to 3.67 percent. That growth in the *share* of field and crop workers born in the United States, however, only occurred because of the dramatic decline in the number of foreign-born workers coming into California in the 2002 to 2014 period. In reality, the total number of U.S.-born field and crop workers in California from 2002 to 2014 declined by 31.8 percent. That means that in the state where they were arguably needed most, native-born workers played no role offsetting the labor decline—in fact, they only exacerbated it.

The U.S.-born farmworkers who have entered agriculture in recent years are also not likely to have filled the labor-intensive field and crop jobs that are the focus of this study. U.S.- born field and crop workers tend to gravitate towards the same types of semi-skilled tasks that often attract the most experienced foreign-born workers. Native-born farmworkers are also unlikely to fill migrant-farming jobs, seasonal jobs, and the “follow the crop” jobs that have typically been filled by recent foreign-born arrivals. As Figure 6 demonstrates, just 12 percent of all the field and crop workers employed in migrant-farming jobs in 2008 to 2012 were born in America.

Many of the U.S. workers, otherwise available for employment, may not possess the necessary stamina to perform physically taxing farm work or the specialized skills that develop from years of working in the fields. The seasonal and temporary nature of farm labor positions also makes them unappealing to U.S.-born workers. In 2010, when unemployment remained high, California farmers posted ads for more than 1,160 farm worker positions. Despite that, 233 legal permanent residents or U.S. citizens responded, and few lasted the season. Such recruitment problems are not inherently

³⁸ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Page 18 Web. 16 Aug. 2016.

a wage issue either: The average wage paid to farm workers was \$11.10 in 2013, well above the federal minimum wage of \$7.25.³⁹

Effects of an Aging Workforce

Another interesting consequence of the recent slowdown in the arrival of immigrant farmworkers: The data shows that today’s field and crop workers are significantly aging. Figure 5 shows that 38.2 percent of foreign-born workers in 1998–2002 were age 25 and under, and only 14.2 percent were older than age 45. By 2008–2012 the fraction of foreign-born field and crop workers age 25 and under had dropped to 20.7 percent and the fraction of foreign-born workers age 45 and above had nearly doubled to 27.1 percent. The aging of the workforce is a worry to many U.S. farm owners: Unlike other industries, where older workers may be capable of producing more due to their increased experience, studies have consistently found that farm workers pick and process less as they age, likely due to the physically strenuous nature of the work. One study that the productivity of farm workers overall peaks at around age 35 or 45, and declines steeply afterwards. The aging of field and crop workers also poses the threat that in the coming years, retirement may worsen the labor shortage described in this report still further.

Bruce Frasier, a farmer who grows onion plants and cantaloupes on a 2,200-acre farm in southern Texas, knows full well the implications of having an older workforce. Frasier says it has been three years since he’s had a new person join the 100-person team of laborers that harvests his fields during the high season. Without new young workers joining the ranks, Frasier says his workforce has aged dramatically. Today, he estimates that 65 percent of the workers on his farm are older than age 50, and one in five is 60 plus. “We love our workers and have tons of respect for them,” Frasier says, “but as they get older, their capacity starts to diminish.” Frasier says some of his older workers put in just two or three hours before heading home to rest—and that can make the harvest difficult. “When the onions are ripe in our region,” he says, “they can’t really wait.”

Frasier says the lack of new workers has created some real labor challenges for his operation and the many onion farms that surround him. “Last year, everyone who was employable in our area was basically employed,” Frasier says. That left the onion farms in his area fiercely competing for a small group of experienced and available farmworkers. Frasier says his farm tried raising wages partway through the season to compete with nearby oil fields and other onion operations. In the end though

even that wasn’t enough. Frasier’s farm, Dixondale Farms, still lost 25 to 30 percent of its onion plants. “It’s hard to describe the feeling until you experience it,”

Table 6: Change in Acres Planted and Output for Various U.S. Crops, 1992–2012

Crop	Change in Acreage		Change in Output		Change in Output/Acre	
	1992–2002	2002–2012	1992–2002	2002–2012	1992–2002	2002–2012
Fruit and Melons	5.5%	-14.6%	12.5%	-12.4%	6.6%	2.5%
Tree Nuts	30.1%	48.7%	67.3%	82.1%	28.5%	22.5%
Vegetables	10.1%	-13.8%	19.0%	-5.6%	8.1%	9.6%
Total	4.3%	-5.0%	22.4%	3.4%	10.2%	7.4%

Source: USDA Fruit and Tree Nut Yearbook and USDA Vegetable and Melon Yearbook.
 Note: Both the output change and the output per acre change are based on weighted averages.

39

U.S. Department of Agriculture, National Agricultural Statistics Service, Farm Labor Survey (2013), Available here: <http://www.usda.gov/nass/PUBS/TODAYRPT/fmla1213.pdf>

Frasier says, “but it felt like a state of depression.” Despite strong demand this year, he says he is turning down about 25 percent of the orders he receives. “We should be expanding,” he says, “but we have to be realistic in this labor market.”⁴⁰

“Analyzing a variety of federal data sources, this study demonstrates the real and pressing labor problem that confronts U.S. growers of fresh produce. Between 2002 and 2014, the supply of field and crop workers in the United States available to farmers dropped by more than a fifth. This has placed extreme pressure on farms from one end of the country to another. In California, growers already worried about drought or other challenges saw their supply of labor drop by almost 40 percent. In Florida and the Southeastern parts of the United States, roughly 17,800 full-time equivalent field and crop workers essentially vanished from the workforce—a painful blow for almost any industry.

Between 2002 and 2014, the number of very recent immigrant field and crop workers in the United States, or those who had arrived within the last five years, dropped by as much as 190,000 people. Although older farmworkers and a small number of U.S.-born workers stepped in to slightly offset the decline, growers in the United States were still left short as many as 167,000 field and crop workers. This left huge holes in entry-level positions such as hand harvesting and hoeing, and also made it increasingly difficult for farmers to find migrant farmworkers.”⁴¹

Effects of the Labor Shortage: Keeping Up with Demand

In recent years, imports have made up a larger and larger share of the fresh fruits and vegetables consumed by American families.

While just 14.5 percent of the fresh fruit Americans purchased from 1998-2000 was imported, by the 2010-2012 period, 25.8 percent was. For fresh vegetables, imports as a share of total spending climbed from 17.1 to 31.2 percent during the same period. Adjusted to constant dollars, that meant the share of produce that was imported grew by 79.3 percent overall.⁴²

In America, our production of fresh produce and the demands of consumers are increasingly out-of-sync.

Between the 1998-2000 period and the 2010-2012 one, the amount of fresh produce consumed by Americans grew by 10.5 percent. During that same time frame, the amount of fresh produce being produced by U.S. growers rose by only 1.4 percent. For fresh vegetables, the gap was even more significant: While Americans increased their consumption of fresh vegetables by 9.1 percent during that period, farm production of fresh vegetables actually declined—falling 3.5 percent overall for major fresh vegetables.⁴³

⁴⁰ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Page 18 Web. 16 Aug. 2016.

⁴¹ Bronars, Stephen. *A Vanishing Breed: How The Decline in U.S. Farm Laborers Over the Last Decade Has Hurt the U.S. Economy and Slowed Production On American Farms*. Partnership for a New American Economy Action Fund, page 13, 2016. Page 18 Web. 16 Aug. 2016.

⁴² Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2012. Web. 16 Aug. 2016.

⁴³ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

The inability of U.S. growers to keep pace with rising consumer demand at home has represented a major lost opportunity for many rural American communities that are dependent on the agricultural industry.

Had U.S. fresh fruit and vegetable growers been able to maintain the domestic market share they held from 1998-2000, their communities would have enjoyed a substantial economic boost, resulting in an estimated \$4.9 billion in additional farming income and 89,300 more jobs in 2012 alone. The increase in production necessary to stave off a growing reliance on imports would also have raised U.S. Gross Domestic Product by almost \$12.4 billion that year.⁴⁴

For several key crops, the share of fresh fruits and vegetables grown in the United States is dropping particularly rapidly.

While only about one in three tomatoes consumed in America were imported in the 1998-2000 period, by 2010-2012 more than half were. During the same period, the share of avocados consumed by Americans that were imported jumped from 28.6 to 68.7 percent. For California and Florida, the primary locations where those crops are grown, this represented a major loss in potential farm revenues and jobs: Maintaining the market share levels those crops held from 1998-2000 would have resulted in more than \$1.4 billion more in annual farm revenues nationally and 26,300 more jobs by 2012.⁴⁵

“Fred Leitz, a fourth generation farmer in Sodus, Michigan, says his plan for this year’s harvest isn’t what he expected it would be several years ago. As recently as 2013, Leitz had devoted about 650 acres of his 1,400-acre farm to the prize-winning tomatoes, cucumbers, apples, and cantaloupe for which his farm is known. And for many years, that part of his operation was an expanding business. “Americans had begun eating a lot healthier,” Leitz says, “and the market for our products was incredibly strong.”

But in 2012, Leitz says his farm began experiencing its first challenges finding farm laborers. That year he had only 180 of the 240 farm laborers he would typically need for to pick his fresh fruits and vegetables—a job that, due to the delicate nature of the produce, he still does almost entirely by hand. In 2013, the labor shortage only worsened, and Leitz says his efforts to recruit local unemployed workers didn’t produce a worker capable of lasting the season. “We had the most beautiful tomatoes that season,” Leitz says, “but we just didn’t have the hands to pick them.” **In the end, Leitz says 35 percent of what he planted in 2013 was left in the field, the first time he’d lost a substantial amount of crop due to anything but a natural disaster.**

After surviving that season, Leitz says he’s adjusting his planting strategy for 2014. Despite the continued high demand for fresh fruits and vegetables, this year Leitz will cut the number of acres he devotes to such crops by 20 percent. He says uncertainty about whether enough farm laborers will be available is the key factor driving his decision. He’s also driven by Congress’s continued

⁴⁴ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁴⁵ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

inaction on immigration reform, and the country’s lack of a workable agricultural visa program that would allow him to bring in the workers he so desperately needs. “I need a tool in my toolbox so I can actually make decisions about the future,” Leitz says, “So far, Congress hasn’t been able to provide it to me.”

Labor Shortage: Fewer Imported Workers Means More Imported Food

Across the country America’s fresh produce growers are finding themselves in the same situation as Leitz. In the period between 1998-2000 and 2010-2012, the amount of fresh fruits and vegetables eaten by U.S. consumers has grown strongly, increasing by more than 10 percent. During roughly the same period, however, U.S. growers have faced a painful labor shortage, estimated to be at least 80,000 people nationwide. The result has meant a major squeeze on U.S. fresh produce producers, and one that has prevented many farms being able to expand—or even maintain—their operations.”⁴⁶

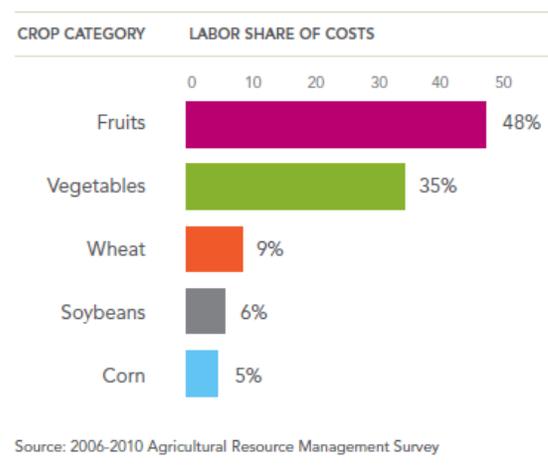
Florida Strawberries

Until the late 1990s, the U.S. dominated the world market for fresh strawberries. Back then, American strawberries were king, and the only strawberries produced in the country in large quantities in the winter originated in Florida—a place that faced little competition in the domestic market during cold-weather months.

In recent years, however, that has begun to change, as more and more imported strawberries have arrived in the U.S. from Mexico. Between the 2003-2005 period and 2010-2012, the amount of fresh strawberries imported from Mexico grew by 317.8 percent. At the same time, Florida strawberry producers increased their output by 84.4 percent. That created a situation where Mexican imports rapidly caught up with the production growers could manage in Florida: In 1998-2000, Florida produced almost \$160 million worth of fresh strawberries, while Mexican imports totaled \$57.4 million. By 2010- 2012, the number were virtually equal, both hovering around \$300 million.

The inability of Florida growers to hold onto their domestic market was closely tied to labor challenges. Between 2004-2005 and 2012-2013, farm worker employment during the months when strawberries are picked declined 13.3 percent. Such pressures strained farmers: One 2012 survey found that 30 percent of berry growers in the state were planning to downsize. Had growers not faced labor issues, we estimate strawberry production in the state could have been \$41 million higher, resulting

Table 1:
Share of Variable Costs due to Labor for Selected Crops



⁴⁶ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

in \$63.6 million in non-farm economic growth in 2012.⁴⁷

California Garlic

In the last two decades, American garlic producers have faced a new competitor: less-expensive imported garlic, originating in China. Beginning in the early 1990s, China's exports of garlic increased so much that several countries, including America, instituted antidumping duties against Chinese garlic. Even with such import protections, U.S. growers saw their market share shrivel. While only 31 percent of the garlic consumed by Americans was imported in 1998- 2000, by the 2010-2012 period, well over half was—or 56.4 percent.

California, the state where the majority of American garlic is produced, felt this shift in the garlic industry particularly acutely. From 1998-2000, California produced enough garlic to supply American consumers with as much as 86.6 percent of the garlic they ate. By 2010-2012, that figure had dropped to 58.9 percent. During a 12-year period when American consumption of garlic fell by 4 percent, growers in the state— facing labor shortages and cheaper competition— cut the number of acres they devoted to garlic almost in half, dropping from 41,000 acres in 1999 to just 25,000 acres by 2012. Meanwhile, the safety of food imported by China has become an issue of some public concern: In the last two years, the FDA has stopped some Chinese food products from entering America, including shipments of organic berries and canned mushrooms tainted with high levels of pesticides.⁴⁸

Washington Asparagus

Few U.S. farmers know as much about the fight to hold onto domestic market share as America's asparagus growers. In the 1998-2000 period, 57.0 percent of the fresh asparagus consumed in America was imported from abroad. By 2010- 2012, that figure had jumped to 89.7 percent, leading many growers to wonder if American-grown asparagus was a soon-to-be-extinct business. Washington State is one place where growers have that worry. In 1998-2000, Washington growers produced as much as 27.7 percent of all asparagus eaten in the United States. By 2010- 2012, that figure had shrunk to just 5.1 percent. Many growers say the decline began much earlier. In 1991 the U.S. began allowing Peru to import asparagus tariff free. Shortly afterwards, Del Monte, Chiquita and Green Giant all closed asparagus processing plants they had in the state, relocating south of the border. Many farmers who supplied them plowed their fields under.⁴⁹

Asparagus growers left in the state say that such industry dynamics led many experienced asparagus laborers to move elsewhere or return to their home countries. That causes problems for growers because few U.S- born workers are interested in asparagus farming—work that involves shuffling along, hunched over, for as long as 10 hours a day. In 2012, 10 percent of Washington's asparagus crop was lost because there weren't enough workers to cut it. That affected industries

⁴⁷ Yvette C. Hammett, Tampa Bay Online, "Labor Shortage Forces Strawberry Farmers to Leave Fruit on Field, (Feb. 26, 2013), available here: <http://tbo.com/Labor-shortage-forces-strawberry-farmers-to-leave-fruit-on-field-B82457239Z.1>

⁴⁸ Testimony of Patty Lovera before the House Committee on Foreign Affairs Subcommittee on Europe, Eurasia, and Emerging Threats (May 8, 2013), Available here: [http:// docs.house.gov/meetings/FA/FA14/20130508/100807/ HHRG-113-FA14-Wstate-LoveraP-20130508.pdf](http://docs.house.gov/meetings/FA/FA14/20130508/100807/HHRG-113-FA14-Wstate-LoveraP-20130508.pdf)

⁴⁹ Food & Water Watch, "Crop in Crisis: Asparagus," available here: <http://www.foodandwaterwatch.org/food/ farm-bill-2012/agricultural-policy/washington-asparagus/>

like transportation dependent upon a robust crop: We estimate the \$43 million Washington has lost in asparagus production since 1998-2000 translates into an additional \$57 million in missed economic activity in non-farm sectors.

“Jim Middleton, an asparagus farmer in Pasco, Washington, is one producer who had to scale back production in recent years. After the U.S. began importing asparagus tariff-free from Peru in the 1990s, Middleton says he and many farmers cut back the amount of asparagus they were growing for the canned market as cheaper exports flooded the market. In more recent years, labor has been the key factor restricting how much total asparagus he can produce. “There just aren’t as many talented, experienced farm laborers around as there used to be,” Middleton says, “and that’s put a real strain on us.” In 2012, Middleton lacked about 15 to 20 of the 70 asparagus cutters he would typically need to bring in the harvest. Seeking out workers at local staffing agencies and unemployment offices didn’t make much of a dent in his problem. Middleton had to leave roughly 20 acres of asparagus in the ground that year— crop that would have brought in as much as \$2,000 in revenue per acre.

The unique dynamics of the asparagus plant make it particularly difficult to quickly recover from that type of season. The typical asparagus plant has a 14 or 15-year lifespan. For the first two years, it doesn’t grow usable fresh produce; after that, workers must cut it by hand every day during the harvest to ensure it produces the following year. When Middleton lost his 20 acres, many plants that would have produced asparagus for years to come were destroyed. “It’s emotional to lose that crop,” Middleton says, “but it’s also very painful financially because you invested so much to get it established and then don’t see a return on your investment.” After living through 2012, Middleton decided to cut down his risk: Of the 170 acres he typically uses for asparagus, he managed just 115 of them in 2013.⁵⁰

California Avocados

Earlier this year, Chipotle, the popular Mexican food chain, surprised many loyal fans when it mentioned in an earnings statement that if the prices of some of its raw ingredients (like avocados) went up, it might have to temporarily suspend several menu items—namely, guacamole.⁵¹ While that news alarmed Mexican food fans, it wasn’t a surprise to followers of the avocado industry. In the last two decades, avocados have become incredibly, and increasingly, popular, with U.S. consumption almost quadrupling between 1998 and 2012. That has caused prices to hit record highs.

One factor driving up prices, of course, is the supply of avocados produced by U.S. farmers. California, the state that grows the bulk of U.S. avocados, has not been able to expand its production of avocados anywhere near fast enough to respond to growing U.S. demand. In recent years’ production in the state has actually declined: Between the 2003-2005 period and the 2010-2012 one, the number of avocados California produced fell by 5.1 percent.

⁵⁰ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁵¹ Chipotle Investor Relations, 10-K SEC Filing (Feb. 5, 2014), available here: <http://ir.chipotle.com/phoenix.zhtml?c=194775&p=irol-SECText&TEXT=aHR0cDovL2FwaS50ZW5rd2I6YXJkLmNvbS9maWxpYm9maWwzPTkzNjIzNTImRFRNFUT0wJINFUT0wJINRRREVQz1TRUNUSU9OX0VOVEISRzZdWJzaWQ9NTc%3d>

Drought has played a big role slowing California production some years, but labor has been a part of the story as well. Growers say that many farm laborers legalized in the 1986 Immigration Reform and Control Act are now entering their 50s, reaching the end of their picking careers, and tougher immigration enforcement makes it hard to find new ones.⁵² While California growers stall, Mexican farms are catching up: While 4.7 percent of the avocados eaten in America were imported from Mexico in 1998- 2000, by 2010-2012, almost half were.⁵³

New York's Yogurt Boom

Thanks to a spike in yogurt consumption and production, the dairy industry in New York is booming. But with that comes an issue of its own: where to find workers. New York is now the third largest state for U.S. dairy production, trailing only dairy kings Wisconsin and California, according to United States Department of Agriculture statistics. New York is also the yogurt capital of the U.S., as the state's Department of Agriculture and Markets noted in its 2013 annual report that New York had surpassed California in overall production in 2012.

All good news for New York dairy farmers, no doubt. But that is some serious production — 3.5 billion pounds of milk and 741 million pounds of yogurt in the state in 2013, according to the USDA. That kind of production requires hands on the farm, something that has proved increasingly difficult to find for farmers of late. Kelly O'Hara is the co-owner of O'Hara Farms and Oakwood Dairy, an Aurelius farm with 1,850 cows producing 52 million gallons of milk per year. The farm has 28 employees to watch over that herd. Finding long-term employees, O'Hara said, is never easy. "It's viewed as being hard work, long hours and a dirty job," O'Hara said. "But our use of technology has changed that somewhat." Oakwood Dairy uses sensors on the cows and computers to track the animals' health. But agriculture going high tech doesn't necessarily help find the right amount of labor.

"It's increasingly difficult as our farms incorporate more technology; we need people that are able to use computers and diagnose electronic systems," O'Hara said. O'Hara Farms is certainly not alone in this struggle.

A **report by Farm Credit East in 2011** identified more than 1,700 farms in the Northeast that could be forced to close due to a shortage of labor availability. Steve Ammerman, a spokesman for the New York Farm Bureau, said the effects of the shortage can already be seen in the types of crops farmers are choosing to grow. "You'll see a transition away from fresh fruits and veggies and more to mechanized row crops," Ammerman said, referring to corn and soybeans. This shortage comes at a time when the growing demand for yogurt actually requires the labor force for dairy farms to expand. According to a **report by the Cornell University Farmworkers Program**, milk production in New York needs to increase by 15 percent within five years to meet the demand

⁵² Pat Maio, U-T San Diego, "Avocado Grower Looks to Solve Labor Shortage," (July 30, 2011), available here: <http://www.utsandiego.com/news/2011/Jul/30/region-avocado-grower-looks-to-solve-labor/>

⁵³ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

brought on by yogurt factories in the state. That will require, the report says, an additional 100,000 cows and 2,225 workers.⁵⁴

Stephen Bronars in his report *No Longer Home Grown* shares the following, “Fresh fruits and vegetables are the ideal crops through which to look at the impact of recent U.S. farm labor shortages. For many fresh fruits and vegetables, mechanized harvesting is not feasible, meaning growers are dependent upon less-skilled and semi-skilled workers to pick the crop by hand. This is far different from commodity crops like corn, soybeans, and wheat that can often be harvested by as few as one or two employees using machines, and it means that labor availability—or worries about its availability—play a much greater role in decisions fresh produce growers make about how many acres to plant the following year. Many migrants who begin their careers as farm laborers move on to other sectors of the economy or less-demanding positions after several years, meaning farmers growing particularly labor-intensive crops are often the first to feel trends like decreased border crossings or migrant labor shortages. “Our industry sometimes feels like the canary in the coal mine,” explains Alan Schreiber, executive director of the Washington Asparagus Commission, a group representing a crop that is particularly physically taxing to harvest.

USDA data provide perspective on how particularly important labor issues are for fresh fruit and vegetable growers. According to the USDA’s Agricultural Resource Management Survey, labor costs account for 48 percent of the variable production costs for fresh fruits and 35 percent of the variable costs for fresh vegetables. In contrast, such figures are in the single digits for corn, soybeans, and wheat.

The situation is most acute for delicate berries and easily bruised produce, which often are not only harvested by hand, but processed that way as well. For example, the harvesting costs for strawberries, blackberries, and cherries account for about 60% to 66% of total production costs—with labor costs being the primary harvest expense.”⁵⁵

It’s important to note that the issue preventing American growers from keeping pace with rising consumer demand is not a lack of natural resources or an inability to expand production on U.S. soil. USDA statistics show that in between the two periods examined in the study, as much as 670,000 acres of land that once supported fresh fruits and vegetables were taken out of production, a 12.8 percent decline in the number of acres used to grow such crops. That land is already known to be able to support fresh fruit and vegetable production, and could, in most cases, be used to grow those products once again. ⁵⁶

Given a less difficult labor picture and some changes in current planting restrictions, it would also be possible to transfer at least some of the roughly 240 million acres planted with wheat, corn, cotton or soybeans in 2013 into land bearing fresh fruits and vegetables. For instance, one study

⁵⁴ Deffenbaugh, Ryan. “Yogurt Boom, Labor Shortage Puts New York Dairy Industry in Middle of Immigration Debate”. *Auburn Citizen*. N.p., 2016. Web. 16 Aug. 2016.

⁵⁵ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

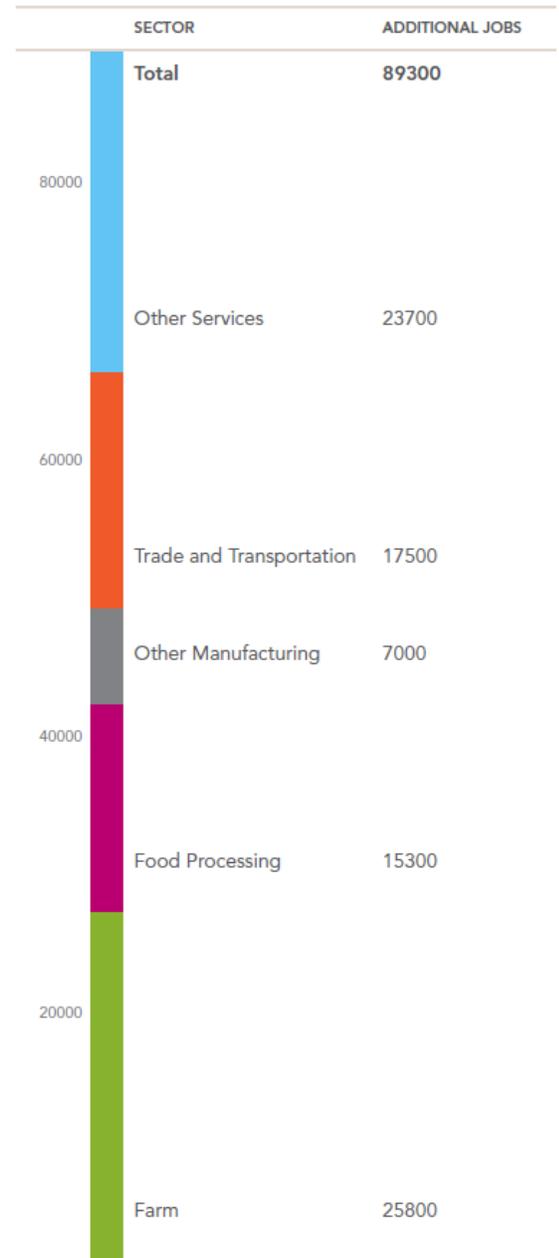
⁵⁶ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

examining the possibilities for this sort of shift in just six states in the Upper Midwest suggested that more than 270,000 acres devoted to bulk crops in those areas could be turned into fruit and vegetable bearing land to meet local produce demand.⁵⁷ Farmers able to make such a switch would already have a powerful financial incentive as well: Land bearing fresh vegetables or melons brought in an average of more than \$3,100 per acre in revenue in 2004, while the equivalent figure for land bearing food and feed grains, oilseeds, peanuts or cotton crops was \$237.⁵⁸

In the 14-year period examined by the *No Longer Home Grown* study, the amount and share of fresh produce that was imported has risen dramatically. In the 1998-2000 period, 15.7 percent of all fresh produce eaten by American consumers—as measured by spending— was imported from abroad. By the 2010- 2012 period, that figure had risen to 28.2 percent. Adjusted to constant dollars, that meant that in 12 years, the share of produce eaten by U.S. families that was imported grew by more than 79 percent. Viewed in terms of weight, the added imports flooding into places like U.S. grocery stores, homes, and cafeterias was considerable: Americans ate 6.6 billion more pounds of imported fresh fruits and vegetables in 2010-2012 than they ate from 1998-2000. That figure takes into account only the major produce items—leaving aside more niche products like pomegranates, beets, and Brussels sprouts, all of which have become more popular in recent years, likely driving the total weight of imports up further.⁵⁹ During the time period examined in the study, U.S. growers also had substantial difficulty keeping pace with rising consumer demand at home for the major fresh produce items. From the 1998-2000 period to the 2010-2012 one, the amount of major fresh fruits and vegetables consumed by Americans grew by 10.5 percent. During that same time frame, however, the amount of those fresh fruits and vegetables produced by American farms grew by just 1.4 percent. To put those figures in context, that meant that while U.S. consumers were eating almost 6.5 billion more pounds

Table 6:

Additional Jobs that would have been in the U.S. Economy by 2012 had U.S. Growers Maintained their 1998-2000 Market Share



⁵⁷ Dave Swensen, The Leopold Center for Sustainable Agriculture at Iowa State University, “Selected Measures of the Economic Values of Increased Fruit and Vegetable Production and Consumption in the Upper Midwest” (March 2010), available here: <http://www.leopold.iastate.edu/pubs-and-papers/2010-03-selected-measures#sthash.hh4oOgyt.dpuf>

⁵⁸ Informa Economics, “An Analysis of the Effect of Removing the Planting Restrictions on the Program Crop Base” (February 2007), pg 13.

⁵⁹ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

of fresh produce in 2010-2012 than they had 12 years earlier, U.S. farms increased the amount they were growing during that period by just 854 million pounds—a shortfall of 5.5 billion pounds in total. For fresh vegetables, growers had even more trouble responding to rising demand: While the amount of fresh vegetables consumed by American families rose during the period examined in our study, the amount produced on U.S. farms actually declined, falling 3.5 percent.⁶⁰

It is important to note that because of international trade dynamics, we would not expect the amount of fresh produce eaten by U.S. consumers and the amount produced on U.S. soil to move in lockstep. In the years examined, about 18 percent of the major fresh fruits and about 6 percent of the major fresh vegetables grown in the United States were ultimately exported. American families have also upped their consumption of some products included in our analysis that are fairly difficult to grow on U.S. soil. Between 1998-2000 and 2010-2012, for instance, the amount of papayas eaten by Americans doubled.

Nevertheless, the gap between what Americans were eating and what America was able to grow is indicative of how far behind American growers are falling in the race to supply U.S. kitchens. Had U.S. growers been able to produce more crops, it’s likely that more fresh fruits and vegetables could have been exported as well—lessening a rapidly growing U.S. trade deficit in fresh produce that has long troubled policymakers.⁶¹

For several key crops, the trends described above have been particularly dramatic. While 40.9 percent of the cucumbers consumed by American families were imported in 1998 -2000, 62.2 percent were by 2010-2012. Research found that the inability of U.S. growers to maintain their 1998-2000 domestic market share levels represented a major lost opportunity for the American economy. The added production needed to stave off rising imports would have created more than 89,000 additional jobs in the U.S. economy by 2012. It also would have grown

Additional Jobs that would have been in the US economy by 2012 Had US Growers Not Faced Labor Shortages



⁶⁰ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶¹ Renee Johnson, Congressional Research Service, “The U.S. Trade Situation for Fruit and Vegetable Products” (August 11, 2016). Available here: <http://www.fas.org/sgp/crs/misc/RL34468.pdf>

American GDP by almost \$12.4 billion that year and produced almost \$4.9 billion more in annual farm revenues.⁶²

Several key crops that saw particularly dramatic market share erosion in recent years played a large role in the jobs and economic growth missing from the U.S. economy by 2012. Had U.S. tomato growers been able to hold onto the share of the domestic market they had in 1998-2000, the U.S. economy would have had 15,000 more jobs and almost \$2.1 billion in additional economic growth by 2012. U.S. growers of garlic—a group concentrated in California, Nevada, Washington, Oregon and New York—have lost major ground in recent years to an influx in imported garlic originating in China. Had U.S. growers been able to continue to supply the 31.0 percent of garlic they provided in 1998-2000, the U.S. economy would have had 2,850 new jobs and \$395 million in additional GDP growth in 2012 alone.⁶³

(Table 6 & 7 Source: *No Longer Home Grown* Report, page 17&20)

Maureen Torrey, vice president of Torrey Farms in Elba, New York, says she's found it incredibly painful to scale down her farm's payroll in recent years. Torrey's 11,000-acre farm grows a variety of fresh produce including red and yellow onions, cucumbers, cabbage, and summer squash, and also produces corn and other grains for the bulk market. To plant 1,000 acres of corn—work that is done mostly by machine—Torrey says she employs two temporary workers with a payroll of \$70,000. To plant 1,000 acres of onions, in contrast, Torrey has to employ 50 year-round workers to plant, harvest, and package the crop, a group whose salaries, 401(k)s, and housing totals \$2.5 million.⁶⁴

In the last three years, Torrey has been subject to several federal immigration raids that left her short dozens of farm workers. In response, Torrey's farm shifted about 800 acres completely out of fresh vegetable production into bulk crops—slashing millions of dollars of payroll that could have circulated through the economy in upstate New York. "I'm an 11th generation farmer here, so I care an incredible amount about the success of Elba and the farms in our area," Torrey says, "But we needed immigration reform 16 years ago. With all the challenges our farm has had finding farm laborers, we just can't keep up fresh vegetable production like we once did."⁶⁵

Although many fresh produce growers like Torrey have dramatically scaled back their operations in recent years, our research found that it would not be unreasonable to assume that farmers could make up the ground they lost in recent years to importers. For U.S. vegetable growers to have kept imports constant from 1998-2000 through 2010-2012, we found they would have needed to up their production in the later period by roughly 10 percent. U.S. fruit growers would have needed to

⁶² Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶³ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶⁴ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶⁵ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

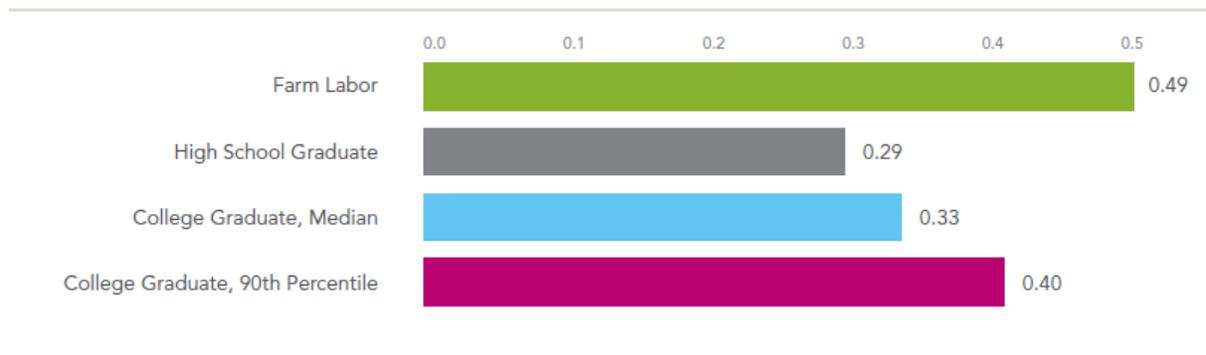
grow their output by an even smaller amount—just 6 percent.⁶⁶ For some crops, however, the ground that growers need to make up is considerably more dramatic. U.S. asparagus growers, for instance, would need to more than triple their production to reclaim the domestic market share they held from 1998-2000. Avocado growers would need to more than double their output.⁶⁷

The USDA Farm Labor Survey that shows that the number of farm workers nationally declined notably in the last few years, falling 14.8 percent from 2000 to 2013 alone. Examining wage data for farm laborers in recent years provides clear and convincing evidence that this drop in employment is indeed due to a major shortage of available labor. From 2000 to 2013, the average wage paid to farm workers in the U.S. has increased substantially faster than the median wage paid to full-time high-school graduates in the country overall. In fact, since 2000 the average wage paid to farm workers has increased at a faster rate than the salaries of college graduates at the top 10 percent of the wage distribution, a group whose skills were in particularly high demand.⁶⁸

If the 80,000-person decrease in employed farm workers was due to factors other than a labor shortage—like increased crop mechanization— we would expect wages to be traveling in the opposite direction. With fewer farm laborers actually needed for the harvest, farm wages would grow slower than the wages for unskilled and semiskilled workers overall.⁶⁹ (Source Table 8: No Longer Home Grown Study page 21)

Table 8:

Wage Growth for Workers of Selected Professions and Educational Levels, 2000-2013



Note: This chart is based on data from the Current Population Survey and the USDA's Farm Labor Survey. Due to data limitations, the farm labor figures are based on growth in the average wage, while the remainder of the figures relate to the median wage paid to each class of workers.

⁶⁶ This figure takes into account the role of exports, assuming that if U.S. growers were to increase the amount of fresh fruits and vegetables they grew domestically, their export levels would increase in turn.

⁶⁷ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶⁸ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

⁶⁹ Bronars, Stephen. *No Longer Home Grown*. How Labor Shortages Are Increasing America's Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth. Partnership for a New American Economy Action Fund, 2013. Web. 16 Aug. 2016.

Farmworkers: Facing a Hard Climb Up the Ladder

Most US farm operators are older white US-born men, while more hired farm workers are younger immigrant Hispanic men. The median age of all US workers is 41: the median age of farm operators is in the late 50s, and the median age of hired farm workers is less than 30. Farming is a multigenerational career for many farm operators but less-than-a-decade job for most hired workers.⁷⁰

There may be no other US industry in which most employers are older white US citizens and more hired workers are young, Hispanic immigrant. Many of the Hispanic immigrants are from rural Mexico, and many would like to move up the agricultural job ladder from worker to owner. However, the job pyramid in agriculture is steep, offering relatively few opportunities for those who begin as seasonal workers to move up to year-round jobs in agriculture or to become farm operators.⁷¹

Legal permanent residents were more likely to migrate than were undocumented workers during the 1999–2008 period. Apparently, stricter border enforcement during this period made undocumented workers less willing to migrate within the United States because they feared such a migration would raise the odds of being caught. Because agricultural work is physically demanding, it is difficult to remain in agriculture over one's working life. Moreover, as agricultural workers put down roots in the United States, living here with their families and amassing assets, they become less willing to migrate. The experience of seasonal agricultural workers who gained documentation under the 1986 Immigration Reform and Control Act's Seasonal Agricultural Workers (SAWs) program shows that, while they continued to migrate for years after they obtained legal status, eventually, they began to migrate less and leave the farm labor force. A seasonal worker who was 22 in 1986 would be 45 in 2009. By 2009, the farm labor force had fewer seasonal workers (and fewer farmworkers over age 45). Thus, to maintain a large and flexible agricultural worker force, a steady stream of new, young workers is required.⁷²

The inability of most seasonal farm workers to climb the agricultural ladder to operating a farm themselves means that the best way to assist them in obtaining family-sustaining wages is to help them find nonfarm jobs. The best way to help children of farm workers achieve higher incomes than their parents is to encourage their education, which will in turn help them obtain nonfarm jobs. Most farm workers seeking upward mobility find it easier to move out of agriculture than move up the agricultural job ladder, and their children educated in the United States rarely follow their parents into seasonal farm work.⁷³

A Different Perspective

⁷⁰ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

⁷¹ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

⁷² Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

⁷³ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

In the United States, the market structure around some crops allows workers to more easily become operators. One such crop is strawberries, for which most workers making the transition need bring only their own labor to newly established farming operations. Many smaller strawberry growers lease land and plants from a cooler and marketer, whose field man tells them when to irrigate and fertilize. Small strawberry growers are contractually required to harvest and deliver the berries to the cooler, who deducts the cost of any loans and selling costs from the revenue before sending balance to the grower.

By some estimates two-thirds of strawberry growers are Latinos, many of whom used to be pickers (it should be emphasized that most Latino strawberry farmers only have five to 10 acres; they farm much less than two-thirds of the almost 40,000 acres of California strawberries.)⁷⁴

It may be easier for immigrant workers in year-round jobs in smaller dairies and nurseries to climb the agricultural ladder from worker to farmer, since the year-round workers often live on dairy farms and work alongside their employers every day. Farmers who get to know and trust year-round workers may finance their transition from worker to operator; however, there are few examples of such farmer-financed transfers of operations to hired workers.⁷⁵

'Agriculture is Different': Changing Perspective in Order to Change Policies

A system of large farms with hired managers and hired workers may continue to embrace the adage that "agriculture is different" and requires a foreign-born workforce to fill jobs, especially seasonal ones. If the government were to embrace the notion that the hired farm workers of tomorrow are growing up somewhere outside of the United States, the focus of policy debates might shift from whether immigrant farm workers are necessary to how they should be admitted into the country and managed.

The "agriculture is different" mantra is repeated frequently in debates over immigration reform. The US government has been unwilling to explicitly state that agriculture requires foreign workers, preferring to allow farmers who anticipate labor shortages to request permission to employ H2-A guest workers, and certifying them to do so only after they try and fail to recruit US farm workers.⁷⁶

With no policy changes, there is little reason to change the current labor market, which relies on the continued influx of new workers to replace those that exit. As the supply of west-central Mexican workers declined, US (and export-oriented Mexican) farmers turned to workers from southern Mexico as well as some workers from more rural Central American countries such as Guatemala and Honduras. If policy remains unchanged and these sources of rural labor diminish over time, US

⁷⁴ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

⁷⁵ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

⁷⁶ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

farmers could go further afield for workers, who would likely have to be admitted legally if they came from Asian countries such as Bangladesh or China.⁷⁷

Alternatively- or simultaneously- if nearby Mexican or Central American labor declines we might expect upward pressure on farm labor costs that speed up labor-saving mechanization and may partially counteract the movement of workers out of farming.⁷⁸

⁷⁷ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

⁷⁸ Martin and Taylor, Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America, The Regional Migration Study Group, Migration Policy Institute, 2013

**TABLE 3:
PRODUCTION AND CONSUMPTION TRENDS FOR MAJOR U.S. FRESH FRUITS AND VEGETABLES (BY WEIGHT), 1998-2012**

	Growth in U.S. Consumption (in millions of pounds)	Percent Growth in U.S. Consumption	Growth in U.S. Production (in millions of pounds)	Percent Change in U.S. Production Levels	Growth in U.S. Imports (in millions of pounds)	Percent Increase in Amount Imported (in millions of pounds)	Additional Production Change Needed to Hold Imports Constant*
VEGETABLES							
Artichokes	135	38.8%	1	0.7%	134	52.5%	34.7%
Asparagus	196	81.6%	-75	-53.2%	255	185.6%	217.3%
Broccoli	265	16.7%	17	0.9%	183	188.4%	9.0%
Bulb Onions	897	17.3%	262	4.3%	332	59.9%	-1.9%
Cabbage	-125	-5.4%	-193	-8.2%	47	53.6%	2.4%
Carrots	-204	-7.8%	-414	-15.4%	186	104.7%	8.8%
Cauliflower	-71	-15.4%	21	3.4%	14	62.6%	2.7%
Celery	85	4.8%	79	4.0%	6	7.3%	0.1%
Cucumbers	351	19.3%	-271	-24.0%	606	81.3%	53.9%
Eggplant	73	40.3%	22	17.6%	54	66.6%	14.7%
Garlic	-30	-4.0%	-207	-33.6%	174	74.6%	47.4%
Head Lettuce	-1,805	-27.4%	-2,098	-30.2%	206	737.8%	4.4%
Leaf Lettuce/Romaine	1,564	74.3%	1,621	67.8%	82	264.3%	1.5%
Mushrooms	100	14.3%	51	7.4%	56	185.5%	7.1%
Snap Beans	88	17.0%	-16	-3.0%	78	171.3%	13.3%
Spinach	221	71.4%	233	68.1%	8	152.4%	0.8%
Sweet Corn	351	13.7%	371	14.2%	64	132.6%	1.9%
Tomatoes	1,114	21.2%	-616	-15.8%	1,645	96.6%	39.1%
Vegetables Overall	3,206	9.1%	-1,215	-3.5%	4,129	94.6%	9.7%
FRUITS							
Apples	-263	-5.1%	152	2.4%	20	5.6%	0.6%
Apricots	-1	-1.8%	-3	-6.2%	0	5.4%	0.4%
Avocados	984	184.7%	97	25.1%	911	597.6%	129.6%
Blueberries	307	370.2%	194	250.5%	162	554.5%	19.8%
Cantaloupe	-502	-16.3%	-359	-16.5%	-114	-10.8%	3.2%
Cherries	280	188.5%	325	139.7%	34	619.7%	4.3%
Grapefruit	-662	-45.1%	-1,074	-46.2%	-19	-62.5%	-0.4%
Grapes	350	16.6%	269	15.7%	294	31.2%	6.9%
Honey Dew	-162	-24.7%	-157	-30.7%	-7	-3.5%	11.5%
Kiwi Fruit	-42	-28.3%	11	20.2%	-48	-44.4%	-25.9%
Lemons	345	45.9%	259	26.1%	52	96.7%	2.2%
Oranges	282	9.4%	768	20.0%	102	68.2%	1.9%
Papayas	166	100.2%	-23	-54.6%	185	136.6%	173.0%
Peaches/Nectarines	-55	-3.9%	-53	-3.4%	6	6.8%	0.7%
Pears	-38	-3.9%	41	3.7%	-30	-15.7%	-2.0%
Plums	-109	-23.6%	-111	-39.4%	8	15.3%	8.2%
Raspberries	74	562.7%	69	306.8%	40	830.0%	13.8%
Strawberries	1,092	87.9%	1,068	82.8%	188	246.0%	5.1%
Tangerines	588	79.3%	505	84.5%	137	73.7%	-0.9%
Watermelon	611	15.1%	90	2.3%	572	121.5%	12.7%
Fruits**	3,244	12.4%	2,069	7.6%	2,494	58.1%	6.0%
ALL PRODUCE	6,450	10.5%	854	1.4%	6,623	38.8%	8.0%

*Because of US consumer demand for some fresh fruits and vegetables out of season, it is not possible for U.S. producers to meet the entire increase in demand domestically. During ideal trade conditions, growers are also exporting goods during their high seasons. To account for these factors, this figure assumes that as production increases to meet domestic demand, exports will also increase proportionately.

Table Source: No Longer Home Grown Report pg.12

Changing the System: California and Farm Labor Contractors

Don Villarejo, a leading farm labor researcher, highlighted 40 years of continuity and change in Californian agriculture and farm labor. The continuities include low incomes and poverty for many seasonal workers, while the changes include fewer and larger growers, more intermediaries who bring workers to farms, and fewer union contracts.

The shift to hiring workers via farm labor contractors (FLCs) and other intermediaries is also associated with fewer benefits, from housing to health insurance. There were 9,300 farm labor contractors registered with DOL in May 2015, including 4,100 or 43 percent in California.

Between 1975 and 2012, the volume of California fruits and vegetables almost doubled, from 21 million to 40 million tons. Yields rose much faster than acreage, which was 3.1 million for trees and vines in 2012 and almost one million for vegetables and melons. Fruits, vegetables and horticultural specialties accounted for 62 percent of the state's \$43 billion in farm sales in 2012.

Changes in agriculture could have led to fewer workers employed for longer periods on one farm. With more trees and vines, double cropping of vegetables, and long-season berry crops, many workers have settled in one area of the state. Farmers report that most of the workers they hire directly are employed more than 150 days on their farms.

However, most workers employed on crop farms are brought there by intermediaries such as FLCs. A worker may be employed by a single FLC, but have very intermittent work, working six days one week and two the next. By outsourcing especially seasonal work, farm employers have less incentive to give seasonal workers more employment, provide housing for seasonal workers, and take other steps stabilize seasonal farm work.⁷⁹

Evolving Farm Labor Markets: Mexico and Central America

Agriculture is unlike most other key sectors of the North American economy in that its comparative advantage has rested on having access to abundant low-skilled labor instead of on the accumulation of human capital (education and skills). The human capital of US farm operators is rising in proportion to trends in US educational levels, but the human capital of US farm workers is rising in proportion to Mexican education levels. The educational gap between US farm operators under 50 and Mexican born hired workers is typically 8 to 16 years--wider than during the 1942-64 Bracero era, when the education gap was 6 to 10 years.⁸⁰

Skill requirements are rising fastest for the nonfarm firms that provide services to farmers, ranging from finance and equipment to pesticides, chemicals, labor, and other inputs. Except for farm labor contractors, most of the workers hired by these nonfarm firms were never farm workers. Most farm workers find it hard to make the transition from farm worker to skilled nonfarm work, even though

⁷⁹ "California: Trends, Flcs, AB 20 - Rural Migration News | Migration Dialogue". *Migration.ucdavis.edu*. N.p., 2016. Web. 12 Aug. 2016.

⁸⁰ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

some farm worker jobs have been converted to nonfarm jobs, such as when broccoli and melons are packed in the field.⁸¹

Mexico is the major supplier of hired labor to US farms, and Guatemala has become a supplier of farm labor to Mexico, thus, Mexico is in the transitional phase of being both a farm labor exporter and importer. Mexico, Guatemala, Honduras, and El Salvador have the opportunity to develop export-oriented farming systems that build on their comparative advantage, namely, off-season production of high-value and labor-intensive commodities for the United States and other export markets. Extended seasons, such as when Mexican tomatoes and table grapes are grown, increase exports and job that support them (and sometimes compete with US production). The production of these crops is increasing, and new data from rural Mexico suggests that expanding export oriented agriculture in Mexico may be competing with US farms for a diminishing supply of farm labor.⁸²

Mexico and Central America are in the throes of a transition to nontraditional export crops. The most noteworthy development in Central American agriculture over the past two decades has been a shift from the traditional (i.e. tropical) crops toward other types of fruits and vegetables such as frozen fruit and juice exports. This puts farmers in these countries in a position to potentially compete with US agriculture for farm workers.⁸³

Both farm labor supply and demand in Mexico are key to maintaining an abundant supply of low-wage labor to US farms. However, on the supply side, workforces are becoming less agricultural throughout the region. The share of the total workforce employed in agriculture is high in Mexico and Central America relative to the United States, but it is falling fast. Across Mexico and Central America, educational attainment is increasing and incomes are rising, though these advances and demographic trends are evolving at different speeds in each country. Mexico and El Salvador are seeing their populations age and total population growth slow down.⁸⁴ In contrast, birth rates remain high in Guatemala and Honduras, with rapid population growth. As young people in these countries attain higher levels of education, they increasingly seek employment opportunities beyond domestic agriculture work, migrating away from rural areas, and within rural areas, leaving farm jobs for jobs in the service sector.⁸⁵

The supermarket revolution in Latin America also potentially alters the labor market dynamics of the region, favoring the creation of fewer and larger producers of fresh fruits and vegetables relying on a hired farm workforce, rather than the family farms that have traditionally dominated the landscape. Mass merchandisers (e.g. Wal-Mart) set strict quantity, quality, and timing standards, with which individual small farmers cannot easily comply, and it is more profitable to buy from a few large farmers than from many small ones. Many small producers lack the capital to pack, cool, and transport perishable commodities to standards that satisfy supermarkets, and co-ops that

⁸¹ Many of the workers employed walk behind conveyor belts in the fields are women, who typically are not part of hand harvesting crews that are paid piece rate wages.

⁸² Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

⁸³ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

⁸⁴ Aaron Terraas, Demetrios G. Papademetriou, and Marc R. Rosenbaum, *Evolving Demographic and Human-Capital Trends in Mexico and Central America and Their Implication for Regional Migration* (Washington DC: Migration Policy Institute, 2001)

⁸⁵ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

serve groups of farmers have been slow to evolve. As consumers shift from open-air markets to supermarkets, many small producers of labor-intensive commodities find it hard to compete.⁸⁶

It is not clear how much of the rising demand for agricultural labor in the region is due to expansion of supermarkets and how much to exports; the two are closely interrelated inasmuch as large retailers increasingly think regionally when building their supply chains, utilizing trade to adapt across seasons. Californian produce is on Mexican supermarket shelves during some seasons, Mexican produce on Californian shelves during others.⁸⁷

These trends, together with US border enforcement and drug-related violence that have slowed the influx of newcomers to the US farm labor force and disrupted seasonal movement of workers across borders, appear to be putting upward pressure on US farm wages. Average farm worker earnings in recent years have been rising (those not at the rates witnessed in the mid-1960s, when the first union contracts after the Bracero program led to 40 percent wage increases). Some farmers who complained of labor shortages in the summer 2012 raised wages, others did not. If real US farm wages were to rise at a rapid rate, the shift toward labor-saving mechanization and increased imports of commodities that defy easy mechanization would likely accelerate.⁸⁸

Recent data from Mexico offers more direct evidence of a shrinking farm workforce. Between 2002 and 2007, US farms relied on migrant networks to reach into new source areas- for example, villages in southern Mexico- to supply workers to US farms.⁸⁹ A study by Steve Boucher, et al., documented a downward trend in the supply of rural Mexican labor to US farms using retrospective data from the 2003 routh of the Mexico National Rural Household (Spanish acronym: ENHRUM) survey.⁹⁰ New research using matched data on individuals and households in rural Mexico finds that, contrary to expectations, the supply of rural Mexican labor to US farms fell disproportionately during the 2008 Great Recession compared to the supply to nonfarm jobs.⁹¹ Although some individual workers shifted from US nonfarm to farm work after 2008, more workers shifted from farm to nonfarm. Analysis of ENHRUM data suggested that the observed decrease in US farm labor is the consequence of long-term structural changes in the supply of Mexican labor from rural Mexico over the years covered by the ENHRUM data (1990 through 2010). While the expansion of nonfarm migrant networks has a significant negative affect on the farm labor supply the relevant impacts of immigration enforcement and drug-related violence along the border appear to be small compared to the overall trend and network effects.⁹² (Figure 6 is from the *Ripe with Change* report pg 11)

⁸⁶ Hope Michelson, "Small Farmers, NGOs, and a Wal-Mart World: Welfare Effects of Supermarkers Operating in Nicaragua," *American Journal of Agricultural Economics* (in Press, 2013)

⁸⁷ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

⁸⁸ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

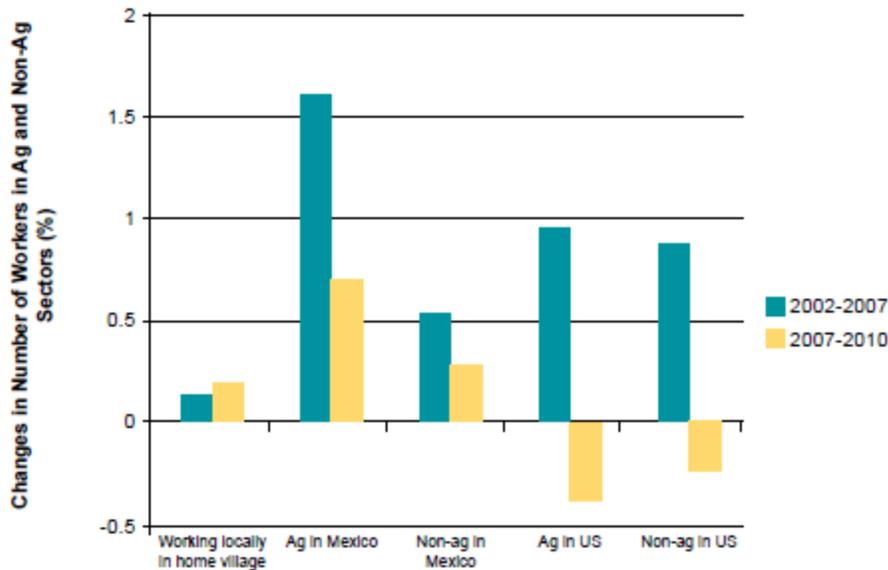
⁸⁹ J. Edward, Taylor, "Agriculture Labor and Migration Policy," *Annual Review of Resource Economics* 2 (2010):363-93

⁹⁰ Steve Boucher, Aaron Smith, J. Edward Taylor, and Antonio Yunez- Naude, "Impacts of policy reforms on the supply of Mexican labor to U.S. farms: New evidence from Mexico," *Review of Agriculture Economics* 29 (1) (2007): 4-16.

⁹¹ Taylor, Charlton, and Yunez- Naude, "The End of Farm Labor Abundance."

⁹² Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

Figure 6. Change in Number of Workers in Each Sector, United States and Mexico (%), 2002-07 vs. 2007-10



Source: J. Edward Taylor, Diane Charlton, and Antonio Yúnez-Naude, "The End of Farm Labor Abundance," *Applied Economic Perspectives and Policy* 34, no. 4 (2012): 587-98.

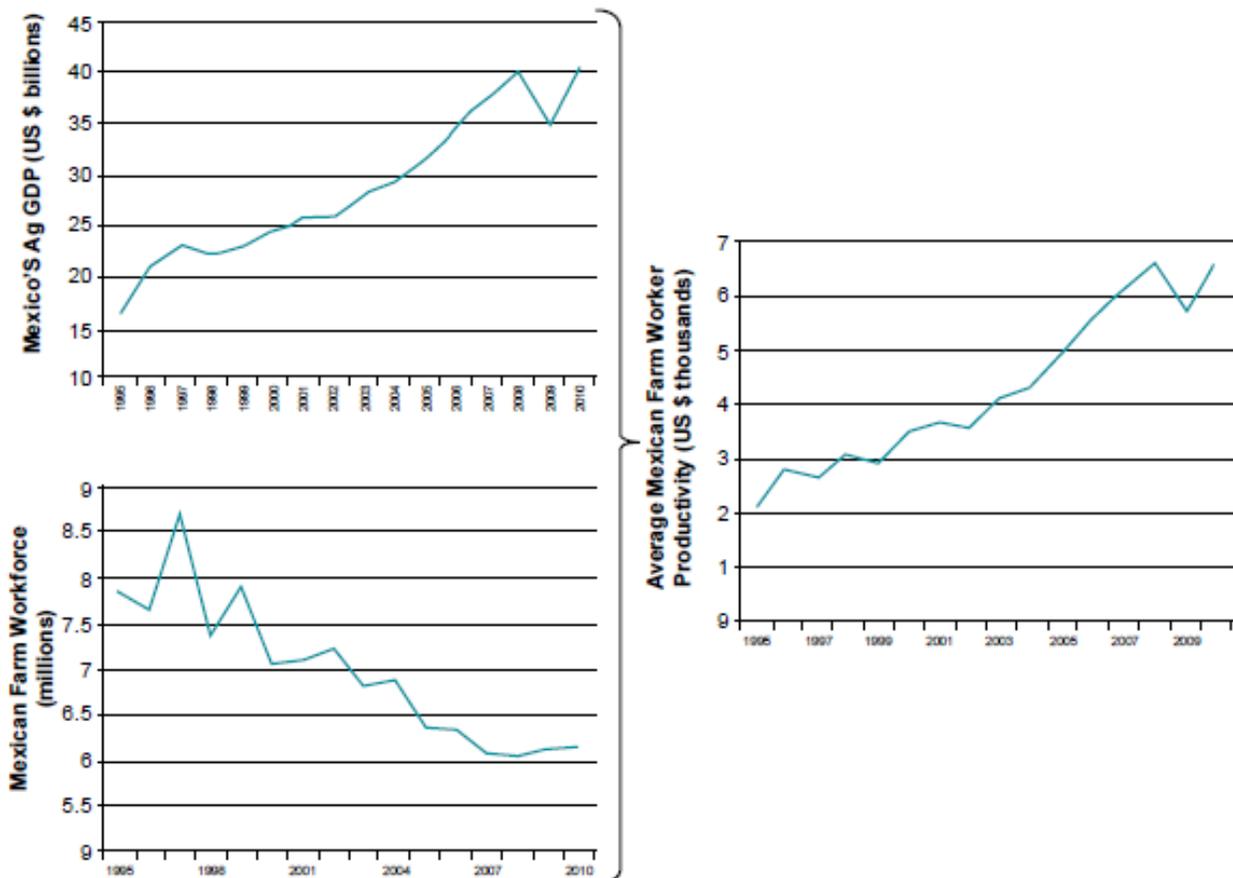
The shrinking of the domestic farm workforce in Mexico is also a result of a shift away from owner-operated small farms, subsistence farming, and unpaid family workers, meaning that the share of hired (rather than family) farm labor has gained importance in Mexican agricultural production. This shift has led average farm worker productivity in Mexico to rise dramatically in recent years, quadrupling from 1995 to 2009.⁹³

(Figure 7 Source: *Ripe With Change: Evolving Farm Labor Markets in the United States, Mexico, and Central America* pg 12)

⁹³ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

Figure 7. Average Farm Worker Productivity in Mexico, 1995-2010

99



Source: FAO, "FAOSTAT."

This increased productivity means that Mexican farm workers have a higher agricultural reservation wage, and many opt to stay at home rather than emigrate to work in an agriculture sector abroad. Adjusted for inflation, the average daily wage in the Mexican agricultural sector rose nearly 14 percent from 2000 to 2007.⁹⁴ Meanwhile, the real hourly wages rose just by over 3% for newly arrived, foreign-born farm workers in the United States over approximately the same period (though the average number of farm days worked increased from 76 to 90, or by more than 18%).⁹⁵

On one hand, labor intensive fruit and vegetable production is expanding in Mexico, Guatemala, El Salvador, and Honduras. On the other hand, as incomes increase, the workforce shifts out of agriculture. The pattern in this regard is not unlike what one finds in virtually every other country in the world. The United States marks the extreme downward trend in domestic farm labor supply:

⁹⁴ Calculated using data from the Mexican Social Security Institute, available in UN Economic Commission for Latin America and the Caribbean (ECLAC), Subregion Norte de America Latina y El Caribe: Informacion del Sector Agropecuario, 2000-2010," Chart 7 (Santiago, Chile, ECLAC, 2011)

⁹⁵ National Agriculture Workers Survey (NAWS) interviews: 1998-2000 and 2007-09; US Department of Labor (DOL) Employment and Training Division, "The National Agriculture Workers Survey,"

in 2010 only 1.6 percent of the US workforce was employed in agriculture, and a significant majority of the farm workers were Mexican.⁹⁶

Mexico, it should be noted, graduates 115,000 engineers a year; twice the rate per 100,000 residents as the United States. Mexico created about 700,000 formal sector jobs in 2001, and was expected to add a similar number in 2012. US firms operating in Mexico praise the technical skills of graduates, including their English Language proficiency, and emphasize that Mexican agricultural education remains more “practical” compared with increasing “theoretical” orientation of shrinking agricultural programs in US universities.⁹⁷

The United States once ran a massive temporary worker program known as the Bracero Program. The program lasted for 22 years but was scrapped by the U.S. Congress in 1965, just as legal immigration from Mexico was placed under numerical limitation for the first time. Over the next two decades migration from Mexico continued, but under undocumented rather than documented auspices. The American response to this rise in undocumented migration was a militarization of the border and a hardening of laws against immigrants, both legal and illegal, but this effort has backfired. By increasing the costs and risks of border crossing, tighter enforcement has induced migrants to avoid crossing the U.S. border as frequently, which they have accomplished by settling down in the United States rather than returning to Mexico. The result was a net increase in the undocumented inflow to the United States that only declined with the onset of economic difficulties after 2000 and ended with the economic crash of 2008.⁹⁸

Net Migration from Mexico Falls to Zero

The following section is from excerpts of the report *Net Migration from Mexico Falls to Zero-Perhaps Less* by the Pew Hispanic Center. After four decades that brought 12 million current immigrants—most of whom came illegally—the net migration flow from Mexico to the United States has stopped and may have reversed, according to a new analysis of government data from both countries by the Pew Hispanic Center, a project of the Pew Research Center. According to the report, the largest wave of immigration in history from a single country to the United States has come to a standstill.

The standstill appears to be the result of many factors, including the weakened U.S. job and housing construction markets, heightened border enforcement, a rise in deportations, the growing dangers associated with illegal border crossings, the long-term decline in Mexico’s birth rates, and broader economic conditions in Mexico.

In spite of (and perhaps because of) increases in the number of U.S. Border Patrol agents, apprehensions of Mexicans trying to cross the border illegally have plummeted in recent years—from more than 1 million in 2005 to 286,000 in 2011—a likely indication that fewer unauthorized

⁹⁶ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

⁹⁷ Martin and Taylor, *Ripe with Change: Evolving Farm Labor Markets in the United States, Mexico and Central America*, The Regional Migration Study Group, Migration Policy Institute, 2013

⁹⁸ Massey and Brown, *Movement between Mexico and Canada: Analysis of a New Migration Stream*, National Institutes of Health, 2011

migrants are trying to cross. Border Patrol apprehensions of all unauthorized immigrants are now at their lowest level since 1971.

As apprehensions at the border have declined, deportations of unauthorized Mexican immigrants—some of them picked up at work sites or after being arrested for other criminal violations—have risen to record levels. In 2010, 282,000 unauthorized Mexican immigrants were repatriated by U.S. authorities, via deportation or the expedited removal process.

In Mexico, among the wide array of trends with potential impact on the decision to emigrate, the most significant demographic change is falling fertility: As of 2009, a typical Mexican woman was projected to have an average 2.4 children in her lifetime, compared with 7.3 for her 1960 counterpart.

The number of Mexican-born immigrants who left the U.S. for Mexico rose sharply from 2005 to 2010, even as the flow of new immigrants to the U.S. from Mexico fell steeply, according to a Pew Hispanic Center analysis of data from both countries.

As a result, net Mexican immigration to the U.S. is at a standstill, and the Mexican-born population in the U.S. leveled off and then declined in the last half of the most recent decade. The Mexican-born population grew 23% from 2000 to 2005, peaked in 2007 at 12.6 million and stabilized for two years before declining slightly in 2010. In 2011, the Mexican-born population in the U.S. decreased still further, to 12.0 million.

These developments represent a notable reversal of the historic pattern of Mexican immigration to the U.S., which has risen dramatically over the past four decades. Mexico is the leading country of origin of U.S. immigrants, and Mexicans in the U.S. are by far the largest population worldwide from any origin country.

From 2005 to 2010, 1.4 million Mexicans and their families (including U.S.-born children) left the U.S. to move to Mexico, according to data from the 2010 Mexican census. That is close to double the 670,000 who did so a decade earlier, from 1995 to 2000. While most of these immigrants returned voluntarily, an estimated 5% to 35% returned as a result of deportations between 2005 and 2010 (for more details, see Section 3).⁹⁹

The report continues, “Looking at arrivals of Mexican immigrants since 1990, U.S. Census Bureau data analyzed by the Pew Hispanic Center indicate that more than 700,000 a year came to the U.S. in 1999-2000, during a time when the U.S. economy was thriving. Annual arrivals dropped to about 580,000 with the onset of the early-decade recession. Numbers began rising again; by 2004, annual arrivals exceeded 670,000 annually.

⁹⁹ Passel, Cohn, Gonzalez-Barrera, Net Migration from Mexico Falls to Zero- and Perhaps Less, Pew Research Center, 2012

Immigration from Mexico dropped after the U.S. housing market (and construction employment) collapsed in 2006. By 2007, gross inflows from Mexico dipped to 280,000; they continued to fall to 150,000 in 2009 and were even lower in 2010.

The decline in the Mexican-born population is a marked change of pattern for the massive wave of migration from Mexico that began in the late 1960s. It may become the first sustained loss since the 1930s, when the Mexican-born population shrank during the Great Depression. The contemporary decrease is due to the combination of reduced inflows and increased outflows; it cannot be explained by the relatively small number of deaths in the Mexican immigrant population.

For the past century, a large share of Mexican migration has been temporary, so-called circular migration, in which Mexicans (mainly men) came to the U.S. for work, often in agriculture, and returned to their families in Mexico during the off-season. Until the 1970s, the size of the permanent Mexican-born population in the U.S. grew slowly, and there was little in the way of border enforcement.

The Mexican-born population in the U.S., which numbered about 100,000 in 1900, reached about 640,000 in 1930 ([Gibson and Jung, 2006](#)). The population fell in the 1930s, as mass unemployment deterred would-be immigrants during the Great Depression and many Mexicans in the U.S. were forcibly deported to Mexico.

By 1970, Mexican-born numbers had risen to about 760,000, but Italy, Germany, and Canada surpassed Mexico as leading countries of origin. Rapid growth began in the 1970s—by 1980 there were 2.2 million Mexican immigrants, and Mexico had become the top country of origin for U.S. immigrants. The Mexican-born population in the U.S. has more than quintupled since.

Analysts generally agree that the sharp, four-decade rise in Mexican immigration after 1970, especially of unauthorized migrants, was driven by a combination of factors. The U.S. and Mexico had formally agreed in 1942 to establish the “bracero” temporary-worker program, but when it expired in 1964, the demand in the U.S. for low-skilled labor remained strong. Major changes to U.S. immigration law in 1965 favored immigrants who wanted to rejoin their families in the U.S., not those who came to work. Economic troubles and other problems in Mexico also encouraged people to migrate north.

Once the new migration pattern was established, flows to the U.S. waxed and waned in conjunction with changes in U.S. border policy and immigration law, trends in the U.S. economy and conditions in Mexico. The Immigration Reform and Control Act of 1986 had several provisions that allowed unauthorized immigrants to acquire legal permanent resident status. About 2 million formerly unauthorized Mexican immigrants became legal U.S. residents by the early 1990s. These new immigrants, along with changes in U.S. immigration law, reinforced the existing migration patterns and spurred continued legal immigration and increasing unauthorized immigration. Between 1980 and 1990, the number of Mexican immigrants in the U.S. more than doubled, and between 1990 and 2000 the numbers doubled again.

The Mexican-born population continued to grow until 2007. At that point, the combined effects of the failing U.S. economy, increased border enforcement, more expensive and dangerous crossings,

violence at the border, and changes with the Mexican population and economy brought this population growth to a halt.”¹⁰⁰

Conclusion:

Agricultural migration rates within the United States plummeted in this century due to changes in the composition of the agricultural labor force and domestic and international governmental, institutional, and economic changes. Because migrants play a crucial role in many labor-intensive, seasonal, agricultural crops, this dramatic decrease in migration rates has significantly reduced the ability of US agricultural labor markets to respond to seasonal and cultural shifts in demand for fresh local produce and products.

Farmers have responded to the reduction of migrants by changing cropping patterns, working harder to retain workers, making jobs more attractive to female workers, adopting labor-saving technologies, and increasingly turning to guest worker programs.

But, "The sad reality today is that as good as American agriculture is, it's not as great as it could be," Agriculture Secretary Tom Vilsack said, noting that farmers in the Southeast and in the West often can't harvest what they grow, or they decide not to plant, because they don't have a stable work force. And they don't have a stable work force because our broken immigration system either keeps people in an unpredictable legal limbo if they're here without documentation - even though we depend on their hard work and expertise - or the system has no way of directing documented guest workers to where the need might be.

If the current downward trend of migration continues and no alternative supply (such as from a revised H-2A program or earned legalization program) becomes available, farmers will most likely continue to experience greater difficulty finding workers during planting and harvesting seasons.¹⁰¹

But there is hope, our research found that it would not be unreasonable to assume that American farmers could make up the ground they lost in recent years to importers...

It's important to remember that the issue preventing American growers from keeping pace with rising consumer demand is not a lack of natural resources or an inability to expand production on U.S. soil. Land that is now used for other crops could, in most cases, be used to grow those products with high consumer demand once again.

Given a less difficult labor picture, acreage currently devoted to bulk crops (often land already known to be able to support fresh fruit and vegetable production) could be turned into fruit and vegetable bearing land to meet local and national produce demands. Farmers able to make such a switch would already have a powerful financial incentive as well: Land bearing fresh vegetables or melons brought in an average of more than \$3,100 per acre in revenue in 2004, while the

¹⁰⁰ Passel, Cohn, Gonzalez-Barrera, Net Migration from Mexico Falls to Zero- and Perhaps Less, Pew Research Center, 2012

¹⁰¹ Fan and Perloff. *Where Did All the Migrant Farm Workers Go?* IRLE Institute for Research on Labor and Employment, June, 2016

equivalent figure for land bearing food and feed grains, oilseeds, peanuts or cotton crops was \$237.¹⁰²

If farmers are able to produce more crops, and have the workers to harvest them, it's likely that more fresh fruits and vegetables can be exported as well—lessening a rapidly growing U.S. trade deficit in fresh produce that has long troubled policymakers.

As the agriculture sector evolves and changes Migrant Education Program personnel will need to be well-informed concerning trends in agriculture, especially those related to migrant labor. There are numerous factors that have to be considered on a local and national level to ensure that the MEP program continues to be poised to help meet the needs of the students and their families in these changing times.

¹⁰² Informa Economics, "An Analysis of the Effect of Removing the Planting Restrictions on the Program Crop Base" (February 2007), pg 13.

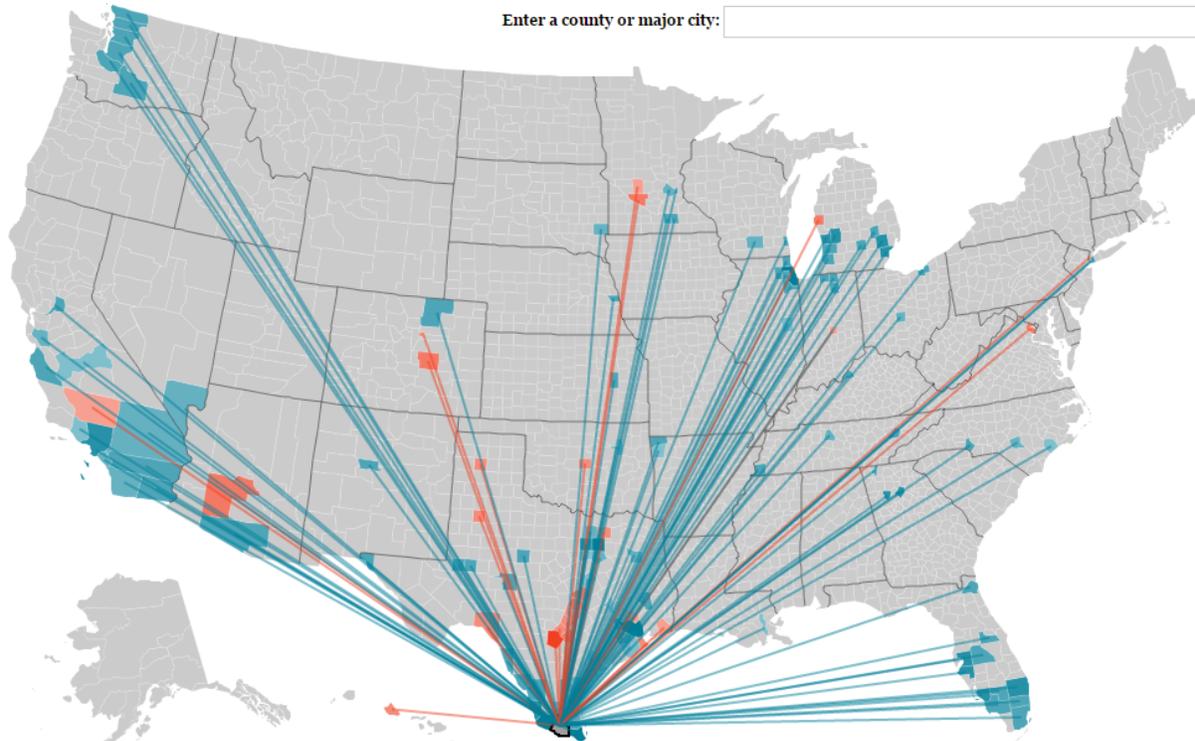
American Migration [Interactive Map]

Close to 40 million Americans move from one home to another every year. Click anywhere on the map below: blue counties send more migrants to the selected county than they take; red counties take more than they send. Updated on February 24, 2012 | By Jon Bruner | [More about the map >](#)

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Hidalgo County (McAllen), Texas

Population (2010): 774,769
 Population (2005): 674,982
 Inbound income per cap. (2010): \$13,100
 Outbound income per cap. (2010): \$13,500
 Non-migrant income per cap. (2010): \$11,000



Source: Internal Revenue Service Tax Stats. The data presented here only include people represented as an exemption on an income tax return. Years represent filing seasons, which for most people end on April 15, but they include returns received as late as the end of September. For best results, please use FireFox, Chrome, Safari, or Internet Explorer 9.

Interactive Resource:

Forbes American Migration Interactive Map: <http://www.forbes.com/special-report/2011/migration.html> Counties that took more migrants than they sent are linked with red lines. Counties that sent more migrants than they took are linked with blue lines.

Close to 40 million Americans move from one home to another every year. Click anywhere on the map below: blue counties send more migrants to the selected county than they take; red counties take more than they send. Updated on February 24, 2012

This [interactive visualization](#), based on IRS data, illustrates these patterns by tracing inward and outward moves for every county in the country. Each move had its own motivations, but in aggregate they reflect the geographical marketplace during the boom and bust of the last decade. Foreign immigration is a hot topic these days, but the movement of people from one state to another can have an even bigger influence on the United States' economy, politics and culture.

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