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Comparative Advantage and Labor Issues in the Livestock and Meat Industry in Mexico and the U.S.[§]

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Introduction

This paper discusses factors affecting livestock production and labor use in North American livestock and meat markets. Part One considers the comparative advantage of livestock production with particular focus on Mexico relative to the U.S. Some aspects of the discussion will consider pork and poultry production as well and some of the implications will apply to Canada relative to Mexico as well. Part Two is an overview of labor use in livestock markets and will focus primarily on the demand for labor in U.S. livestock and meat industries. This section will also include consideration of the cultural and economic factors influencing the supply of Mexican labor available for agricultural production in the U.S., with specific focus on Mexican labor use in livestock and meat production in the U.S.

Part One: Mexican Comparative Advantage in Livestock Production

The Definition of Comparative Advantage

The concept of comparative is defined very specifically in economic theory and in the simplest form can be stated as production by an economic agent at the lowest opportunity cost. Economic agents may include individuals, businesses, regions or countries. Comparative advantage of production, which exploits gains from specialization, is the primary basis for all economic activity and the source of most of the economic progress of mankind. Given that the

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focus of this paper is the comparative advantage of production and trade between countries, references will be mostly to countries but it should be remembered that the concepts apply to individuals, businesses and regions as well.

The idea of comparative advantage contrasts with the absolute advantage that a country may have in the production of a good. Absolute advantage considers the absolute cost of production for a specific product. A country usually has an absolute advantage in production due to the quantity and quality of resources available for production of the product compared to another country. In contrast, comparative advantage considers the entire set of production possibilities that a country has and recognizes that the products for which the country has the greatest absolute advantage represent the cost or more correctly, the opportunity cost, of producing other products. Thus, the opportunity cost of producing any given product is measured by the amount of other possible production that must be forgone in order to produce the product.

A simple regional example from the U.S. illustrates the concept. The state of Illinois has an absolute advantage over the state of Oklahoma in the production of both corn and wheat due to better quality soils and more favorable climate conditions. However, because of the tremendous absolute advantage in the production of corn in Illinois, the opportunity cost of producing wheat in Illinois is higher than it is in Oklahoma. Thus, we observe that Illinois generally specializes in the production of corn and Oklahoma generally specializes in the production of wheat. This illustrates a critical implication of the concept of comparative advantage: although a country may have an absolute advantage in the production of all or most products, the country with no absolute advantage will have a comparative advantage in some product or set of products. If this were not true it would imply that a country with poor resource

endowments should not produce or trade any products, but, of course, it would never be economically efficient for productive resources to remain idle.

The previous discussion illustrates that consideration of the comparative advantage of Mexico in livestock production, must be evaluated in the context of the quantity and quality of resources and the full set of production possibilities that exist in the country as well as the relative demands for various products by Mexican consumers. The economic environment of agricultural industries in Mexico, relative to the U.S. and Canada, must consider Mexico's geographic, climatic, water and land resources; cultural and historic influences and constraints; lifestyle and consumption factors; the dynamic food retailing sector; availability of technology and capital; industry infrastructure; and public infrastructure.

The Physical Environment

The physical environment of any country or region has a significant influence on the quantity, quality and diversity of agricultural production that is possible. Mexico consists of a diverse range of geoclimatic regions with considerable natural resource endowments in general but significant limits on agricultural production. Broadly speaking, Mexico consists of three, roughly equal sized, geoclimatic zones: the arid and semiarid north, the temperate highlands, and the tropical and semi-tropical coastal plains. In total, Mexico has just over 1.97 million square kilometers, an area about one third the size of the U.S (INEGI, 2000). However, only about 11 percent of Mexico is arable, which means that the total planted cropland in Mexico is currently about 0.2 hectare/person (one half acre per person). Arable land is limited in Mexico for a variety of reasons. Much of the temperate uplands are mountainous where crop production is limited by slopes or shallow soils. The wet tropical region is not suitable for farming due to an excess of water and poor quality soils, while much of the arid north is not suitable for farming

due to lack of water. Mexico has significant regions, mostly along the coasts that are semi-tropical, or more specifically designated as dry tropical, meaning that the region has a warm, frost-free climate and receives an annual total of rainfall sufficient to be considered tropical but with a pronounced dry season for several months each year.

Much of the northern region of Mexico is an altiplano, or high inland basin, with the far northern part, including the eastern part of Chihuahua, all of Coahuila, the western part of Nuevo Leon, and parts of the states of Zacatecas and San Luis Potosi resembling the U.S inland basin of Utah and Nevada. Only where irrigation is possible, such as in the La Laguna region around Torreon, is significant agricultural production possible. Farther south, the inland region has a semiarid to temperate climate. The region known as the Bajio, including the states of Guanajuato, Michoacan, part of Queretaro and surrounding regions is a major crop production region and is often referred to as the breadbasket of Mexico. Much of central Mexico consists of highlands that are densely mountainous. Agricultural production in this region is limited to high altitude temperate valleys.

Mexico's east and west coasts consist of coastal plains that range from very narrow and limited areas to wider, fertile agricultural regions. On the west coast, the semi-tropical coastal plains of Sinaloa and Nayarit are major crop production regions while much of the central and southern west coast has little or no coastal plains and consists mostly of rocky coastlines. The eastern or Gulf coast of Mexico ranges from wide semi-tropical coastal plains in Tamaulipas and northern Veracruz to tropical coastal plains in southern Veracruz, Tabasco and Campeche. Crop production is limited by excess water in the wet tropical regions, primarily coastal Tobasco, which receives over 4000 mm (160 inches) of rainfall annually. However, most of the state of

Tamaulipas is temperate or semi-tropical and is a major crop production region. The Yucatan peninsula consists of shallow soils and a dry tropical climate that severely limit crop production.

Water availability is a significant limitation to agricultural production in Mexico.

Mexico has a relatively limited surface hydrology system with only a couple of navigable rivers, including a short portion of the Balsas river on the Pacific coast and the Grijalva and Usumacinta rivers in Tabasco and Chiapas. The majority of Mexico's long east and west coastal areas are bordered by nearby mountains with short, sharp drops to sea level. Much of the interior of the country, especially the semi-arid and arid inland basin simply cannot catch and hold enough surface water from the limited rainfall to consistently support large areas of irrigated production. Pumping of subsurface water is expensive and limited to few regions, most notably the La Laguna region of Coahuila and Durango.

The fact that only 11 percent of Mexico is arable means that a large amount of land is available for grazing. In fact, about 1.1 million square kilometers of the 1.97 million square kilometer total in Mexico is used for livestock grazing. Much this land is relatively low in productivity as reflected by the national average stocking rate of almost 9 hectares (over 22 acres) per animal unit. The stocking rate ranges from less than 2 hectares/per animal unit in the tropics to nearly 24 hectares per animal unit in the semiarid and arid north. However, most of this land has virtually no competing uses and thus the opportunity cost of using this land for grazing livestock production is very low.

Food versus Feed

Historically, as developing country, Mexico has relied heavily on plant based diets due to the low economic status of much of the population. Meat has played a relatively small but important role in the diet of peasants, who have and still rely significantly on plant based

proteins. A majority of the arable land has been used for food production that varied regionally according to climatic conditions but always included a predominance of the dietary staples of corn and beans.

Mexico's population has grown rapidly in the post-revolutionary period in the 1920's. The total population increased from 14.3 million in 1921 to an estimated 107.5 million currently (Pick and Butler; Culturegrams). From 1950 through the 1980s the Mexican population grew more than 30 percent each decade (Pick and Butler). Although the rate of population growth has slowed considerably in recent years, the absolute increase is still significant. Thus, the demand for arable land use for food production continues to grow. However, this growth is moderated by productivity increases in crop production and reduced reliance on plant proteins as meat consumption has increased.

Until some 25 years ago, most of the arable land used for feed (as opposed to food) production was feed for pork and poultry production as well as dairy and egg production. Historically, the beef industry has represented a minimal demand for cultivated feed resources because most beef production was forage-finished with minimal amounts of supplemental feeds used and most of those coming from a wide variety of by-products feeds. In the last twenty years meat consumption has increased significantly in Mexico, on a per capita basis, fueled by rising economic status and in total, because of continued population growth. Total meat production increased by 92 percent from 1990 to 2005. Over this period, modern pork and poultry industries developed and milk production evolved from predominantly backyard and dual purpose systems to modern production systems with milk produced in specialized dairies increasing from 15 percent of total milk production to 50 percent (Claridades Agropuecuarias). Each of these represents increased demand for concentrate feeds.

Most recently a significant change in the beef industry is contributing to even more dramatic growth in feed demand in Mexico. Total beef production in Mexico has grown somewhat more slowly than pork and poultry production, primarily because of significant exports of calves to the U.S. Additionally, Mexican cattle inventories shrank in the 1990s due to widespread and prolonged drought and recovery has been slow as a result of the devastating economic impacts of the Peso devaluation in late 1994.

However, in the last decade, Mexican beef consumption preferences have changed dramatically to favor a grain-fed product over the traditional grass-fed beef. Mexican beef production has shifted from producing only a small amount of fed beef in the small feedlot regions in the north to a large and growing percent of beef cattle receiving some level of concentrate feed in confinement and semi-confinement production systems. Thus, for the first time, the beef industry has entered the market for cultivated crops as a significant demander of feed resources. Today over 80 percent of the domestic beef in the Mexico City market is designated as fed beef (SECOFI) and perhaps close to fifty percent of total domestic beef production in Mexico is receiving some level of grain-finishing. Official Mexican data indicates that beef production increased by 40 percent from 1990 to 2005 while beef industry demand for feed grains grew by 174 percent over the same period (SAGARPA).

The competition for cultivated land in Mexico has sharpened with growing demand for both food and feed in recent years. In 2005, total corn production in Mexico accounted for just over 37 percent of total planted area. This is down slightly from an average over 40 over much of the past 25 years. However, in 2005, over 400,000 hectares of corn production was yellow corn for feed rather than white corn for food, with yellow corn production representing over 7 percent of total land used for corn production. Yellow corn production represented only 28,000

hectares in the year 2000 and statistics differentiating yellow and white corn production were not kept prior to this date. It is clear that growing feed demand for yellow corn is occurring in direct competition with white corn for food production (Mejia). Grain sorghum, historically the principal feed grain in Mexico, has increased from an average of less than 2 million hectares planted per year (8.5 percent of total cropped area from 1980-1995) to over 2 million hectares planted (10 percent from 1995-2003). The ability to produce feed directly affects the comparative advantage of Mexico in livestock and meat production and there is no doubt that the opportunity cost of growing feed in Mexico is rising as the demand for food continues to grow. The recent jump in world grain prices as a result of biofuel demand and other factors has greatly increased the value of feed crops in Mexico and added to the demand for feed grain production in competition for food grain production as it has in many other countries as well.

Public Infrastructure and Institutions

A country's comparative advantage in production and trade in specific products is often influenced by the overall quantity and quality of the public infrastructure as well as the nature and effectiveness of public policies and institutions in which an industry must operate. The cattle industry in Mexico is widespread in most all regions of the country in a wide variety of production systems. The quantity and quality of roads has a significant influence on the cost and feasibility of regional flows of cattle and meat and the costs of product assembly in the Mexican beef marketing system. Mexico has built a considerable number of modern four-lane highways in the past two to three decades and continues to expand the number of high quality roads. Most of these are toll roads and are quite expensive. However, Mexico is a very mountainous country and much of the country is accessible only by narrow, winding two-lane highways that are slow and dangerous. Continued expansion of the modern highway system will help improve the

efficiency of truck transportation of products but the cost of transportation and assembly of products will continue to be a disadvantage for the cattle and beef industry in Mexico.

The Mexican financial system and the availability of credit remains a challenge and limitation for many industries in the country. The general lack of affordable credit has limited the growth of the cattle and beef industries, especially given the loss of equity that followed the drought-forced liquidation coupled with the Peso devaluation in the 1990s. The beef industry in Mexico is very dispersed and has not seen nearly as much foreign and domestic capital investment as have the pork and poultry industries which tend to be characterized by larger entities.

Similarly, the Mexican legal system limits business activity in various ways. The difficulty of enforcing contracts results in unwieldy and costly business transactions. Arms length financial transactions are difficult and risky and much business is still conducted only in cash and often only family members are trusted to complete financial transactions. The lack of oversight and enforcement of performance of market intermediaries slows development of market institutions; and widespread activities of illegal and unscrupulous market traders contributes to the continued mistrust of “coyotes” in cattle and beef markets. The evolving Mexican beef industry faces the need for more complex multi-stage production and marketing systems that better integrate regional, national and international markets and, thus, an increasing need for effective and reliable market institutions (Peel). The lack of credit and the lack of credible market institutions both serve to increase the risk and the transactions costs and represent a continuing disadvantage for the Mexican cattle and beef industry.

A growing need for reliable and more complete market information is also part of the evolving cattle and beef marketing system. The lack of complete and reliable market

information contributes to the classic problem of information asymmetry between small, dispersed sellers of agricultural products and buyers that inherently have more information on market values. This contributes to the problems of the market “coyotes” described above and better market information is one of the keys to improving the performance and value of market intermediaries. The need for improved market information in Mexico is increasing as cattle and beef markets are less local or regional in scope and are more integrated with national and international market conditions. Mexican cattle market information has historically been most complete for slaughter cattle in local or regional markets with some price information on veal calves and cull cows. There has been relatively little trade of feeder cattle and almost no market information on feeder cattle prices. Cattle price information generally has little detail about weight or quality differences.

In related legal matters, there is the problem of the impact of the illegal drug industry and the illegal use of pharmaceuticals in cattle production. In neither case is there much data, but plenty of anecdotal evidence exists. In the first case, it is a matter of recognizing that the relatively high value of cattle and meat have long been recognized as a convenient way to store wealth and more recently as a means to launder money from illegal activities. Individuals involved in the drug trade have engaged in the livestock and meat business which has created false market values that interfere with legitimate business operations. The situation has been made worse in some areas where people with lots of illicit money have invested in ranches as a way to store wealth and often to create a haven for their families away from the drug trade. In some locations the value of land has been significantly distorted by this investment such that land values no longer reflect the value for cattle production.

In the other case, the strong Mexican consumer preference for lean meat, has led to widespread illicit use of clenbuterol, a banned (for animal use) steroid drug that increases muscle mass, and the illegal extralabel use of legally labeled products that are similar. In many cases, animals are being finished in confinement or semi-confinement production systems simply to take advantage of the opportunity to incorporate these drugs in the finishing phase. So many producers in some regions are lured into using these products that the use has created distorted market values for some classes of animals relative to others with negative impacts on legitimate producers.

Ironically, there is strong general preference among Mexican producers and consumers for “natural” products and minimal use of chemicals or additives. For example, most Mexican producers will not use hormone implants to improve cattle performance. As yet, the fallout from the illegal and dangerous drugs has not resulted in effective government enforcement of banned illegal products and proper label use of legal products nor has negative consumer reaction provided a market solution.

Industry Infrastructure

Cattle marketing in Mexico evolved out of a tradition of direct sales of grass-fed animals to local or regional slaughter markets. For many years, the majority of cattle were marketed in “wet” markets directly after slaughter in local slaughterhouses (rastros). Although some slaughter is still done “in situ”, mostly in small remote villages, the majority of cattle slaughter today is in municipal slaughterhouses which supply chilled carcasses for the wholesale market. More recently, slaughter facilities have been built closer to cattle production regions and more beef arrives as chilled carcasses to major markets such as Mexico City.

In the last decade, Mexico has seen growth in the number of federally inspected slaughter plants (Tipo Inspección Federal or TIF). These plants maintain internationally accepted standards for plant facilities and operating protocols. The majority of these plants are small and many are part of integrated beef production and marketing companies. In some cases, state or regional cattle industry organizations have undertaken this type of investment as a cooperative venture on behalf of producers. It should be noted that some municipal slaughter plants have upgraded facilities and operating protocols and can be considered TIF-like but most are not TIF certified. TIF plants offer considerable value-added opportunities because they are small and are usually and necessarily focused on specific target markets. The widely dispersed nature of Mexican cattle production and the previously described costs of assembly have so far prevented and make it unlikely that Mexico will develop beef industry infrastructure focused on capturing the economies of size of large scale facilities that characterizes the low cost, high margin orientation of the U.S. feeding and packing industries.

Although the Mexican beef market is still predominantly a carcass based wholesale market, significant growth in boxed beef has occurred in the last three to five years. Boxed beef is almost entirely confined to TIF plants and is part of the integrated value-added strategy of these firms. Of course, imported boxed beef has provided much of the impetus as imported meat can be narrowly targeted in value and with specific products.

Mexico has had a small feedlot industry for many years, mostly located across the northern part of the country from Monterrey, Nuevo Leon to Hermosillo, Sonora. For many years, this industry produced a quasi-U.S. style fed beef that fed the northern appetite for grilled beef. Cattle feeding was predominantly the heifer mates to the European breed influenced steers that were exported to the U.S. In the last decade, cattle feeding in Mexico has increased in response to rapidly growing domestic consumer preferences for a type of fed beef. This has led to additional feedlot production in traditional areas in the north and also in newer feeding regions including Jalisco, Queretaro, and the Huasteca region of northern Veracruz. The evolving national Mexican feedlot industry utilizes a wide variety of different cattle to produce a fed beef type that is distinguishable from U.S. or Canadian beef. The new cattle feeding system utilizes widely available bos indicus cattle, usually fed as intact bulls and dairy or dual-purpose dairy-beef crossbred cattle. The feeding system is a small to medium scale, less intensive feeding system. Although the feedlot industry utilizes a wide variety of byproduct feeds, to a much greater degree than in the U.S. or Canada, the growth in fed cattle production in Mexico has led to a significant demand for domestic and/or imported feed grains.

Cultural and Historical Influences on Beef Consumption

Cattle ranching in Mexico began when the Spaniards brought cattle to the country to provide meat for mining operations. In many places, especially in the north, the mining operations have long since diminished but cattle ranching remained as a major agricultural activity. By the end of the nineteenth century, most of the land of the country was in the hands of a few wealthy landowners and much of the wealth was stored in the form of livestock. The majority of the peasants existed by subsistence agriculture which emphasized crop production and small scale backyard animal production. This type of agriculture favored sheep, goats and

poultry and typically only a few head of cattle were maintained, usually as dual or triple purpose animals that provided milk, traction and lastly meat.

In this environment, beef consumption for most people was a relatively small dietary component and typically consisted mostly of mature animals at the end of their useful life for milk production or farming. This resulted in deeply engrained preferences for lean beef. Beef was typically processed with European cutting styles and consumed as small cuts of beef or more commonly in stews or soups or other moist heat cooking methods that tenderized the beef. Only in the north did the predominance of large scale cattle ranching and proximity to the U.S. lead to consumption of larger quantities of grilled meats in U.S. style cuts. As with many other cultural and political aspects, there is a distinct difference in the North compared to beef markets in the central and southern part of the country.

The situation continues today with strong Mexican preferences for lean beef. However, the obviously better meat quality of younger animals has led to a preference for fed beef that is preferred as much for the younger age at slaughter as for the changes in meat and marbling associated with grain finishing. A short duration, less intensive (by U.S. and Canadian standards) feeding system in Mexico produces a lean animal that is 6 to 18 months younger in age at slaughter. Many of the companies involved in cattle feeding began as meat companies and evolved into integrated feeding, slaughter and processing firms as markets and consumer preferences changed. This experience in meat retailing is an advantage in that the firms typically have a much better feel for the final market and thus have the ability to stay focused on producing products very specifically targeted to particular markets. This contrasts with the U.S. and Canada, where cattle feeding is still mostly a commodity production approach and feeding entities typically have little or no direct experience in meat marketing.

Urbanization and Food Retailing in Mexico

The dramatic population growth in Mexico from the 1950s on led to even more dramatic internal migration and urbanization. Mexico City has roughly 25 percent of the total population of the country and the three largest cities, Mexico City, Guadalajara, and Monterrey, have nearly 40 percent of the total population of the country. Seventy five percent of all Mexicans live in urban areas. Poverty in Mexico is largely a rural issue although the dramatic flight of people from the country to cities seeking better opportunities has and continues to challenge cities to accommodate the rapidly swelling urban population (Gunderson, Yañez and Kuhn).

The rapid development of the economic middle class in Mexico is tied directly to urbanization and all the demographic and lifestyle implications that go with it. The internal migration that drives urbanization results in fewer families with multiple generations in one household or in close proximity. The availability of refrigeration coupled with more working women means dramatic changes in food retailing. No longer do women spend much of each day shopping for small quantities of fresh food at specialty shops (meat shops, bakeries, produce markets, tortilla shops, etc.) Once a week grocery shopping in supermarkets is increasingly the norm in many urban environments. Mexican and foreign owned supermarket chains have increased dramatically in recent years. An increase in away from home food consumption is also a result of the increasingly affluent urban Mexican family.

With respect to the beef industry, the rapidly growing supermarket phenomenon is a bit of a challenge for the domestic production and marketing system. The large scale of supermarket chains favors meat purchase and distribution in boxed beef and in large volumes, neither of which represent the majority of domestic beef production in Mexico. The ability to

fine tune product retailing in supermarkets also contributes to changes in meat values in the Mexican system.

The popularity of beef cuts from the Chuck and Round and the ability to source those specific cuts in boxed beef imports has caused misunderstanding and led to charges of product dumping in Mexico. The U.S. system, dominated by boxed beef merchandising which allows wide variability in valuing different cuts, encourages exports of lower valued end meats at extremely competitive prices. These cuts compete with general beef prices in Mexico since most domestic beef is still merchandized as carcasses. The value of end meats from the U.S. appeared to be clearly below the overall production costs of the animal and was misinterpreted as dumping.

Summary

The Mexican economy is very dynamic and that, combined with increasingly important global market factors, means that food markets generally and meat markets, especially beef markets, will continue to evolve with dramatic implications for beef cattle production and feeding, along with meat processing and merchandizing.

The relative abundance of extensive forage resources with low opportunity cost for other uses clearly implies a comparative advantage for Mexico in cow-calf and stocker production that utilizes those forage resources. Reduced production of grass finished beef compared to historical levels means that additional forage resources for cow-calf and stocker production are potentially available. This maintains and potentially strengthens Mexico's ability to export feeder cattle if these animals cannot be effectively used in the domestic finishing and meat processing industry.

The increasing demand for fed beef in Mexico implies more opportunity for cattle feeding in Mexico. However, Mexico faces a severe and likely growing disadvantage in feed

grain production, especially for cattle feeding compared to pork and poultry production, as it is inherently more feasible to ship grains for the more efficient feed conversions of pork and poultry production. Mexico certainly cannot compete directly with the U.S. for low cost, high volume cattle feeding and meat processing. The smaller scale and lower intensity of cattle feeding means that Mexican cattle feeders can and must utilize a wide range of feed resources and rely to a greater extent on by-product feeds. Cattle feeding using a wide variety of feed resources increases marketing management to source feed ingredients economically and increased production management to adjust to constant changes in the quantity and quality of feed resources. In this manner, cattle feeding in Mexico may be able to offset much of the disadvantage of overall feed markets.

The fact that Mexican cattle feeding and meat processing industries are mostly small, integrated firms that have experience in meat marketing is another advantage. Mexican consumer preferences are evolving for more fed beef, but it is a fed beef product that is noticeably different than typical U.S. and Canadian fed beef. By maintaining a keen market and product focus and maintaining feeding and processing operations that exploit this focus, Mexican firms have much potential to compete effectively in niche and specialized markets rather than trying to compete directly against large scale, more commodity oriented U.S. and Canadian production systems.

Mexican beef consumers are generally predisposed to prefer domestic beef and are inclined to respond well to quality differentiation that recognizes distinctly Mexican quality attributes. This increases the potential for branded products and value added marketing provides an opportunity for Mexican firms to offset the disadvantages of feed costs and small scale, higher cost production and processing industries.

Mexico is likely to continue exporting feeder cattle than can be absorbed into the large scale feeding and meat processing industries in the U.S. and is likely to continue importing a significant portion of total beef consumption in terms of overall quantity as well as supplementing the supply of specific cuts that are most preferred and economical in the Mexican market. There is a potentially larger role for beef imports from South America, where both quantity and quality of beef may fit well into the Mexican market. The U.S. probably has to most reason to be concerned as U.S. beef in Mexico could potentially be displaced with beef from Brazil, Argentina or Uruguay. South American beef that is more consistent with Mexican beef consumer preferences could also reduce the ability of Mexican beef producers to differentiate domestic beef from imported and thus reduce some of the advantage previously identified.

Mexico is likely to have a forage based cattle production industry and has considerable potential to have a differentiated value-added cattle feeding and beef processing but only with careful market orientation and management to overcome the disadvantages of higher cost feeding and meat processing sectors.

Part Two: Labor Issues in the Livestock and Meat Industries

Introduction

The Hispanic connection to U.S. livestock and meat industries has a long history. Much of the cowboy tradition of the western U.S. originated with the Mexican vaqueros. Today, however, although Mexican labor is often used on ranches, in sale barns and in feedlots, the majority of labor demand is in the livestock slaughter and meat packing industries.

The meat packing industry also has a long tradition of immigrant labor. Beginning in the urban centers of the east and later in Midwest urban centers, meat packing and processing was

first populated with European immigrants and later with Hispanic and Southeast Asian workers. The result today is that nearly all of the beef packing, and much of the pork packing are located in the central part of the U.S., now mostly in rural communities, with a heavy reliance on Hispanic labor (Kandel). Much of the poultry industry and some of the pork industry are located in the Delta and southeastern states. In most all cases, and for very good economic reasons, most meat packing is located very near to animal production. In the case of beef, slaughter and processing facilities are located near to the feedlot finishing location of beef production. According to the Bureau of Labor Statistics, the direct employment in slaughter and meat packing (occupation code 51-2023) is 118,610 workers with a mean hourly wage of \$10.55 (BLS). The top five states with the highest concentration of workers in this occupation are Kansas, Iowa, Nebraska, Mississippi and Tennessee. Kandel reports a broader measure of meat processing employment in 2000 of 490, 621 workers with 79 percent of those located in the Midwest and South regions of the U.S. The same source also reports that nonmetropolitan meat processing employment increased from 46 percent in 1981 to 60 percent of the total in 2000.

The changing structure of the meat processing industry contributes to the labor issues and meat processing firms are generally larger and use more technology complemented by more low-skilled labor (Barkema, et. al., Kandel). The impact is thus much greater on a rural community when a large plant opens and brings in large numbers of low skilled workers. There has, in fact, been considerable debate over the net benefits of large meat packing plants in rural communities with disagreement among various studies on whether the job growth and related economic activities outweigh the negative impacts on public resources, not to mention potential environmental concerns associated with these plants (Artz, et. al.). Many of the labor issues of

concern today related to livestock and meat processing industries revolves around the twin issues of dependence on immigrant labor and location in rural communities.

The Supply of Hispanic Labor: The Mexican Perspective

In the U.S., the issue of immigration, especially illegal immigration, is mostly related to Mexicans in the U.S. and is usually viewed as a fundamental problem in itself. However the Mexican immigration issue is more usefully viewed as symptom of the bigger problem and challenge facing Mexico. Like many developing countries, Mexico has not always been able to match economic progress with demographic changes in an overall balance for the country as a whole and even more so within certain regions. Additionally, Mexican policies and programs, have had significant impacts and must be understood against the backdrop of history and culture that shaped the development of the country in the twentieth century.

The twin issues of population growth and urbanization are the two main drivers of tremendous domestic challenges in Mexico and the spillover into immigration issues. As noted previously in the paper, the total population grew tremendously in the twentieth century, especially from 1950 onward. Mexican total population increased 7.5 times from 14.3 million in 1921, at the end of the Revolution, to an estimated 107.5 million currently. In recent years, the growth rate has decreased and family sizes are falling, especially among urban residents, but rural families still tend to be larger. The huge increase in population has and continues to provide a formidable challenge for the Mexican economy to grow sufficiently to absorb the influx of new workers. This has been especially the case in the past twenty years as the rapid post-WWII population growth resulted in significantly younger age demographics. The Baby Boom in Mexico was proportionately stronger and lasted much longer (well into the 1980s) in Mexico compared to the U.S.

Over the same time period and for many of the same reasons, Mexico changed from a predominantly rural population to a predominantly urban society. Although such a transition is common in most developing countries, the rapidity and magnitude of the transition in Mexico is startling. In 1900, over 70 percent of all Mexicans lived in rural areas with less than 30 percent in urban centers. By 1990, this demographic had switched and over 70 percent were urban and less than 30 percent were rural residents. According to the 2000 census, over 75 percent of Mexican live in urban locations with over 47 percent living in large urban centers of 100,000 or more people (INEGI, 2001). Massive urban migration was the inevitable result of dramatic population growth and the poverty and lack of economic opportunity in rural Mexico.

Historical Background

In order to fully understand the Mexican situation today it is necessary to understand the historical setting that framed the development of the country over the past century. At the end of the Porfiriato, in the early 1900s, the majority of Mexicans were landless peasants living in a system of debt peonage to a small number of wealthy landowners. The motivation for and the result of the Revolution was agrarian reform to redistribute land among the people. The system of land distribution was heavily based on the creation of ejidos or communal lands for rural residents.

The ejido system was characterized by two basic elements. First, the notion of communal lands around each little village or pueblo was very consistent with historical land use and local customs, especially in the predominantly indigenous regions, where private property rights were less recognized than the idea of communal resources. Secondly, in order to prevent future exploitation of peasants, official title to the land was held by the government with use rights granted to farmers. In some cases, the lands were held and used communally (typically grazing

and forest lands) and in other cases lands were parcelized, in which peasants had exclusive rights to use (mostly for farming) specific tracts of land. In all cases, land could not be legally rented, sold or mortgaged. It was not until the profound and controversial change to Article 27 of the Mexican constitution in 1992, that the ejiditarios (members of the ejido) began to receive title to their lands. In many cases, the adjudication and assignment of land title remains an ongoing process.

The ejido system had several impacts that shaped economic and labor issues in Mexico and ultimately the immigration issue in the U.S. The ejido system guaranteed Mexican peasants access to land and thus for many years probably had the effect of slowing migration out of rural areas. This was particularly important in the early years of the post-Revolutionary period. The ejido system thus served not only as a vehicle for agrarian reform but also has been described as a “bank” of labor.

However, the ejido system had a number of negative economic impacts which made the situation worse as more time passed. Because the ejiditarios could not use the land as collateral, they had little access to capital for investments in technology and improved production systems. Producers had secure access to the land but were essentially trapped in an antiquated production environment that supported subsistence production but offered little hope of growing into viable commercial production units. As populations grew, ejido lands were, in many cases divided into smaller and smaller units with even less opportunity for efficient scale of production. Although the Revolution officially removed the debt peonage system that trapped peasant farmers during the Porfiriato, the ejido system, which gave peasants secure access to the land, simultaneously virtually guaranteed persistent poverty in rural areas.

Moreover, the subsistence nature of agricultural production was further enhanced by government programs which shielded producers from market signals, provided little incentive for improvement and, indeed, in many cases provided disincentives for improvement. Farmers had little opportunity to make economic progress and likewise, with no fear of losing the land, no incentive to strive for efficiency and increased productivity. It was this environment, fueled by a growing population, that led to the rapid urbanization which overwhelmed overall economic growth in the country and subsequently led to the growing numbers of Mexicans looking outside the country for economic opportunity. In many cases, it is the children of rural families that migrate or immigrate to seek work to help support the family.

According to a national Mexican survey on migration (INEGI, 2002), over 80 percent of the Mexicans that immigrate to the U.S. are male, of which 67 percent are between the ages of 15 and 34. Additionally, 46 percent of Mexican immigrants are the children of a family unit (as opposed to being the head of a household). Not surprisingly, 92 percent of the Mexican men that come the U.S. do so for work. Over 55 percent of Mexicans in the U.S remit money back home monthly and another 17 percent do so every three months.

Many of the Mexicans who enter the U.S. seeking work are not far removed from rural communities and an agricultural lifestyle. In general, they are very comfortable working in livestock industries and see the opportunity not only as immediate employment but a way to increase skills that may have value upon returning to Mexico. Thus, there is considerable use of Mexicans as ranch cowboys, in auction and feedlot facilities and in pork and dairy production facilities.

However, the greatest demand for Mexican workers is in meat packing and processing. Most of the work is low or semi-skilled, relatively good paying (from the worker's perspective),

usually steady and easy to enter and exit. Moreover, many Mexican workers are more comfortable in the rural and small communities in which many meat packing and processing facilities are located. The cost of living is usually less than in big cities and although wages are lower than for urban workers, workers may be able live more cheaply and remit more money to family in Mexico. It is likely that a majority of the total income of many ejido villages may come from remittances by family members working in the U.S.

Summary

The meat packing industry has long relied on immigrant labor. The work is unglamorous and much of it is physically demanding. The evolution of the U.S. meat industry to large volume facilities that utilize mostly low skilled labor and are located in rural communities is complementary with Hispanic workers in many respects. The national issues of immigration, especially illegal immigration, and the regional issues of the impact of minority workers will likely continue (Wilkerson and Williams). There is also the question of the net impact of illegal workers and the distribution of those impacts on federal and state governments (Southwest Economy). Whatever the debate, there will continue to be a mutually beneficial demand for Hispanic labor in livestock and meat industries and a supply of Hispanic labor to meet those demands.

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