

Immigration and the US farm labour supply[‡]

J. EDWARD TAYLOR *
STEPHEN R. BOUCHER **
AARON SMITH ***
PERI L. FLETCHER ****
ANTONIO YÚNEZ-NAUDE °

Abstract

This paper uses unique data from rural Mexico to examine the supply of immigrant hired labour to US farms. Econometric evidence indicates that immigration policy reforms had unintended consequences for farm labour supply. The long-term trend in migration from rural Mexico to US farms is decreasing, and in recent years, US farms have drawn more labour from remote and less developed areas of rural Mexico. Other high income countries, as well as some developing nations, mirror the US in reliance on foreign agricultural workers. Our analysis questions the sustainability of an agricultural system that depends on foreign sources of labour, and highlights the importance of labour productivity-enhancing technological change.

Keywords: Farm labour, Mexico-US migration, immigration reform.

Introduction

Historically, the source of labour for agriculture has shifted from domestic to foreign as incomes increased and the opportunity cost of working in agriculture rose for domestic workers. Because of this shift, farmers in high-income countries depend on the political process to gain access to workers from low-wage countries, and they are vulnerable to changes in immigration policies as well as to the unintended consequences of these policies. However, the same processes that in the past shifted labour off the farm in high-income countries are at work today in immigrant farm labour-source countries. Confronted by a decreasing supply of labour from traditional source areas, the future of agri-

[‡] An earlier draft of this paper was prepared for the UC Davis Conference on Migration and Development in Mexico and Turkey, sponsored by the Austrian Marshall Plan Foundation, May 6, 2011. We are indebted to the William and Flora Hewlett Foundation and Mexico's National Council of Science and Technology (CONACYT) for supporting the data collection and analysis and to Daniel Carroll for generously providing us with information from the National Agricultural Worker Survey (NAWS).

* J. Edward Taylor is Professor in the Department of Agricultural and Resource Economics at the University of California, Davis, US. E-mail: jetaylor@ucdavis.edu.

** Stephen R. Boucher is Associate Professor in the Department of Agricultural and Resource Economics, University of California-Davis, US.

*** Aaron Smith is Associate Professor in the Department of Agricultural and Resource Economics, University of California, Davis, US.

**** Peri L. Fletcher is Research Associate in the Institute of Governmental Affairs, University of California, Davis, US.

° Antonio Yúnez-Naude is Professor and Director of the Centre for Economic Studies at El Colegio de México, Mexico.



culture, given existing technologies and crop choices, depends on securing access to labour from new sources.

This paper reports findings from an econometric analysis of unique panel data on farm labour migration from rural Mexico to the United States. These findings raise doubts about the sustainability of current agricultural models and highlight the importance of taking measures to lower farms' dependence on imported human resources.

Mexico-to-US farm labour migration

Immigrant farmworkers from Mexico are unquestionably one of the most critical inputs to US agriculture. They have facilitated the expansion of fruit, vegetable, and horticultural production, particularly in the Southwest. Their availability affects production technologies and enhances the ability of US producers to compete with low-cost producers abroad. Around the globe, a growing number of countries are turning to immigration as a source of farm labour even as agriculture's share of employment is falling. A growing body of evidence suggests that the contemporary evolution of farm labour markets in other countries mirrors fundamental features of the history of agricultural labour markets in the United States, including a declining supply elasticity of domestic workers and an increasing reliance on foreign labour.

A study of the supply of hired labour to US farms immediately takes one to villages in rural Mexico, where farm labour migration originates. According to the National Agricultural Worker Survey (NAWS)¹, Mexico-born persons represented 68 per cent of the US hired farm (crop) workforce in 2007-2009, the latest years for which data are available, up from 54 per cent in 1989-1991. Among all hired crop workers in 2007-2009, 48 per cent were unauthorized, compared to 68 per cent of the Mexico-born. (The actual share of unauthorized workers in the farm workforce may be higher if some do not reveal their true legal status.) An overwhelming majority of Mexico-born farm workers originate from households in rural Mexico (US Commission on Immigration Reform, 1997). Nearly all (96 per cent) of California's hired crop work force is from rural Mexico.²

The reliance on Mexican immigrant workers transcends farms. In fact, nowhere are the U.S. and Mexican economies and societies more closely interwoven than through migration. 12.7 million, or 1 out of every 10 Mexican-born persons, was living in the United States in 2008 (PEW Hispanic Center, 2009). Analysis of the March 2005 Current Population Survey found that 30% of foreign-born people living in the United States were unauthorized, and 56% of the unauthorized migrant population was from Mexico (Passel, 2006). These migrants are employed primarily in nonfarm jobs; in fact, US agricul-

¹ See <http://www.doleta.gov/agworker/naws.cfm>.

² We are grateful to Daniel Carroll at the U.S. Department of Labor for providing us with these numbers.

ture employs no more than 13% of Mexican immigrants.³ Nevertheless, viewed from the perspective of US agriculture, Mexican labour migration is vital.

While migration draws human resources out of households and communities throughout Mexico, it also generates a major source of income for the Mexican economy. The Banco de Mexico (2006) estimates that Mexican migrants sent home \$20 billion in 2005. Migrants, the “people export,” thus generated four times more revenue for the Mexican economy than agricultural exports and only slightly less than oil, Mexico’s leading export.

Migrants to US farms come overwhelmingly from rural areas, where poverty is concentrated in Mexico. Remittances from farmworkers represent a *de facto* poverty alleviation policy, providing injections of capital into areas that are cut off from credit markets and that have not benefitted from Mexico’s economic growth. Understanding the dynamics of US agricultural labour migration and the potential impacts of policies on these dynamics thus is a research priority from the viewpoint of policy makers and farmers in Mexico.

It is also a priority for policy makers and farmers in the US. Labour constitutes approximately one third of total costs of fruit, vegetable and horticultural production in the United States. California highlights the importance of Mexican migration in US agriculture. It is the largest agricultural producer in the US. Nearly all its seasonal agricultural workforce comes from households in rural Mexico. Migration from rural Mexico increased sharply between 1990 and the onset of the recession (Taylor 2010).

Immigration and trade policies

How have immigration and trade policies affected the supply of Mexican labour to U.S. farms? We examined the effects of the three key immigration and trade policy changes of the last twenty years: 1) Increased border enforcement expenditures; 2) The 1986 Immigration Control and Reform Act (IRCA); and 3) The 1994 North American Free Trade Agreement (NAFTA). These are the major policy shocks that may have affected the supply of rural Mexican labour to US farms.

Increased enforcement along the US-Mexico border, through such operations as Gatekeeper and Hold-the-Line, aimed to deter unauthorized immigration from Mexico by making illegal border entry more costly. While these actions may make villagers think twice about attempting to migrate, past research suggest that the majority of those who attempt an illegal border crossing eventually succeed. Because increased border enforcement also potentially has the unintended effect of deterring return migration from the US back to Mexico, stronger enforcement could increase unauthorized migration (Public Policy Institute of California, 2002; Singer and Massey, 1998).

³ This calculation is based on a US hired farm workforce of 2.5 million, 68% (1.7 million) of whom are Mexican, and a total Mexican immigrant population of 12.7 million.

IRCA represented a unilateral policy effort by the United States to control migration via sanctions against employers who knowingly hire unauthorized immigrants. However, it also included a one-time general amnesty program and two special concessions to the US farmers. The Special Agricultural Worker (SAW) Program legalized an additional 1.1 million immigrants, the majority from Mexico. The Replenishment Agricultural Worker (RAW) program allowed for new immigration to alleviate farm labour shortages caused by SAWs leaving agriculture. However, the RAW program was never used, because the Department of Labor determined that there were no farm labour shortages in the early 1990s, despite employer sanctions.⁴ Indeed, the US Commission on Agricultural Workers (1992: xix-xx) concluded that there was “a general oversupply of farm labour nationwide” and, “with fraudulent documents easily available,” employer sanctions were not deterring the entry of unauthorized workers.

NAFTA, enacted in 1994, opened borders for trade and investment between Mexico and the US and reinforced an on-going process of agricultural liberalization in Mexico. NAFTA and the concurrent domestic reforms in Mexico were only partially motivated by migration concerns; nevertheless, they were expected to have far-reaching impacts on migration flows. President Salinas argued that opening up markets would help Mexico export more goods and fewer people, thereby reducing migration pressures. In theory, however, the effects of NAFTA on migration from rural Mexico are ambiguous. On one hand, one would expect economic liberalization to decrease production of maize and other goods that could be imported more cheaply from the United States, increasing emigration. On the other hand, NAFTA could stimulate agricultural exports as well as non-agricultural production in Mexico to absorb displaced rural workers. Thus, like border enforcement and IRCA, NAFTA’s effects on migration from rural Mexico to the United States are ambiguous a priori.

Data challenges

To see whether and how migration patterns change in response to a policy, data on the number of migrants and where they work are needed for a sufficiently long period both before and after the policy is implemented. Until very recently, this type of data has not been available. The US and Mexican Censuses of agriculture and population are too infrequent and do not collect the necessary information on immigration and sector of employment. Data are available on the number of apprehensions at the border; however, these data do not indicate where successful migrants work. Finally, scattered village surveys in Mexico provide some detailed migration information, but the samples are small, not nationally representative and, in most cases, do not cover suffi-

⁴ An excellent discussion of IRCA and U.S. agriculture appears in Martin (1994).

ciently long time periods to examine the impacts of policies such as increased border enforcement, IRCA, and NAFTA.⁵

Our econometric analysis uses unique data from the Mexico National Rural Household Survey (ENHRUM), carried out jointly by UC Davis and El Colegio de Mexico in Mexico City.⁶ This survey canvassed a nationally and regionally representative sample of households in rural Mexico in an effort to ascertain what drives the supply of labour to US farms. This paper summarizes our key findings.⁷

Data from the ENHRUM of 2003 and 2008 overcome many of the problems posed by other data sources for modelling Mexico-to-US migration. Round I of the survey gathered detailed information on labour migration from a nationally representative random sample of 1,782 rural Mexican households. Migration destinations (US or Mexican states), sector (agriculture or non-agriculture) and employment status (wage-earner or self-employed) were recorded for all family members who were labour migrants in the year prior to the survey, including the household head, his/her spouse, all other people living in the household at the time of the survey, and all children of either the head or spouse who lived outside the household. In addition, migration histories from 1980 through 2002 were assembled for most family members.⁸ Round 2 of the ENHRUM in 2008 succeeded in re-surveying 1,543 of the same households surveyed in 2003 and updating migration histories through 2007. These surveys provide the most accurate representation available of migration for the population of people born in rural Mexican communities.

The ENHRUM data are unique in making it possible to explore the dynamics of US agricultural labour supply from Mexico and how they have changed over time. To analyse the impacts of US policy on the supply of labour to US farms, we used data from the first round of the survey to reconstruct each individual's migration and work histories, including immigrants' sector of employment in the United States, between 1980 and 2002. This time period is sufficiently long to permit us to examine both IRCA's and NAFTA's impacts on migration patterns. We focused on the West-Central region of Mexico, including the states of Jalisco, Guanajuato, Zacatecas, and Michoacán, because it has the longest history of sending migrants to the United States. According to the NAWS, in 2001-02 the largest share of Mexican-born farmworkers (46%) was from just three West-Central Mexican states: Guanajuato, Jalisco, and Michoacán.

⁵ Some of the Mexico sample-based studies include Cornelius (1989), Donato, Durand, and Massey (1992), Orrenius and Zavodny (2003).

⁶ ENHRUM is the Spanish acronym for *Encuesta Nacional a Hogares Rurales de México*.

⁷ Boucher *et al.* (2007) and Boucher and Taylor (2007) provide a more detailed discussion of this research. This paper draws heavily from both.

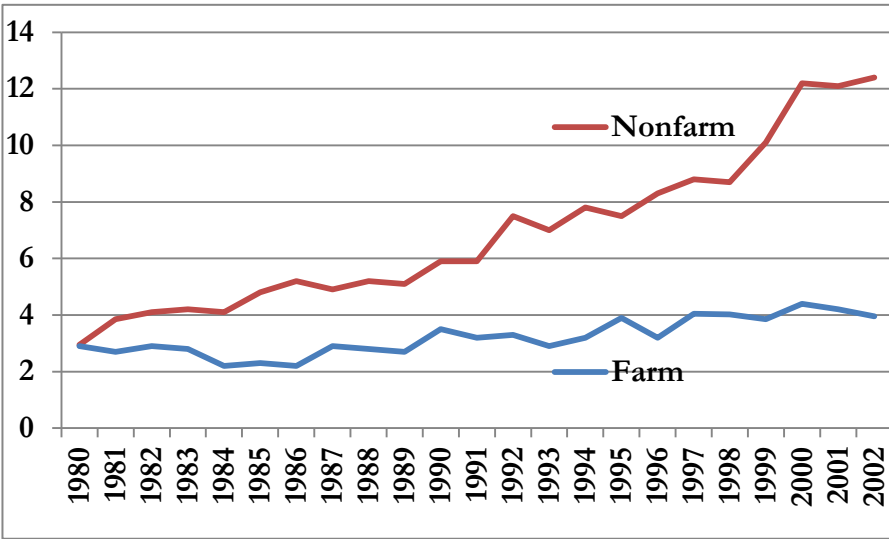
⁸ The head, spouse, all people living in the house in 2002, and a random sample of children of the head or spouse who did not live in the house in 2002.

We use the 2008 survey data to extend each of the migration histories and chart trends in the source areas of U.S. immigrant farm labour in Mexico.

Migration trends from round 1 of the ENHRUM

Figure 1 shows the fraction of adults from the surveyed villages that migrated to the United States to work in farm and non-farm jobs. The figure reveals several interesting patterns. First, overall migration from rural Mexico to the United States increased sharply during this period. Combining farm and non-farm migration, the share of villagers working in the United States increased from 5.8% in 1980 to 16.5% in 2002. The trends are quite different, however, for the two sectors. Although the share of villagers migrating to farm and non-farm jobs was nearly the same in 1980, migration to work in the non-farm sector increased much faster than migration to US farm. The fraction of villagers migrating to US farm jobs increased from 2.7% in 1980 to 4% in 2002. We explore what role, if any, the increased border enforcement, IRCA, and NAFTA policies played in this trend.

Figure 1: Percentage of Mexican villagers in the US farm and non-farm jobs



Source: Adapted from Boucher *et al.* (2007).

Econometric findings on the impacts of policy reforms on the US farm labour supply ⁹

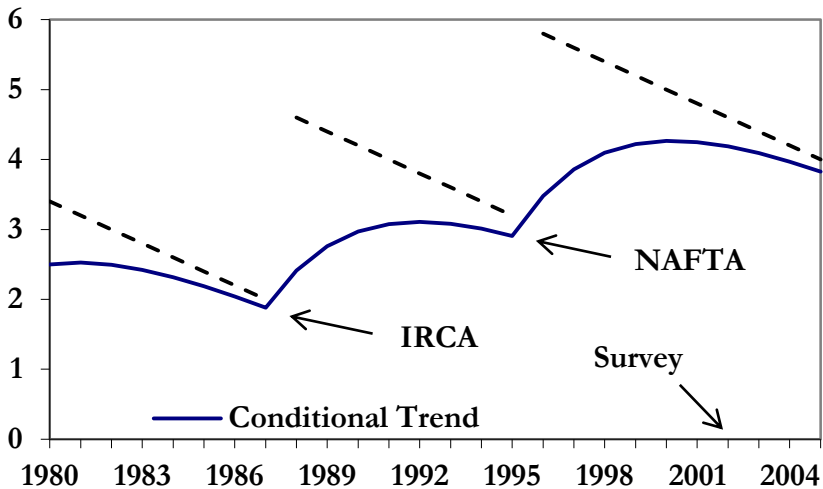
What would migration from rural Mexico to US agriculture have looked like in the absence of the three policies described above? To answer this question, we econometrically modelled the dynamics underlying the farm labour migra-

⁹ This section draws from Boucher *et al.* (2007).

tion curve in figure 1.¹⁰ We do this using a standard dynamic panel technique in which the current share of villagers in US farm jobs depends on the past share, a time trend, other variables affecting the economic returns and costs of migrating, and variables measuring the three policy changes. This method makes use of both the time series and cross sectional variation in the data. We test whether the migration trend changed significantly in years when US border enforcement expenditures increased and in 1986 and 1994 when IRCA and NAFTA, respectively, were implemented.

Two main findings emerge from the analysis. First, once we control for other variables shaping migration, increases in border enforcement expenditures do not affect migration to US farms. This suggests that border enforcement, even if it increases the odds of apprehension on a given attempt to cross the border, does not deter new immigration. An alternative explanation is that increased enforcement decreases new migration but also deters return migration by those already in the United States who anticipate a more difficult re-entry in the future.

Figure 2: Conditional migration trends to US agriculture



Source: Boucher *et al.* (2007).

The second major finding is that the upward trend in farm labour migration evident in figure 1 was, in fact, policy induced. Without IRCA and NAFTA, the trend of Mexicans moving to US farm jobs would have been negative; that is, over time, the share of rural Mexicans migrating to work on US farms would have decreased. Figure 2 isolates the impacts of IRCA and NAFTA. The downward sloping dotted lines show that in the medium to long run there is a tendency for migration to farm jobs to decline. This de-

¹⁰ Detailed results of this analysis appear in Boucher *et al.* (2007).

creasing trend, however, was temporarily interrupted first by IRCA and then by NAFTA. The solid curve shows that each policy was associated with a one percentage point increase in the share of villagers migrating to US farm jobs over the four year period following the policy's implementation. This represents a 40% increase compared to pre-policy levels.

The finding that farm labour migration increased after IRCA suggests that the SAW legalization program created a stimulus for migration that outweighed the deterrent effect of employer sanctions for hiring unauthorized workers. There are three ways in which legalization may have increased farm migration. First, family reunification invariably follows legalization. This would bring new migrants from rural Mexico into rural areas of the United States and possibly into farm jobs. Second, there may have been a surge in new migration to apply for easy legalization under the SAW program. Third, the SAW program may have sent a message to rural Mexicans that working on US farms could provide access to future legalization programs.

Interpreting the positive effect of NAFTA on farm migration is difficult because of the many complex changes underway in Mexican agriculture and the overall economy. Nevertheless, an increase in migration is consistent with agricultural production and productivity trends in Mexico. Both Mexico's agricultural exports and its grain imports increased sharply after it joined NAFTA. At the same time, Mexico's export agriculture became more capital intensive, resulting in an overall decrease in farm employment. For example, in 2002, Mexican agriculture produced 15 per cent more output with 10 per cent fewer workers than in 1991 (Taylor, 2003). The bottom line is that, for rural Mexicans lacking the human capital to transition into non-farm sectors, NAFTA and related reforms may have increased the incentive to migrate to the United States in search of farm work.

Recent trends in the supply of rural Mexican labour to US farms

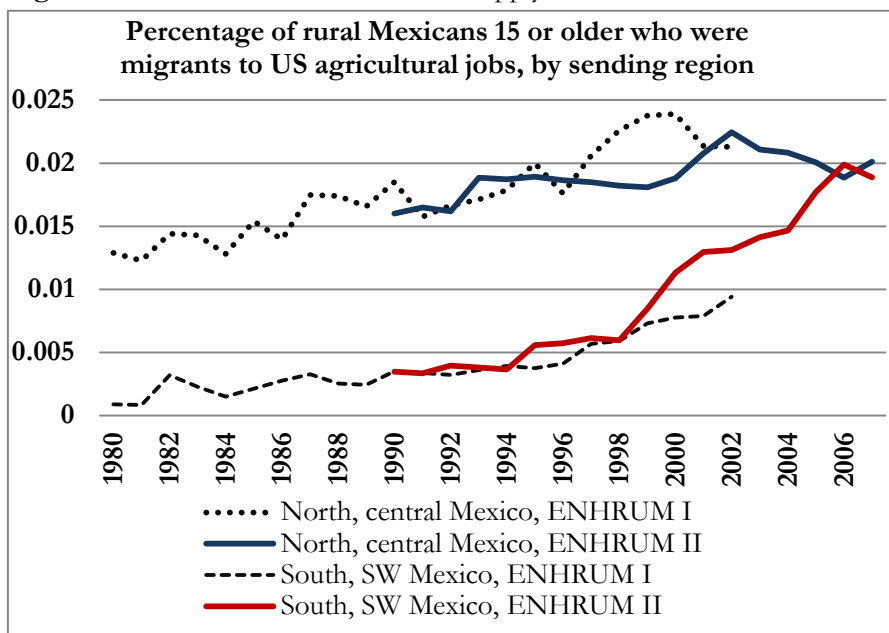
Our econometric analysis raises interesting and critical questions for agricultural labour markets in the United States. We are now more than 15 years into the implementation of NAFTA. Figure 2 suggests that the initial increase in migration to US farms that was associated with NAFTA has played itself out, and the long run trend of decreasing agricultural labour migration is reasserting itself. This is consistent with recent increases in real agricultural wages and reports of labour scarcity on farms (Rural Migration News, 2006).

A pervasive theme in agricultural labour research is that domestic agricultural workers become increasingly scarce as country incomes increase. The same applies to source countries of immigrant farm labour. As the work forces of developing countries around the world become less agricultural (see Taylor, 2010), agriculture in high-income countries must seek out new immigrant-source areas over time or adopt labour-saving technologies. The evolution of agricultural labour markets in farm labour-exporting regions raises questions

about the sustainability of a labour-intensive agricultural system dependent on immigrant labour.

As households, communities and regions become integrated into networks leading to non-farm jobs, their supply of labour to agriculture diminishes. In Mexico, data from the 2008 ENHRUM reveal that regional shifts in labour supply to US farms are happening quickly (Taylor, 2010). Figure 3 uses data from two regions of Mexico to illustrate changing trends in the sources of Mexican labour to US farms between 1980 and 2007. The West-Central and North regions (top, blue curve in the figure 3) traditionally were the major source of farm labour migrants and the focus of the Bracero program farm labour recruitment in the 1950s and early 1960s. These regions generated the results in figure 2, the long-run downward trend in migration interrupted temporarily by two different policy changes.

Figure 3: Trends in the US farm labour supply from Mexico



Source: Taylor (2010).

Compared to these regions, South and Southwest Mexico (including the states of Oaxaca and Chiapas) are largely indigenous and relative newcomers to international farm labour migration. They are rapidly gaining importance. Figure 3 shows a clear downward trend in international agricultural migration from the traditional sending areas, coupled with a sharp increase from the southern states. What explains this shift? As one moves southward from the United States through Mexico, the agricultural wage trajectory decreases. Agricultural wages average more than US\$7.25 an hour in the United States (US

Department of Labor, 2005: 39), US\$1.31 in Mexico's northwest region, and US\$0.98 in the Mexican southeast.¹¹

In fact, Mexico both imports and exports farm workers. Under a special federal program, the southernmost state of Chiapas draws temporary agricultural migrant workers from Guatemala.¹² The minimum agricultural wage in Guatemala is US\$0.72 per hour, more than 25% lower than in southern Mexico.¹³ Mexican immigration policy is beginning to appear hauntingly familiar to analysts of U.S. policy. A significant share of Guatemalan farm workers enters Mexico without the formal authorization of the Mexican Secretariat of the Interior. Mirroring aspects of the US Immigration Reform and Control Act of 1987, in October 1997 the Mexican government established procedures to enable Guatemalan nationals temporarily residing in Mexico to become documented in order to perform agricultural labor in the southeastern state of Chiapas.

Concluding thoughts

As US farms reach deeper into Mexico to secure labour, Mexican farms turn southward to fill their own labour demands. Inasmuch as farms in southern Mexico currently import labour from Central America, it would not be surprising to see an increase in Central American migrant workers in US agriculture in coming years. However, with a combined population one-third the size of Mexico's and accelerating urbanization, Central America's potential to replace Mexico as a significant source of US farm labour is limited.

Most empirical research on the immigrant farm labour supply comes from North America; however, seeking out new sources of farm labour is not unique to the United States.¹⁴ Canada's Seasonal Agricultural Worker Program (SWAP) draws mostly from rural Mexico, and there appears to be an increasing number of unauthorized Mexican immigrants working on Canadian farms.¹⁵ New Zealand's Recognized Seasonal Employers (RSE) program recruits workers from the Pacific Islands. The Chair of the organization representing New Zealand's pip fruit (apple and pear) industry warned in 2009 that "the scheme will not meet next season's labour requirements, and there need

¹¹ For California farm worker wages see *Rural Migration News* (October 2009). Mexican wages were compiled from the 2008 Mexico National Rural Household Survey (ENHRUM).

¹² Instituto Nacional de Migración Circular No. CRE – 247-97, "para trabajar temporalmente en las fincas cañeras, ganaderas y plataneras del Estado de Chiapas" (<http://www.gobnacion.gob.mx/archnov/MANUALm.pdf>). These workers are allowed multiple entries and exits into Mexico, but their movement is limited to within the state of Chiapas. See also Protection of Migrant Agricultural Workers in Canada, Mexico and the United States *Commission for Labor Cooperation*, Secretariat of the Commission for Labor Cooperation (International organization created under the North American Agreement for Labor Cooperation, <http://www.naalc.org/english/pdf/study4.pdf>).

¹³ National Labor Committee; <http://www.nlcnet.org/article.php?id=230>.

¹⁴ These and other examples are discussed in detail in Taylor (2010).

¹⁵ *Rural Migration News* (July 2007 and July 2006).

to be alternatives on offer to help with the transition ... growers will rely on illegal labour if that's not given."¹⁶ The RSE has become a model for Australia's Pacific Seasonal Worker's Pilot (PSWP) program. A recruitment centre at the Beitbridge crossing at the Limpopo River enables South African farmers to recruit Zimbabwean workers.¹⁷ Israel in 2007 had 29,000 foreign farm workers, despite protests from Ma'an, the Workers Advice Center, which claims that the foreign workers take jobs away from Arab agricultural labourers.¹⁸

Even developing countries are getting in on the act. For example, in the Dominican Republic, Haitians constitute over 90 per cent of the seasonal sugar work force and two thirds of coffee workers (Martin *et al.*, 2002). There were an estimated 135,579 un-naturalized Nicaraguans in Costa Rica in 2000, and one in four Nicaraguan immigrant workers in Costa Rica worked in agriculture.¹⁹ Sri Lanka exports domestic helpers and other workers, but imports Indian workers to harvest tea.

In Western Europe, regional integration has created new sources of farm labour from the former Soviet block countries. For example, the United Kingdom permits workers from the A8 Countries of Eastern Europe to travel freely to the UK and work after registering with the Workers Registration Scheme.²⁰ Greek agriculture relies significantly on Albanian workers, many of whom enter Greece illegally.²¹ Germany has taken the unusual step of attempting to reduce the immigrant share of its farm workforce, subsidizing the wages of jobless German workers hired by farmers.²²

In time, one would expect the migration networks currently channelling eastern European workers into agricultural jobs in the west to become more urbanized, as in Mexico. The German example of providing subsidies to hire domestic workers represents one response to uncertainties regarding future access to foreign workers (along with other social objectives). However, it does not encourage farmers to adjust their labour demands. Israel provides a different alternative: In December 2009 the government announced a new public initiative to invest in mechanization of Israeli farming "in an effort to reduce the need for foreign workers."²³

These examples illustrate that countries dependent on imported agricultural labour, like other increasingly scarce resources, have two options. The first

¹⁶ *Daily New Zealand News*, Tuesday, July 31, "Illegal workers tipped in orchards - Pipfruit NZ.

¹⁷ Rural Migration News (January 2004) and "Africa: Migrants, SA, USAID," *Migration News*, Volume 15 Number 4 (October 2009).

¹⁸ Rural Migration News (April 2007).

¹⁹ IOM (2001).

²⁰ The A8 countries include the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia (Rural Migration News, 2009).

²¹ See *Central Europe Review* (1999).

²² Rural Migration News (July 2007 and July 2006).

²³ Arutz Sheva, Israel National News Briefs, "NIS 625M to be Invested in Mechanization of Agriculture," <http://www.israelnationalnews.com/News/Flash.aspx/177179>.

is to invest in developing new sources of labour, domestic or foreign, finding new migrant-source areas and implementing accommodative immigration policies. This option is controversial, as amply illustrated by US and European immigration debates. There may be a long-run contradiction inherent in this option: Our findings suggest that, with or without immigration reforms, the trend in supply of labour from Mexico's traditional migrant-sending areas to U.S. farms is decreasing. This raises questions concerning the long-run feasibility of using gatekeeper policies to increase this labour supply.

The second option is to invest in what might be called "labour conservation." It entails reducing farm labour demands through a combination of technological change, improved labour management practices, and trade. The choices made will have far reaching ramifications for farmers, farmworkers and communities in both migrant receiving and sending countries.

References

- Banco de Mexico. (2006). Remesas Familiares. Available at: <http://www.banxico.gob.mx/eInfoFinanciera/FSinfoFinanciera.html>.
- Boucher, S. and Taylor, J.E. (2007). Policy shocks and the supply of Mexican labor to U.S. farms. *Choices*, 22(1) :37-41.
- Boucher, S., Smith, A., Taylor, J.E., & Yúnez-Naude, A. (2007). Impacts of policy reforms on the supply of Mexican labor to U.S. farms: New evidence from Mexico. *Review of Agricultural Economics*, 29(1): 4-16.
- Central Europe Review (1999). Vol. 1, No. 21, 15 November 1999, available at: <http://www.ce-review.org/99/21/vidali21.html>.
- Cornelius, W. A. (1989). Impacts of the 1986 US Immigration Law on emigration from rural Mexican sending communities. *Population and Development Review*, 15(4):689-705.
- Donato, K.M., Durand, J., & Massey, D.S. (1992). Stemming the tide? Assessing the deterrent effects of the Immigration Reform and Control Act. *Demography*, 29(2): 129-157.
- IOM (International Organization for Migration) (2001). *Binational Study: The State of Migration Flows between Nicaragua and Costa Rica*. Available at: <http://www.rcmvs.org/investigacion/BinationalStudyCR-Nic.pdf>.
- Martin, P.L. (1994). Good intentions gone awry: IRCA and U.S. agriculture. *The Annals of the Academy of Political and Social Science*, 534(1): 44-57.
- Mines, R., Gabbard, S., & Steirman, A. (1997). *A profile of U.S. farm workers. Demographics, household composition, income and use of services*. U.S. Department of Labor, Office of the Assistant Secretary for Policy (April).
- Orrenius, P. M., & Zavodny, M. (2003). Do amnesty programs reduce undocumented immigration? Evidence from IRCA. *Demography*, 40(4):437-450.
- Passel, J.S. (2006). The size and characteristics of the unauthorized migrant population in the U.S. Estimates based on the March 2005 Current Population Survey. Pew Hispanic Center Research Report, Mar. 7. Available online: <http://pewhispanic.org/reports/report.php?ReportID=61>.

- PEW Hispanic Center (2009). *Factsheet: Mexican Immigrants in the United States, 2008*. Washington, DC: PEW Hispanic Center, April 15. Available at: <http://pewhispanic.org/files/factsheets/47.pdf>
- Public Policy Institute of California (2002). Has increased border enforcement reduced unauthorized immigration? *Research Brief*, Issue no. 61.
- Rural Migration News (January 2004). Africa: Land, cotton. *Rural Migration News*, 10(1). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (April 2006). Farm labor shortages. *Rural Migration News*, 12(2). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (July 2006). Global: UK, Germany. *Rural Migration News*, 12(3). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (April 2007). Canada, UK, Middle East. *Rural Migration News*, 13(2). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (July 2007). UK, Germany, Canada, Spain. *Rural Migration News*, 13(3). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (January 2009). UK: Migrants. *Rural Migration News*, 15(1). Available at: <http://migration.ucdavis.edu/rmn/>.
- Rural Migration News (October 2009). California Ag Employment. *Rural Migration News*, 15(4). Available at: <http://migration.ucdavis.edu/rmn/>.
- Singer, A., and Massey, D.S. (1998). The social process of undocumented border crossing among Mexican migrants. *International Migration Review*, 32(4):561–92.
- Taylor, J.E. (2010). Agricultural labor and migration policy. *Annual Review of Resource Economics* 2(3):369–393.
- Taylor, J.E., and Dyer-Leal, G. (2003). *NAFTA, Trade and Migration from Rural Mexico*. Washington, DC: Carnegie Endowment for International Peace.
- United States Department of Labor (2005). *Findings from the National Agricultural Workers Survey (NAWS) 2001 - 2002. A demographic and employment profile of United States farm workers*. U.S. Department of Labor, Office of the Assistant Secretary for Policy, Office of Programmatic Policy, Research Report No. 9. March. Available at: <http://www.doleta.gov/agworker/report9/toc.cfm>.