This is to certify that the
dissertation entitled

MIGRANT FARM LABOR IN MICHIGAN: AN ANALYSIS OF RECENT TRENDS IN SUPPLY AND DEMAND, AND POLICY IMPLICATIONS

presented by

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has been accepted towards fulfillment
of the requirements for the

Ph.D. degree in Agricultural Economics

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July 21, 2004
Date

MIGRANT FARM LABOR IN MICHIGAN: AN ANALYSIS OF RECENT TRENDS IN SUPPLY AND DEMAND, AND POLICY IMPLICATIONS

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Doctor of Philosophy

Department of Agricultural Economics

2004

ABSTRACT

MIGRANT FARM LABOR IN MICHIGAN: AN ANALYSIS OF RECENT TRENDS IN SUPPLY AND DEMAND, AND POLICY IMPLICATIONS

By

Pamela Riley Miklavcic

A perception exists in Michigan that the supply of migrant farm labor no longer meets grower demand (Schmucker, 1998; Roccisano, 1998). An increasing shortage of workers implies an inability to harvest crops on time, incurring potentially heavy financial and quality losses for unharvested fruits and vegetables.

To understand the magnitude of the perceived problem, this study analyzes Michigan's migrant farm labor situation through a grower mail survey, a migrant pilot survey, and a migrant focus group. It explores the current and perceived future supply of (and demand for) migrant farm labor in the apple, asparagus, blueberry, and pickling cucumber subsectors.

The primary finding is that only 25% of the grower respondents experienced a labor shortage in 2000. Of these, only a small percentage had unharvested or late harvested acres, indicating that the present financial losses associated with the shortage are still quite small. The migrant respondents stated that non-economic, management-related changes are as likely as a rise in wages to attract additional labor to where it is needed. The overall survey responses indicate that both types of changes may be necessary throughout Michigan agriculture to prevent a future widespread labor shortage.

The first recommendation of this research is an extensive survey of migrant farm workers who seek employment in Michigan, to expand the knowledge obtained from the migrant pilot survey and focus group and to better balance the data made available by Michigan growers. The second recommendation is for the Michigan Agricultural Statistics Service to implement periodic and regular surveys (every two to three years) of growers in Michigan, with an eye to better understanding the long-term trends in grower-migrant relationships and employment opportunities. The third recommendation is for a pilot study to take place, to explore the possible establishment of fair wage niche markets for one or more Michigan agricultural commodities, similar to fair trade coffee presently sold in the United States. The fourth recommendation is the establishment of a state-wide task force whose role would be to improve communication between growers, migrants, and consumers--through survey work, training sessions, and newsletters made available in both English and Spanish.

To my husband, Milan,

and

in loving memory of my father, Elmer Newell Riley,

who died during the final editing of this dissertation

ACKNOWLEDGMENTS

Many friends, family members, and colleagues have made completion of this dissertation possible. It was a struggle in more ways than one, and their support throughout this long process has been more valuable than they will ever know. Their kind encouragement has made all the difference during this unintentionally long journey.

In particular, thank you to Dr. Richard Bernsten for his patience and unfailing confidence in me.

Thank you, too, to Dr. Lindon Robison, for his inspiration in tackling so many of life's hurdles. I truly could not have done this without his support early in the dissertation process.

In addition, thank you to Dr. Vera Bitsch for her timely and constructive feedback throughout the numerous drafts of this project. I have enjoyed our interactions throughout the last few years and hope to have many collaborative opportunities in the future.

I also could not have completed this project without the kind understanding of Dr. Eric Crawford. He has shown much faith in me for which I am grateful.

Thank you, too, to Dr. David Schweikhardt and Dr. Steven Gold for agreeing to serve on my committee.

Willie Wibert, Amparo Alvarado, and Juan Cruz, deserve a thousand thank yous. Their willingness to introduce me to migrant students at Michigan State University, to survey migrants in the field, and to answer numerous questions about migrant life in Michigan contributed greatly to the second half of this study. When I was despairing of gaining access to Michigan migrants, Willie made everything right.

Thank you to Dr. Jim Oehmke for advising me on the econometric portion of this study. His comments were helpful, forcing me to think more critically about the modeling portion of this dissertation than I might have otherwise. What a relief to learn that an econometrician can be so plain spoken.

Thanks, too, to Dr. Cynthia Donovan for being such a good friend throughout the many years of this project. Balancing three small children, a husband, and a dissertation has not always been easy. Cynthia has been the worthiest of listeners.

Other friends who have helped are Alecia McClure, Susan Baker, Julie Kelterborn, Terry Lingo, sisters Cindy Larned and Becky VerPlanck, Claire Capra, Vickie and Scott Zittel, and Janet and Sam Batzli. They have been so encouraging and I am fortunate to have them as my friends.

Additional professors and colleagues who contributed to the success of this dissertation are Professors Don Ricks and Marcelo Siles, former graduate student Amy Damon, Linda Beck, Marv Johansen (MDA), Joel Gorch (MDA), Craig Anderson (MFB), Jim Breinling (MSUE), Amy Brown (MSUE), Mark Longstroth (MSUE), Larry Borton (MSUE), Phil Schwallier (MSUE), Norm Myers (MSUE), Jerry Deer (ESA), Beverly DeJonge (UPM), Mark Depta (MBGA), and the late Manny Gonzales (former

Director, Migrant Counsel). Likewise, Dr. Jim Stapleton and Dr. Dennis Gilliland were crucial to reviewing the statistical portion of this dissertation.

Last, thank you to my wonderful family. My parents have always cheered me on, while my husband Milan's quiet encouragement has taken me farther than I ever dreamed I could go. My two middle children, Will and Marija, have filled my life with smiles, even during the most difficult times. Claudia's impending arrival provided the impetus to get things wrapped up. Last but not least, my oldest child, Peter, has shown by example how to fight the good fight. He has taught me that goals are best achieved by living one day at a time--no matter how long it takes. I am the luckiest wife and mom in the world.

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KEY TO ABBREVIATIONS

ANOVA	Analysis of variance
CAMP	College Assistance Migrant Program
ESA	Employment Services Agency
GAO	General Accounting Office
GCI	Gross crop income
JSRI	Julian Samora Research Institute
MASS	Michigan Agricultural Statistics Service
MBGA	Michigan Blueberry Growers Association
MDA	Michigan Department of Agriculture
MDCD	Michigan Department of Career Development
MFB	Michigan Farm Bureau
MSU	Michigan State University
MSUE	Michigan State University Extension
MWHD	Migrant worker harvest day
NCI	Net crop income
UPM	United Producers of Michigan
U.S.	United States

"Farming looks mighty easy when your plow is a pencil and you're a thousand miles from the corn field." -- *Dwight D. Eisenhower, Address at Peoria, IL 25 Sep 56*

CHAPTER 1

INTRODUCTION

1.1 *PROBLEM STATEMENT*

In recent years, a perception has emerged among Michigan growers that the migrant farm labor supply no longer meets grower demand (Schmucker, 1998; Roccisano, 1998). This perception has been corroborated in places like Florida where hand picked crops require large quantities of migrant labor, yet the labor has not been forthcoming (Dunn, 1999). Dunn (1999) called this the result of a strong economy, implying more alternatives to farm work for both legal and illegal immigrants. Yet the more recent slump in the national economy does not support this reasoning.

Despite complaints of farm labor scarcity across the nation, the U.S. General Accounting Office (GAO) reported (1997) that no such deficiency exists and one is not likely to occur in the near future (Kelly, 1998). More recently, in support of GAO's stance, Verhovek (2002) writes that migrant farm workers in Washington State and Oregon are having a hard time finding jobs.

Statistics from the Michigan Agricultural Statistics Service (MASS) point to more conflicting findings. For example, contrary to the grower statement that workers are increasingly difficult to recruit, the number of migrant laborers hired for farm work in

Michigan actually increased from 1998 to 1999 (MASS, 2000). Furthermore, while the average U. S. real wage increased by only 2.68% in 1999 (Labor Research Association, 2003), the average wage of Michigan farm workers rose by 4%, to a recorded mean of $8.21 per hour (MASS, 2000).

Thus, the perceived farm labor shortfall in Michigan may be a true reflection of a decreasing number of migrant farm laborers seeking work in Michigan. It may also be the result of numerous underlying factors, including: 1) wages that are simply too low to attract workers, especially when compared to those offered by today's service-oriented economy, 2) inadequate farm labor recruiting practices, 3) housing inadequacies, or 4) substandard farm labor management practices by growers.

1.2 *PURPOSE OF THE STUDY*

The purpose of this study is to analyze the migrant farm labor market in Michigan, focusing on the current and future supply of and demand for migrant farm labor in the apple, asparagus, blueberry, and pickling cucumber subsectors. This study is important to the Michigan plant industries for two reasons. First, the state extensively relies on migrant workers to harvest its numerous labor-intensive crops (Michigan Department of Agriculture (MDA), 1997). An increasing failure to hire enough workers, for whatever reason, reduces growers' ability to harvest crops on time, resulting in potentially heavy financial and quality losses for un-harvested (or late-harvested) fruits and vegetables.

Second, Congress intermittently considers legislative changes that could significantly influence the farm labor supply. While a proposal, attached to a bill that failed in Fall 1998, would have ensured a steadier flow of legal migrant farmworkers

nation-wide, it would have simultaneously increased growers' labor costs, through higher wages and mandatory housing improvements (Anderson, 1998). Such legislation likely would have led to higher agricultural prices, thus potentially reducing the competitiveness of U.S. produce.

If the *absence* of an actual labor shortfall could be documented, then it is possible that simpler, more cost-effective measures could be proposed for better aligning Michigan's labor supply and demand needs. For example, a more effective system than the one currently in place for directing migrant workers to growers who need laborers may be one solution. Another solution may be to establish a statewide committee, composed of growers *and* migrant farm workers, to identify and resolve communication problems and cultural difficulties between the two groups.

The goal of this dissertation is to answer a series of research questions as they pertain to migrant farm labor in Michigan's apple, asparagus, blueberry, and pickling cucumber industries. In addition to serving as a baseline study of the target crops, against which future data can be compared, this study can also serve as a model for studying migrant farm labor issues among other commodity subsectors in Michigan and elsewhere around the country.

This study will benefit:

1) ***apple, asparagus, blueberry, pickling cucumber, and other kinds of growers*** - by identifying the most effective ways for attracting and retaining migrant labor,
2) ***extension agents*** - by generating information that they can share with growers to improve their ability to recruit and retain migrant labor,

3) ***researchers*** - by establishing a line of research that can be expanded to other crops and elsewhere in the country, and

4) ***Michigan (and other state) legislators*** - by providing them with information they need to take into account when considering legislative changes that apply to migrant labor in Michigan and elsewhere.

1.3 *RATIONALE FOR APPLES, ASPARAGUS, BLUEBERRIES, AND PICKLING CUCUMBERS*

As of 1999, Michigan continued to be the nation's leading state in blueberry and pickling cucumber production, and third in apple and asparagus production (MASS, 2000). Blueberries and pickling cucumbers, respectively, accounted for 40% and 26% of national production, up from 32% and 23% in 1998 (Michigan Department of Agriculture (MDA), 1999). In 1999, apples accounted for 12% of national production, up from 9% the previous year (MDA, 1999). Finally, asparagus accounted for 14% of national production in 1999 (MASS, 2000).

In terms of Michigan's agricultural output, during 1994-1998, apples accounted for nearly one-half of Michigan's fruit production value. Blueberries accounted for nearly one-quarter of the state's fruit production value (23%), and pickling cucumbers accounted for approximately 12% of Michigan's vegetable production value (MASS, 1999). Furthermore, asparagus is a $20 million industry, with 80-90% of the crop processed and 10-20% marketed fresh (MASS, 2000; Herner and Kelly, 1992).

The most recent available data indicate that 57,000 acres of apples and 17,000 acres of blueberries (1997), and 17,500 acres of asparagus and 27,000 acres of pickling

cucumbers (1998) were grown (MDA, 1998; MDA, 1999).[1] In terms of acreage shares, 41.1% and 12.3% of Michigan's fruit acreage was planted to apples and blueberries, respectively. In 1998, pickling cucumbers[2] accounted for 15.4% of Michigan's vegetable acreage while asparagus accounted for 10% (MASS, 1999).

While a substantial amount of land is planted to these crops, in 1998 fruit accounted for slightly less than 6% of cash receipts from Michigan agriculture and vegetables accounted for a little less than 9%[3] (MASS, 1999). However, of the 38 Michigan crops that require migrant farm labor, the fruit and vegetable subsectors account for a significant proportion of this labor usage (MASS, 2000). Since migrant farm labor issues form the core of this study, and since it is the consensus of MDA, MASS, and commodity specialists throughout the state that the apple, asparagus, blueberry, and pickling cucumber subsectors are among the principal users of migrant farm labor in Michigan, this study targets these four crops.

Currently, disaggregated data are not available to estimate the distribution of migrant labor across the fruit and vegetable subsectors[4]. This specific lack of

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[1]A comparison across years indicates that these numbers do not shift significantly from year- to-year.

[2]Pickling cucumbers are differentiated from the 7,000 acres of cucumbers that were planted for the fresh market in Michigan in 1997 (MDA, 1998). Pickling cucumbers are grown for processing.

[3] Livestock, livestock products, and field crops together account for the vast majority of cash receipts from Michigan agriculture.

[4]Most data report hired farm labor as a whole, without distinguishing between migrant farm labor and resident labor.

information, as well as the ongoing claims by Michigan growers that migrant farm workers are becoming harder to find, makes this study particularly relevant.

In addition to their labor contribution to the target fruit and vegetable subsectors, these workers contribute considerably to small rural economies throughout Michigan during their tenure on Michigan farms. As pointed out by several growers in southwest Michigan, many of Michigan's small rural communities would suffer significant financial losses if migrant farm labor fell below current levels.

1.3.1 Apples

During 1986-1997, the number of apple farms declined by nearly 27% (from 1,516 in 1986 to 1,100 in 1997) and apple crop acreage declined by 8% (61,000 acres were planted in 1986, 57,000 in 1998). However, the number of apple trees in Michigan grew by 52.6% (8,850,000 trees in 1997 compared to 5,800,000 in 1986). This growth in the number of trees is a convincing indicator of the anticipated strength of the apple industry and its importance to Michigan's fruit sector. In fact, apple production reached a record high in 1999, producing 1.21 billion pounds--up 23% from 1998[5] (MASS, 2000).

1.3.2 Asparagus

Michigan is the only regional source of good quality "fresh" asparagus[6]. As such, the demand for fresh Michigan asparagus is high, as is the demand for processed

[5] In part, this was due to favorable climatic conditions.

[6] California is the country's top asparagus producer.

asparagus. Described by Herner and Kelly (1992) as environmentally friendly[7], nutritious, and high in dietary fiber, it is likely that an increasingly health-conscious public's demand for Michigan asparagus will continue to grow. Asparagus is a good crop for migrant workers, as it provides work during the spring when other crops do not offer job possibilities.

1.3.3 Blueberries

During 1986-1997, blueberry acreage grew from 14,100 acres to 17,000 acres, an increase of nearly 21% (MDA, 1998), despite a decline in the number of blueberry farms from 624 to 562 in the same time period. According to Hanson (1992), Michigan will likely remain the leader in blueberry production[8], in part because the area planted to blueberries can be expanded more easily in Michigan than in other states where high land values and wetland restrictions prevent such expansion.

While Michigan blueberry growers have been among those voicing public concern about a growing labor shortage, according to Hanson (1992) more acres of blueberries are mechanically harvested than hand-harvested in Michigan--while in other states, the reverse is true. Thus, it seems likely that smaller blueberry growers, without the capacity for mechanical harvesting, are most at risk from a labor shortage. Larger growers, who have been able to invest in mechanical harvesting equipment, will likely not feel the

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[7]Asparagus requirements are small in terms of fertility and pesticide applications (Herner and Kelly, 1992).

[8] Hanson (1992) estimates Michigan's annual production of blueberries ranges from 60 to 80 million pounds, or roughly 20% of world production.

pinch of a labor shortage at harvest time, although they may when it comes to pruning and sorting activities which are labor-intensive (Hanson, 1992).

1.3.4 Pickling Cucumbers

The number of harvested acres of pickling cucumbers has remained virtually unchanged since 1995 (26,000 acres in both 1995 and 1998) (MDA, 1999). However, total salt stock, fresh pack, and refrigerated pickle production increased significantly from 1998 to 1999, from 324,525 tons to 425,288 tons (MASS, 2000). While Michigan is the nation's number one producer of pickling cucumbers, it is projected that "the market demand for pickling cucumbers is not likely to increase much in the future" (Herner and Kelly, 1992, p. 21). According to Herner and Kelly (1992), because of the crop's labor-intensity at harvest time, the pickling cucumber industry is vulnerable to labor shortages.

1.4 *RESEARCH QUESTIONS*

Seven research questions are addressed in this study:

1) How do the apple, asparagus, blueberry, and pickling cucumber subsectors in Michigan differ in terms of their recruitment and retention of migrant farmworkers? (See Hypotheses 1 and 2 in the following section.)

2) How do large, more financially secure (and productive) farms in Michigan differ from smaller, less financially secure farms in their ability to recruit and retain migrant farmworkers? Does the same pattern hold across subsectors? (See Hypothesis 3.)

3) How do wage scales, housing opportunities, and other perquisites for migrant farmworkers contribute to real wages received and how do these real wages vary by subsector? Also, how do these real farm wages compare to non-farm wage opportunities? (See Hypotheses 4 and 5.)

4) What role does social capital play in migrant farm labor recruitment and retention? For example, how do repeat positive (or negative) interactions between growers and migrant farmworkers influence the ability of growers to attract sufficient labor to their farms? (See Hypotheses 6 and 7.)

5) To what extent do repeated interactions between growers and migrant farmworkers lower the transaction costs associated with locating and retaining migrant labor? (See Hypothesis 8.)

6) How do the perceptions of growers and migrant farmworkers differ with respect to the recruitment and retention practices of apple, asparagus, blueberry, and pickling cucumber growers? (See Hypothesis 9.)

7) How much of a migrant farmworker's Michigan earnings are returned to Michigan through local purchases? (See Hypothesis 10.)

1.5 *HYPOTHESES AND JUSTIFICATION*

This dissertation tests ten hypotheses. A brief statement justifying its inclusion follows each hypothesis. Theoretical, factual, and intuitive reasoning are used to justify each hypothesis.

HYPOTHESIS 1: Growers that supply approved migrant housing have an easier time attracting and retaining migrant farm labor than growers who do not, regardless of the subsector(s) in which they are involved.

JUSTIFICATION 1: The provision of migrant housing on the farm, at zero or reduced cost to the worker, raises a migrant worker's real wages and eliminates the cost of travel. Thus, assuming that: 1) farm wages are equivalent on farms that do and do not provide migrant housing, and 2) migrant farmworkers are rational decision-makers (in accordance with neoclassical theory), it can be argued that growers who provide migrant housing will have an easier time recruiting and retaining migrant labor than those who do not. Likewise, growers who supply approved migrant housing are eligible to be listed with the Michigan Department of Career Development (MDCD) (interview with Jane Anderson, agricultural employment specialist, MDCD, October 2003). MDCD then shares this list of potential employers with approved housing with migrants seeking work in Michigan.

HYPOTHESIS 2: The apple, asparagus, and pickling cucumber industries have an easier time recruiting and retaining migrant farm labor than does the blueberry industry.

JUSTIFICATION 2: Discussions with MDA, MASS, and commodity specialists indicate that Michigan apple, asparagus, and pickling cucumber growers are more inclined to provide migrant housing than are blueberry growers. Thus, in accordance with Justification #1, apple, asparagus and pickling cucumber growers will be more successful recruiting and retaining migrant farm labor than will blueberry growers.

HYPOTHESIS 3: Large farms (wherein farm size is defined in terms of total farm acreage, crop earnings, and estimated total farm earnings) have an easier time recruiting and retaining migrant farm labor than small farms.

JUSTIFICATION 3: As large farms generally have a stronger financial base, they are in a better position to invest in recruiting migrant farm labor. This is in accordance with economies of scale. In several instances, key informants noted that growers with large farms actually travel to Texas during the winter months to sign on workers. However,

more often, they hire crewleaders to do this for them. In terms of farmworker retention, growers with large farms can provide more and often better housing to workers. They also provide a larger variety of job opportunities, as well as more jobs, due to greater crop diversification and bigger areas planted per crop.

HYPOTHESIS 4: Farms that provide higher real wages have an easier time recruiting and retaining migrant labor than farms that provide lower real wages. In this case, real wages include actual wages plus the value associated with housing, utilities, and other grower-provided perquisites.

JUSTIFICATION 4: Based on the economic assumptions that: 1) all individuals are rational decision-makers, and 2) perfect information exists, farmworkers will likely migrate to where they can earn the highest wages. Frequently, wages are bolstered through the provision of special perquisites. Perquisites are arrangements like free or lower-cost housing, utilities, transportation, the provision of free childcare, or fiestas at harvest time[9]. When taken into account, these perquisites raise the real wages of workers, thus freeing up actual earnings for transactions elsewhere in the economy. Thus,

[9]Wage and perquisite information is communicated by word-of-mouth among migrant farmworkers.

migrant farmworkers will choose those opportunities that ultimately provide the greatest real income.

HYPOTHESIS 5: Among the growers of the target crops who provide migrant housing and other in-kind perquisites to migrant farmworkers, the real farm wages received by migrant laborers are higher than the non-farm wages they could receive elsewhere. Likewise, real farm wages are lower than non-farm wages when offered by target crop growers who provide fewer or no in-kind perquisites.

JUSTIFICATION 5: Anecdotal evidence reveals that some growers are having difficulty recruiting and retaining migrant farm labor while others are not. Since the same non-farm opportunities are available to workers employed by *both* kinds of growers, it can be assumed that the growers in each case are somehow managing their operations differently. Although minimum wage is the same throughout the economy, non-farm wages have risen in recent years, while increasing numbers of minimum wage job opportunities are available to *all* kinds of workers in today's service-oriented economy. Thus, non-farm opportunities are competing with agricultural opportunities, drawing workers away from the traditional migrant farm labor market. Growers who are able to compete with today's non-farm opportunities are those who

provide perquisites regarded by migrant farmworkers as sufficient to compensate for the potentially lower farm wages.

HYPOTHESIS 6: Growers who speak Spanish have an easier time recruiting and retaining labor than growers who do not.

JUSTIFICATION 6: This hypothesis draws on social capital theory, which focuses on "the sympathy of one person towards another person"[10] (Robison and Siles, 1997) and the impact of this relationship on the economic transactions that take place between the two parties. Using Spanish fluency as a proxy for the ability and desire of a grower to communicate with Hispanic workers, migrants (the objects of social capital in this case) can expect to be better understood and, in turn, better treated by such growers (the providers of social capital) (Robison and Siles, 1997). Thus, it is hypothesized that growers who speak Spanish are better able to provide the kinds of social capital that attracts, and then retains, migrant farmworkers.

HYPOTHESIS 7: Growers with migrant farmworkers who return year-after-year are better able to recruit and retain *new* migrant labor.

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[10] This sympathy can also be "extended towards an idealized self or object" (Robison and Siles, 1997).

JUSTIFICATION 7: It is assumed that migrant farmworkers who return to the same farm year-after-year find the working and living conditions on that farm sufficient to meet their economic and lifestyle needs. Positive word-of-mouth attracts additional workers to the same farms.

HYPOTHESIS 8: Growers whose migrant farmworkers return year-after-year have lower transaction costs associated with locating and retaining labor than growers whose migrant workers do not.

JUSTIFICATION 8: Social capital theory suggests that transaction costs are reduced when workers return annually. According to Robison and Siles (1997), social capital lowers transaction costs because each party's well being is linked to the well being of the other party. Growers need migrant workers they can trust and rely on; migrant workers need fair, just employers who offer regular employment. Where trusting relationships develop between growers and migrant workers, verbal agreements are used to arrange labor for the following year. As a result, growers do not have to spend money on advertising or crew-leaders, and migrant workers are saved the cost of searching for a place to work.

HYPOTHESIS 9: Discrepancies exist between the perceptions of growers and migrant farm laborers about what influences the recruitment and retention of apple, asparagus, blueberry, and pickling cucumber farm workers. These discrepancies are expected to be smaller between growers and migrant farm workers who interact with one another in the sharing and exchange of significant amounts of social capital. Nevertheless, because it is impossible to interview growers and migrants from the same farms, this hypothesis is difficult to assess directly. Rather, it will be explored broadly, through the responses of two unrelated samples of growers and migrant workers.

JUSTIFICATION 9: In general, growers and migrant farmworkers share little in common, culturally or economically. Thus, their perceptions of the world are different, compounded by the fact that each group plays a different role in the world of agriculture. Expectations differ, as do education levels. Perhaps most important is the language barrier that frequently stifles communication between growers and migrant farmworkers. Therefore, it can be hypothesized that growers and workers who invest in gaining greater knowledge of each other (a social capital investment) will have a better grasp of each other's modes of thinking.

HYPOTHESIS 10: Much of a migrant farmworker's earnings are returned to Michigan through local purchases that support Michigan's local, rural economies.

JUSTIFICATION 10: While living in Michigan, migrant farmworkers must purchase food, clothing, services and other items. Although all migrant farm workers may not live in rural communities while in Michigan, it can be hypothesized that those who do, contribute to the economic well being of local, agricultural communities throughout the state.

1.6 *ORGANIZATION OF THE STUDY*

This study is organized as follows. Chapter 2 presents a literature review, beginning with a discussion of Michigan's agricultural heritage and a concise history of migrant farm labor in the United States. It ends with an examination of social capital theory and its application to this research. Chapter 3 describes the study's theoretical framework and methodology. Chapter 4 reviews the findings from the Fall 2000 grower survey, as well as the logit regression results. Chapter 5 presents the results of the Fall 2002 migrant pilot survey and February 2003 migrant focus group. It also offers a comparison of grower and migrant findings, and the social capital implications of the research. Finally, Chapter 6 presents a summary of the research results, reviews the social capital findings of this research, and presents a series of conclusions, limitations, and policy recommendations.

CHAPTER 2

MICHIGAN'S AGRICULTURAL HERITAGE, A HISTORY OF MIGRANT FARM LABOR IN THE UNITED STATES AND MICHIGAN, AND A REVIEW OF SOCIAL CAPITAL THEORY

2.1 A BRIEF HISTORY OF AGRICULTURE IN MICHIGAN

Agriculture has played an important role throughout Michigan's history.

2.1.1 The Early Days

Native Americans, who first came to Michigan 10,000 years ago, used simple agricultural techniques to produce corn, beans, peas, squash, and pumpkins (Schaetzl, 2002). In the 17th century, fruit trees, primarily apples and pears, were introduced to Michigan by French explorers. As French-initiated fur trading declined in the early 1800s, Schaetzl (2002) asserts that farming took on an added role. The opening of the Erie Canal in 1825 and the removal of Native Americans from the region through federal Indian policies in 1833 laid the foundations required to develop an agricultural society. Both events encouraged the arrival of pioneers into the region, who developed Michigan agriculture.

New Englanders, who arrived first, established the state's wheat and wool industries, the first two legitimate cash crops in Michigan[1]. In the late-1800s, the Europeans began to arrive. Typically, the Europeans settled in areas where others of the same nationality had settled before them[2]. Once established, the pioneers developed agriculture to the point where it became the main economic activity throughout the rest of the 1800s (Schaetzl, 2002).

By the turn of the century, however, the Industrial Revolution was in full swing.

> "The tractor, the telephone, and the automobile revolutionized cultivation, communication, and transportation, and rural isolation was broken. Although farm conditions improved, people left the farms in droves and resettled in the cities. Rural depopulation became so severe during the 1920s that many farmers and growers had to import migrant labor" (Schaetzl, 2002).

Likewise, increasing competition from agricultural products in other states forced Michigan farmers to diversify their agricultural commodity base. Much of this diversification came about as knowledge was acquired concerning which ecosystems were best suited to which kinds of crops. According to Hill (1939), writing in the early part of the 20th century, differences in soil type, typography, climate and economic conditions played a major role in achieving this advanced level of diversification.

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[1] Schaetzl (2002) points out that so many people arrived at this time that Michigan's population was ten times greater in 1834 than it was in 1820.

[2] This pattern illustrates the role social capital played to reduce the transaction costs associated with settling in a new land. For example, the Germans settled near Saginaw, the Dutch in the Grand Rapids region, and the Finns in the Upper Peninsula (Schaetzl, 2002).

2.1.2 Michigan Agriculture After 1940

According to Bernsten (1998), non-farm factors, technology shifts, and the state of the economy began to exert stronger influences over the structure of Michigan agriculture in the 1940s. As suburban areas expanded out from the urban areas, land use patterns shifted as land values changed. This resulted in farms becoming much more specialized, breaking away from our traditional image of what a farm is. For example, in 1950 almost all farms kept animals. By 1987, farms had become so specialized that animals were kept on only some farms and, where animals were kept, the herds (or flocks) were very large (Bernsten, 1998). Likewise, farm inputs shifted. For example, tractor and fertilizer use increased, while overall labor hires declined[3].

From 1950 to 1987, Michigan experienced a 20% decline in harvested acres[4]. However, the acreage planted to some crops increased while that of other crops decreased[5], and the agricultural sector became more and more diversified. While the overall number of farms declined by 67%[6], average farm size nearly doubled, from 111 acres in 1950 to 202 acres in 1987. Whereas only 6% of

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[3] In 1950, 49% of Michigan farms hired labor of any kind. This number had dropped to 35% by 1987 (Bernsten, 1998).

[4] According to Bernsten (1998), whereas 47% of Michigan's land was used for farmland in 1950, only 28% was used for the same purpose in 1987.

[5] The five major crops throughout this period were hay, corn, oats, wheat, and dry beans. Bernsten (1998) states that they accounted for 90% of harvested acres in 1950; 82% in 1987.

[6] There were 155,589 farms in 1950, but only 51,172 in 1987 (Bernsten, 1998, p. 2).

farms in 1950 consisted of more than 500 acres, by 1987 45% of farms were this large.

Non-farm income also became an increasingly important source of revenue on Michigan farms between 1950 and 1987.

> "In 1950, only 33% of the farm households earned more income from nonfarm sources than farm sales. By 1987 almost one-half (49%) of farm households reported that farming was not their main occupation. Similarly, while only 31% of the households reported working 100 or more days off-farm in 1950, by 1987 this share rose to 49%--with 43% reporting working 200 or more days off-farm" (Bernsten, 1998, p. 4).

Despite these agricultural shifts, the continuing importance of agriculture to the stability of Michigan's economy must not be underestimated. In 1990, agriculture, food and forestry products contributed more than $53 billion to the state's economy. Of this total, food processing accounted for 51%, followed by forest product sales (29%), and input sales (3%) (Bernsten, 1998).

Agriculture and food processing serve to stabilize the state's economy when business cycles inevitably disrupt Michigan's manufacturing enterprises (Ferris, 2000). "Food processing tends to be located near metropolitan areas, facilitating employment shifts. Similarly, the proximity of alternative employment opportunities provides stability for households involved in agriculture and food processing" (Ferris, 2000, p. 3).

Likewise, Michigan agriculture contributes to the well being of the whole nation. Given that one-half of all Americans and Canadians live within 500 miles of Michigan (Ferris, 2000), most North Americans consume agricultural produce from Michigan farms.

2.2 *A HISTORY OF MIGRANT FARM LABOR IN THE UNITED STATES*

Many ethnic groups have worked in the U.S. as migrant farmworkers. In addition to Mexicans and African-Americans, numerous other immigrant nationalities, including Chinese, Japanese, Filipinos, and various European ethnicities, have filled this role in the past (Guerin-Gonzales, 1994). However, in many parts of the country, Hispanics have filled this role the longest number of years.

California growers set the pattern for migrant farm labor hiring practices that were eventually adopted throughout the country. Starting in the mid-to-late 1800s, when it became apparent that the supply of part-time farmworkers and domestic migrant workers was insufficient, growers in California were the first to "turn to foreign labor and recruited large numbers of workers from economically distressed countries" (Guerin-Gonzales, 1994, p. 15). According to Guerin-Gonzales, the Chinese were the first in a long line of migrant recruits, arriving in the late 1800s. But because they came in such large numbers and were willing to work for very low wages, worker riots eventually broke out. This, in turn, created pressure to stop Chinese immigration.

Consequently, at the turn of the 20th century, California growers turned to recruiting Japanese workers. From the start, the Japanese formed associations that enabled workers to look out for each other. Guerin-Gonzales (1994) reports that the Japanese were eventually able to organize themselves and thereby increase their wages as migrant farmworkers, as well as to buy their own land. In response, California growers began hiring Italian, Portuguese, Armenian, Asian Indian, Korean, Filipino, and

eventually Mexican workers, all of whom worked for significantly lower wages than the Japanese (Guerin-Gonzales, 1994).

Eventually, immigrants of white ancestry (the Armenians, for example) were allowed by law to purchase land. Others, like the Mexicans, were excluded from land ownership, primarily because of a California law (the Alien Land Law, passed in 1913) that made it illegal for non-whites to own land. Consequently, it was no longer possible for Mexicans and Asians to move up the ladder in the world of agriculture.

During World War I, when many white workers were drafted and the economy was booming with numerous non-farm opportunities, it became necessary for growers to provide additional perquisites to attract a sufficient supply of migrant farmworkers. It was during this time that growers first provided permanent shelter as housing to migrants. Nevertheless, as the war drew to a close and the shortage of low-wage farm labor began to subside, these early housing experiments ended (Guerin-Gonzales, 1994)[7].

The Great Depression of the 1930s dealt a severe blow to Mexicans throughout the U.S., as well as to Americans of Mexican ancestry. In an effort to restore jobs to unemployed Americans, the U.S. government deported half a million Mexican immigrants and Mexican Americans from throughout the country[8] (Guerin-Gonzales, 1994; Valdes, 1992). Naively expecting a reprieve from discrimination upon returning home, repatriated Mexicans found themselves the target of discriminatory practices in Mexico. First rejected by Americans as Mexicans, they were now rejected by Mexicans

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[7] At the time, Mexican workers were segregated from white workers, and white workers' houses were of a significantly better quality.

[8]Mexicans families living in the U.S. were earning roughly one-sixth of the 1935 national average at (Guerin-Gonzales, 1994).

as Americans. According to Balderrama (1995), "Adults found that the family and friends they had left behind were now total strangers. The Mexico they remembered no longer existed" (p. 3). As soon as it was possible for these workers to return to the U.S., they did so.

In other parts of the country, the transition of agriculture from a subsistence activity to a labor-intensive, market-oriented industry proceeded at a somewhat slower pace. Vargas (1997) cites Dennis Valdes' finding that during the late-19th century, sugar beet production in the Great Lakes region "triggered the emergence and eventual transformation of agriculture from subsistence farming to a labor-intensive corporate industry" (p. 4). Not until this time did migrant labor become a component of agriculture in the Midwest.

The first migrants to work in the Midwest were European immigrants. As the Europeans moved towards owning their own farms or becoming factory workers, African-Americans and Puerto Rican-Americans stepped in to fill the void (Vargas, 1997). Mexicans and Mexican-Americans followed them, mostly by way of Texas, in the 1910s and 1920s (Valdes, 1992). Referred to as *Tejanos*, these Mexicans and Mexican-Americans comprised the largest work force in the Midwestern states. "By 1938, 10,000 *Tejanos* migrated to the northern beet fields of the Midwest. By 1940, more than 60,000 *Tejano* workers annually entered the Great Lakes region for employment in agriculture, the majority migrating to Michigan" (Vargas, 1997, p. 4).

Since the 1970s, the number of migrant workers coming to Michigan has tapered (Aponte, 1995). Many have chosen to live here permanently, and now do other than migrant work. In 1970, 65,000 people of Mexican origin lived in Michigan. This

number grew to 112,000 in 1980 and to 138,000 in 1990 (Aponte, 1995). Presently, Michigan's migrant workers tend to come from Texas or Florida, rather than from Mexico[9].

2.2.1 The Role of Hispanics in U.S. Agriculture

Over time, Mexicans became the preferred group for migrant labor hires, due to the widespread belief that "Mexicans who returned to their home country each year... would not change the racial, cultural, or social character" of the communities in which they lived (Guerin-Gonzales, 1994, p. 24). Thus, considered a non-threat to local customs, as compared to the perceived threat of foreigners who settle permanently in a place, growers faced no opposition when inviting Mexicans to work in their fields.

Across the country, World War II cemented the role of Mexicans in American agriculture. Again, as soldiers marched off to war, white agricultural workers had to be replaced, this time via Mexicans recruited by the U.S. Government through the Bracero Program. According to Massey (1986), for a decade this program provided agricultural areas throughout the U.S. with a pool of authorized workers from Mexico and strengthened social ties between Mexicans living in Mexico and Mexicans living in the U.S. The Bracero Program continued long after the end of World War II, enduring for more than twenty years.

Massey (1986) reports that several migrant networks were in place by the time the Bracero Program ended in 1964, implying that communication between present and potential migrant workers was increasing. "The maturation of the networks after 1964

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[9] Most Mexicans come to work in what are called the 'big 5'--California, Texas, New Mexico, Arizona, and Colorado (Aponte, 1995).

coincided with a wave of capital-intensive agricultural modernization in rural Mexico, giving rise to a massive upsurge in out-migration, most of it undocumented. Consequently, townspeople turned to international rather than internal migration because the networks put a U.S. job within easy reach" (Massey, 1986, p. 107).

During the twenty years of the Bracero Program, growers and Mexican migrants established personal ties which insured a stable and reliable labor force, without incurring any legal obligations to the workers and, above all, without having to pay the transportation costs that were stipulated in the Bracero Treaty" (Massey, 1986, p. 107). Over time, Mexican labor contractors jumped into the fray, as middlemen involved in establishing connections between migrants and growers. As long as immigration officials overlooked the 2,000-mile border between Mexico and the U.S., growers, migrants, and labor contractors all benefited from this arrangement.

2.2.2 A Growing Concern Over Too Many Immigrants

In recent years, amidst public opposition to too many immigrants (legal and illegal), the U.S. government has mandated that border patrols step up their efforts to turn back would-be immigrants at the U.S.-Mexican border[10]. Millions of dollars have been pumped into this renewed effort. Nevertheless, undocumented workers continue to stream into the U.S. with relative ease, oftentimes adding to the Mexican-American populations that have already settled in border areas like southern Texas and southern California. From these new points of origin, it is significantly easier to pursue migrant

[10] According to Baker and Espitia (2000), U.S. citizenship applications alone increased eight-fold between 1991 and 1996, from 200,000 to 1.6 million. Much of this growth is due to Latin American immigration, accounting for the growing antagonism at the U.S.-Mexican border.

activities in highly agricultural states. Michigan is a favored destination among migrant workers from Texas[11]. In fact, many of these individuals have already obtained U.S. citizenship.

2.2.3 Changing Migrant Opportunities

The country's estimated 1.5 million farmworkers are considered by many to be the most vulnerable workers in the U.S. economy. After decades of filling backbreaking jobs unwanted by most Americans, migrant farmworkers have won little attention from the U.S. government despite accepting living and working conditions that most Americans simply would not tolerate (Howell, 2001). During the decades, when small and mid-sized farms predominated, this treatment was rationalized through the argument that migrant farmworkers make more money here than they would have made back home (Lightsey, 1999). Furthermore, the rationalization continues, many of these workers are here illegally.

Yet, as prior migrant populations have demonstrated, migrant farmworkers are finding alternative opportunities in an increasingly service-oriented economy. "Some... grueling jobs are... being abandoned in favor of higher-paying, easier work. It's another chapter in the age-old immigrant story: come to America, work hard and move up" (Lightsey, 1999, p. 28).

With major structural changes taking place in American agriculture over the past forty years, a new chapter in American history is slowly emerging. Firstly, large industrial-sized farms (*i.e.*, in the form of agribusinesses) are replacing small- and

[11] Known as *Tejanos*.

medium-sized farms. In 1960, 15.6 million people (8.9 % of the nation's population) lived and worked on farms (Rochin, 1989). By 1985, this number had dropped to 5.3 million people, less than 2% of the nation's population. Secondly, as stated by Bustamante (1992), fewer local workers are available or willing to fill our nation's low-wage jobs, especially doing farm work. Thirdly, the population of the U.S. is rapidly aging (Bustamante, 1992), implying a further dearth of workers at all levels.

2.2.4 A Complex Problem

It can be argued that the solution to any labor shortage lies in the readjustment of farm wages. Although agreeing that higher wages will attract workers towards any sector, small and mid-sized farmers argue that they cannot afford to pay higher wages and remain competitive with imported farm produce. In addition, even at current wage levels, farm operations are frequently not self-supporting without government assistance via farm programs. Schweikhardt (2000) notes that "the share of U.S. net farm income derived as government payments has risen from 13 percent in 1996 to 47 percent in 1999 (p. 5)."

Clearly, a number of complex issues complicate this analysis of Michigan agriculture's perceived labor problem, including a historical dependence on low migrant wages, a growing number of illegal workers who utilize their social ties (social capital) to migrate to the U.S., an increasing set of alternative job opportunities within the economy, a history of discrimination against migrants, a growing number of large farms, and a forecasted decline in the overall number of workers in America.

However, since growers (and agribusinesses) of all sizes depend on migrant workers, it is crucial to develop affordable, rewarding incentives to attract migrants (from whatever origin) to these essential jobs within our state's economy.

2.3 *A REVIEW OF SOCIAL CAPITAL THEORY*

A common question these days concerns why it has become increasingly easy for workers to enter the U.S. from Mexico, despite stepped-up border efforts. The answer can be found in social capital theory[12], which can be used to examine the accumulation of relationships between Mexican populations north and south of the border. Social capital provides the network, knowledge, and financial means to bring friends and relatives from home regions and villages in Mexico to the U.S.

As such, the number of Mexicans with U.S. experience has risen greatly since the days of the Bracero Program. Phillips and Massey (2000) estimate that nearly one-half of all Mexican men, from western Mexico, between the ages of 30 and 34 have been to the U.S.[13] In fact, in contemporary Mexican society it is common for one or more men from a family to migrate to the U.S. at some point in their working lives. Through their research, Phillips and Massey (2000) show that 64% of those of working age in their sample report one or two prior U.S. trips and many reported making multiple trips, "indicating a pattern of recurrent seasonal migration" (Phillips and Massey, 2000, p. 40).

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[12]Social capital is defined by Robison, Siles, and Schmid (2001) as "...a person or group's sympathetic feelings of admiration, caring, concern, empathy, regard, respect, sense of obligation, or trust toward another person or group" (p. 4).

[13] Phillips and Massey's 2000 study included a sample of 200 households in 38 communities in western Mexico.

For example, about 21% of working-age migrants reported five or more trips, 9% reported 6-10 trips, 6% reported 11-20 trips, and 2% reported 20 or more trips to the U.S.

The number of Mexicans with U.S. connections is large. According to Phillips and Massey (2000), "household heads reported having 3.4 immediate family members, 13.8 extended family members, and 11.6 friends with U.S. experience, yielding a total of about 29 potential contacts for advice on crossing the border, getting a job, or making one's way in the U.S." (p. 42). Respondents to Phillips and Massey's survey had a mean of 19.2 American contacts.

Thus, regardless of U.S. immigration policy, new migrants from Mexico will find a way to cross the border through their northern connections[14]. Likewise, as populations grow and connections multiply, social capital will continue to grow. Phillips and Massey (2000) conclude that

> "stocks of migration-related human and social capital that have already accumulated in Mexico will continue to serve as powerful engines of emigration for years to come. Unless there are dramatic changes in the binational political economy or shifts in the rules of the game along the border, the United States can expect the continuation of large-scale Mexican immigration well into the next century" (p. 46).

[14] According to Bustamante, Reynolds, and Hinojosa Ojeda (1992),

> "At least ten percent of the growth of the U.S. labor supply in recent years has been composed of Mexican migrants, with Mexican workers playing a far greater role in the U.S. economy than do U.S.-Mexico trade, direct foreign investment, or financial transactions. Native Mexicans working in the United States... represent fully a fifth of the Mexican-born workforce, and immigrant remittances to Mexico are just as important as oil exports and net earnings from *maquiladoras*" (p. 1).

2.3.1 Introduction to Social Capital Theory

An important component of this dissertation is the integration of social capital theory with the traditional economic theory of supply and demand. According to Bourdieu (1986), "it is impossible to account for the structure and functioning of the social world unless one reintroduces capital in all its forms and not solely in the one form recognized by economic theory" (p. 242). Robison, Siles, and Schmid (2001) define social capital as "the feelings of goodwill, caring, and respect people have for each other" (p. 2)[15]. They also define it as "...a person or group's sympathetic feelings of admiration, caring, concern, empathy, regard, respect, sense of obligation, or trust toward another person or group" (p. 4).

Lin (2001) describes social capital as "investment in social relations with expected returns" (p. 6). According to Lin's theory, four elements, including information, influence, social credentials, and reinforcement, explain why social capital works in "instrumental and expressive actions not accounted for by forms of personal capital such as economic capital or human capital" (p. 7). First, social ties allow an individual access to information about job opportunities and other life options that he or she may not have had without such ties. Second, members of the same social set can exert influence on behalf of one another in securing specific jobs. Third and fourth, social tie resources and relations reinforce one's membership within a group.

As two people (or groups of people) interact with one another, a rapport develops, as do feelings of sympathy and caring for one another (Robison, 1999). Social capital

[15] This, and the following, definition actually describes positive social capital. Since we are generally concerned with the positive connotations of social capital, we will continue to call it simply 'social capital'. Later in this chapter, negative social capital is defined.

theory identifies the recipient of this sympathy as the owner of social capital. "A person or group having social capital has an important resource that may provide them preferential treatment, access to information, and support from the social capital provider. Social capital providers often alter the flows of goods and services to benefit owners of social capital because relationships of sympathy internalize the consequences of their choices" (Robison, 1999, p. 4).

Social capital can also be described in terms of socio-emotional needs that must be met. According to Robison and Siles (2000),

> "It is well-established that individuals have social and emotional as well as physical needs. Socio-emotional needs include the need for validation (meaningful assignments), experiences of caring (friends), and information flows that communicate encouragement, support, and acceptance. Just as physical needs are satisfied by physical goods, socio-emotional needs are satisfied by socio-emotional goods. One important characteristic of socio-emotional goods is that they must be obtained directly or indirectly from others, including one's ideal self. Our need for socio-emotional goods provides an important incentive for investing in and maintaining one's social capital" (p. 4-5).

This being the case, it is worth considering the relationship between grower and migrant in socio-emotional, as well as economic, terms. This is especially true for migrants who may be looking towards growers for some degree of validation.

Robison, Siles, and Schmid (2001) describe the shared traits that originally entice people to interact with one another as 'kernels of commonality'. Such kernels, which can be either inherited or earned, must be in place for a relationship to begin and social capital to emerge. 'Inherited kernels' are traits about which we can do nothing, but which offer us something in common with other people. Some examples include nationality, gender, age, and the language in which we were raised. 'Earned kernels' are those we attain through interest or experience (for example, where we go to school, club

memberships, illnesses overcome, or even hobbies). Robison (1999) argues that relationships built on inherited kernels create stronger, longer-lasting bonds than do those built on earned kernels. This is because "inherited kernels cannot be destroyed or easily changed" (Robison, 1999, p. 5). Nevertheless, both inherited and earned kernels give us something in common with others, which is key to starting new relationships.

Some kernels are more important than others (Robison, Siles, and Schmid, 2001). Likewise, a kernel that is shared by only a few, and lasts over a period of time, tends to be stronger. For example, during my son's long battle with leukemia, we have met numerous families whose children are battling the same disease. As relatively rare as childhood leukemia is, this one earned kernel of commonality is equivalent to numerous other inherited or earned kernels that we may have in common, yet is so overshadowing that other kernels have only recently begun to surface. Acting alone, this one kernel has been sufficient to foster much social capital development between our families.

In economic terms, the same can be said of grower families and migrant families who have worked together for a number of years. Motivated by (and striving towards) the same harvesting goal year-after-year, families get to know one another, moving past cultural differences towards a sense of caring for one another. For migrants and growers willing to bridge the cultural and economic gaps that divide them, the overall work environment is improved. As described by several growers, trust and respect ensue. Thus, this earned kernel of commonality works to reduce transaction costs for both sides.

Most relationships rely on multiple kernels. "As the number of shared kernels increases, the strength of the relationship increases as well... When persons of different cultures first meet, the search for kernels may require more effort than when persons

share a culture, particularly if they do not share a language" (Robison, 1999, p. 13). Perhaps this explains why, to date, there are not *more* instances of strong social capital development between growers and migrant farmworkers. While the effort required of the two parties to acquire social capital is great, the value of the subsequent trust, respect, and reduced transaction costs associated with social capital accumulation may not be apparent.

Just as there are two 'kernel of commonality' types, there are also two kinds of social capital. 'Linking social capital' emerges from earned kernels when two parties are 'semi-socially close'. Robison, Siles, and Schmid (2001) assert that linking social capital can be "characterized by moderately intense feelings of connectedness such as respect, trust, and collegiality as might exist among colleagues, co-workers, and members of the same club, community, or athletic team" (p. 6). 'Bridging social capital' develops in more asymmetric situations, where contact between the individuals is limited, there are fewer shared kernels, and resources vary greatly between the two parties. Robison, Siles, and Schmid (2001) argue that bridging social capital develops between bosses and employees, teachers and students, and others whose 'ranks' are not the same. Bridging social capital plays a role in the relationship that develops between growers and migrant farmworkers.

Another assertion of social capital theory is that, in certain situations, weak ties are stronger than so-called strong ties. Referring to work by Granovetter, Robison (1999) notes that social capital derived from earned kernels of commonality is oftentimes more valuable in securing employment than is social capital derived from inherited kernels. This is because people who share inherited kernels often share a wide pool of similar

traits. Likewise, their access to job information is similarly limited. But because individuals with ties beyond their peer group are not so limited, they can use their earned kernels to network far beyond their original peer group. To date, the demand for migrant farm labor in the U.S. has been so great that inherited and earned kernels of commonality have both played a role in supplying jobs to workers.

Schmid (2000) describes yet another situation, common throughout the developing world, in which earned kernels have the potential to be enabling for an individual whereas inherited kernels can be quite crippling. The situation described by Schmid involves the gold craftsmen of Mali, all of who come from neighboring countries to work in Mali. They have chosen not to set up businesses in their homelands since relatives there would expect a share of the profits. Such close kinship ties (via inherited social capital) would obligate the artisans out of their savings, making it impossible to reinvest and grow their businesses. In this case, inherited kernels of commonality are actually harmful, particularly in today's competitive economic setting. Earned kernels, however, enhance the craftsman's ability to get ahead financially. Since migrant workers are known for sending much of their earnings back to their points of origin (an inherited kernel obligation), the advantage associated with earned kernels of commonality is probably most relevant when migrants choose to settle permanently in a community where they have found work.

A last quality of social capital is that it can take on positive and negative characteristics. Whereas the definitions cited at the beginning of this chapter pertain to positive social capital, negative social capital has been defined by Robison, Siles, and Schmid (2001) as "a person or group's hostile feelings of disgust, lack of concern,

antipathy, disregard, disrespect, lack of responsibility, or mistrust toward another person or group" (p. 6). Where negative social capital reigns, repeat interactions between individuals simply serve to reinforce negative stereotypes, fostering a mutual sense of ill will. On occasion, negative social capital develops between growers and migrant workers. Perhaps this explains why *some* growers are unable to find sufficient workers in what is otherwise described by experts as a labor-rich environment.

In closing, an effective way to highlight the importance of social capital is to envision a situation in which it does not exist. For example, foreign aid has failed time and again because foreign aid recipients have not been included in the development process (Schmid, 2000). As a result, no build-up of social capital ensued. Since the intended recipients were not consulted to learn if the "aid" would help to ease their burden, the good intentions of the so-called benefactors were received with malice because of the way in which the gifts were delivered. A lesson from this finding is that all parties involved in any difficult situation must be consulted for a truly workable solution to be identified.

Thus, social capital theory helps to explain why it is important to obtain the views of both growers and migrant workers when evaluating labor shortages. Taking into account both points of view offers the best hope of delivering solutions that are amenable to both parties. Areas of commonality and dissonance will be identified, serving as a first step towards developing the kind of improved communication necessary for additional social capital accumulation. In turn, it is expected that this social capital accumulation will lead to a better working environment for both parties.

2.3.2 The Promise and Limitations of Social Capital Theory

A major drawback to social capital theory is that it is still in an early stage of development. Researchers from many different fields are working to incorporate it into their paradigms, and academics and politicians are paying attention to it as well (Field, 2001). Nevertheless, measurement issues are a constant worry, and definitions seem to vary from field-to-field. Yet Field (2001) states, "As the research field matures, some of the fog should lift, and it will become easier to see where the greatest policy returns can be realized from investment in research on social capital and its measurement" (p. 55).

Nobody has yet proven that social capital can increase economic output (Field, 2001). According to Robison and Siles (1997), plenty of evidence points to the fact that higher incomes are strongly correlated with higher levels of social capital. Ironically, it is in well-developed economies where one finds the most impersonal transactions taking place. Over time, these transactions have become plausible through the well-thought-out placement of organizations and institutions for that purpose. Transaction costs are greatly reduced or eliminated, in turn reducing the need for social capital.

This implies that if one can enhance a community's sense of caring, an enhanced level of trust will ensue, thereby reducing transaction costs (in part, at least, through institutions) and enhancing a willingness to do business at a fair price. As observed by Schmid (1999), "you don't take advantage of a friend" (p. 164). All members of the community benefit and incomes rise, as long as they are the ones for whom the rules were written. As Robison (1999) points out, "Institutions are rules, regulations, norms, and values useful in regulating and ordering relationships. Organizations are groups of

persons with well-defined membership requirements governed by institutions. Organizations and institutions reflect the social capital " (p. 5).

This dissertation examines what happens when a second party, like migrant farmworkers, works its way into a system that was originally devised to look after the rights of a first party (*i.e.*, growers). More specifically, how can social capital accumulation be used to expand the base of beneficiaries that certain institutions represent (Robison, 1999)? The assumption is that increased knowledge of one another, and increased caring in the social capital context, will lead to a willingness among groups to devise organizations and institutions that better serve both parties.

2.3.3 Relevant Studies Using Social Capital Theory

In recent years, numerous studies have used social capital theory as a tool for exploring issues as diverse as small business development, minority characteristics in a majority setting, migrant travel patterns, and entrepreneurial affairs. This section reviews a series of studies that demonstrate the flexibility of social capital theory and its relevance to the study at hand.

2.3.3.1 Importance of Social Ties To the Success Rate of Agricultural Micro-Enterprises in Ghana

The first study explores the impact of relationships on how pairs of individuals choose to do business with one another. Since some growers and migrants have arms-length relationships while other relationships are like family, this study by Fergus Lyon

(2000) is of interest because it highlights the impact that even small actions can have on building trust and, hence, the desire to work together year-after-year.

Noting "a lack of empirical work on the social relations of markets and how actors build up trust that enables more complex exchange than spot transactions to take place" (Lyon, 2000, p. 663), Lyon conducted a study of agricultural markets in Ghana, focusing on the importance of social ties to the success rate of micro-enterprises. In the rural parts of Ghana where the study was conducted, no formal legal institutions exist to enforce business agreements. Rather, the two transacting parties totally rely on social capital accumulation. Through his research, Lyon used social capital theory to identify numerous social capital qualities that tie directly into the economic stability of Ghana's tomato subsector at the micro-enterprise level.

For example, Lyon learned that a tomato trader always knows where a tomato grower lives and works. This knowledge is equivalent to a lien on a house in another culture, in that it serves as a way to disgrace the grower into repaying money should an unpaid loan be at stake. All the creditor needs to do is visit the 'customer' at home or work, criticizing him or her publicly, thereby shaming and disgracing the person into making a rapid repayment.

Likewise, as a type of business insurance, a trader always attends the funerals of a customer's family members. The trader's attendance at (and contribution towards) a funeral creates a moral obligation on the part of the grower towards the trader. As a result, the grower will feel obligated to continue business dealings with the trader and will feel compelled to repay all loans. Since moral obligations are taken very seriously in this society, a social capital phenomenon like funeral attendance replaces the need for

legal institutions. Nevertheless, as Lyon learned, it also severely restricts the number of people one feels comfortable doing business with, resulting in very high transaction costs.

2.3.3.2 The Role of Soccer Clubs in the Development of Migrant Networks from Mexico

The second study examines community ties among migrant farmworkers in the U.S., how much those ties are strengthened through regular, informal social gatherings, and how important these gatherings are for job networking purposes. Had this study omitted its social component, many determinants of economic decision-making by migrant farmworkers in California would have been missed.

Douglas Massey (1986) applied social capital theory to his study of the role of soccer clubs in the development of migrant networks from Mexico. Massey learned that nearly one-half of all migrants from urban areas in Mexico join soccer clubs while living in the Los Angeles, California area. "Sunday after Sunday, townspeople meet to watch soccer and to socialize. This weekly reunion not only breaks up the routine of work, but it also provides a regular forum for communication and exchange. By sponsoring the regular interaction of townspeople, the soccer club serves as a clearinghouse for jobs, housing, and other information" (Massey, 1986, p. 106).

Thus, this unusual source of social capital is responsible for informally matching up employers with employees. It works in addition to family and *paisanaje*[16] networks, likewise channeling migrants towards job (and housing) opportunities throughout the

[16] *Paisanaje* networks are those based on same communities of origin in Mexico. People from the same community are obligated to help one another as they navigate their way towards agricultural and other job opportunities throughout the U.S.

U.S. According to Massey (1986), such social networks offer jobs, housing, food, transportation, and a social life to new migrants. "Their existence greatly reduces the cost of U.S. migration permitting its regular and repeated use by Mexican families in a conscious economic strategy" (Massey, 1986, p. 111).

2.3.3.3 Social Capital's Minimization of Adverse Poverty Effects in Latino Communities

The following study demonstrates that lifestyle decisions within the Latino community are influenced by social capital, rather than only economic considerations. Similarly, it is justifiable to assume that migrant workers use more than wage level, and other economic criteria, when choosing a farm on which to work.

Denner, Kirby, Coyle, and Brindis (2001) use social capital theory to explain why numerous Latino communities do well in all but economic terms. Success can be measured other than economically. In particular, this group of researchers studied how "four communities limit rates of teenage childbearing among Latinas, despite high rates of poverty" (Denner, Kirby, Coyle, and Brindis, 2001, p. 4). The authors conclude that communities with high social capital, or high levels of positive interaction with one another, are better able to maintain cultural norms than are less unified communities. The poverty in which they live is overshadowed by the social cohesion and resultant norms that surround them.

2.3.3.4 Human Capital Resources as a Tool for Finding Work in the United States

Phillips and Massey (2000) use social capital theory to better understand migrant farmworker travel patterns. By exploring the impact of social capital on the migration patterns of migrant farmworkers from Mexico, Phillips and Massey learned that repeat trips to the U.S., for the purpose of farm work, creates a wealth of human capital resources on which numerous other individuals can draw. "People who have already been to the U.S. are in a position to help friends and relatives travel northward, cross the border, and obtain work by providing information, contacts, and material assistance" (Phillips and Massey, 2000, p. 34).

This social capital phenomenon enables workers from the same location to travel to the same destinations for farm work and establish tight-knit communities away from home. After more than 50 years of building up social capital in this way, "this process of social capital formation is well-advanced and largely self-sustaining... so that social capital... is very widely diffused throughout the Mexican population" (Massey and Espinosa, 1997, p. 989).

2.3.3.5 The Importance of Social Capital in Making the Right First Impression

In their study of what makes an entrepreneur successful, Baron and Markman (2000) point to the initial importance of social capital. "Only candidates possessing high levels of social capital are initially considered (for a kind of work)--persons with favorable reputations, an established record in the field, a degree from one of the right schools, work experience with good employers, and so on" (Baron and Markman, 2000, p. 108). However, they conclude that social capital only gets one in the door. At this

point, Baron and Markman conjecture that social skills[17] take over in establishing an individual's potential worth to an enterprise.

Different cultural viewpoints are expected to influence how one person perceives another person's social capital worth. If both parties are from the same background, the social capital "ranking" is expected to be higher than if the two parties are from different backgrounds, as in the case of the grower who must hire an unknown migrant worker. Yet by hiring the friend of a trusted worker, it is expected that the social capital ranking of that friend will be higher by association.

Thus, social capital encourages workers from the same origin to seek work at the same farm and suggests that wages and perquisites alone do not explain worker destinations and grower hiring practices.

2.3.4 How Social Capital Theory Will Enhance the Relevance of Traditional Economic Theory

The social capital model recognizes that many (if not most) transactions take place on a quasi-emotional level (Robison, Siles, and Schmid, 2001). In other words, our feelings about (or toward) the person with whom we are doing business guide the path of that business, particularly when the business takes place in a less formal setting[18]. Business arrangements between growers and migrant workers are usually of this type, taking place at the farm gate and involving somewhat arbitrary payment methods,

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[17] Social skills are defined as 'specific competencies that help one interact effectively with others' (Baron and Markman (2000, p. 106).

[18] In this instance, "informal" is defined as outside the modern market setting, where buyers and sellers are frequently strangers and prices are set ahead of time.

especially when taking into account perquisites such as housing, transportation, or the provision of childcare.

A corollary is that we rarely make decisions on our own, as isolated individuals. Rather, we are constantly receiving information from the media, as well as from family, friends, colleagues and acquaintances. Some of that input is actively sought. Other times, it is absorbed subliminally, as a general feeling from our environment[19]. Since we are unique, each of us is surrounded by a completely different set of contacts. Thus, while we may feel as though we make our own decisions, we never really act 'alone'. One motivation for this is that we try to please others with our actions, acting in ways that directly seek validation from those we care about (Robison, 1999). Field (2001) says we are so engrossed in our surroundings that we generally overlook the fact that our decisions are never truly made alone (Field, 2001).

The point of the above is that no action, not even a business transaction, takes place in a vacuum. Likewise, the more informal the business environment (*i.e.*, taking place outside the confines of an institutional setting), the greater will be the social capital influence between the two individuals conducting the transaction. Robison (1999) argues that "...only when an economic good is exchanged without flows of validation signals, expressions of caring, and privileged information is the terms of trade likely to reflect the good's economic exchange value" (p. 16).

A study conducted by Robison and Schmid (1991) found that in a structured, impersonal market, people generally compete with one another to amass wealth, along

[19] Amin (1996) asserts that we live in a world of social contestation, where power struggles affect all levels of society by determining who controls what resources. More specifically, this social contestation influences what group is chosen to draw up institutional rules and how these rules influence economic transactions.

the lines of the quote: "He who dies with the most toys, wins". Yet in simple, two-way transactions, Robison and Schmid found that "sellers gave breaks to relatives and friends while selling at the equilibrium market price to strangers and refusing to sell to those they disliked" (Schmid, 2000, p. 163). Relationships distinctly influence how business is transacted.

According to Glaeser *et al.* (2000), incorporating a social capital variable into the neoclassical model should not be difficult. They argue that "...social capital is a meaningful, individual-level variable that can be studied with the tools of price theory... Human capital includes not only cognitive and physical abilities but also social capital, *e.g.*, interpersonal skills, status, and access to social networks" (Glaeser *et al.*, 2000, p. 841). This suggestion will be taken into account in Chapter 3.

In discussing how the social capital paradigm enhances the neoclassical model, Robison, Siles, and Schmid (2001) argue that " an absence of social capital in resource-rich networks may create for the poor unfavorable terms and levels of trade and limit the ability to take advantage of new economic opportunities... Absent linking social capital, communities are likely to under-invest in public goods, an outcome whose negative consequences fall disproportionately on the poor" (p. 21). Since social capital can alter the flow of goods and services (Robison, 1999), a goal of this dissertation is the integration of social capital theory on behalf of both growers and migrant workers.

In closing, the inclusion of social capital theory in this dissertation is a strong addition because of the simpler policy solutions it can point towards (Field, 2001). Rather than expensive and incapacitating politically motivated policy solutions, such as the recommendation for additional regulations concerning the hiring practices of growers,

this research seeks to identify simpler, more useful, cost-effective means for improving relations between growers and migrant workers. This may result in a better supply of migrant workers for growers and enable growers to keep good workers once they find them. After all, "many firms lose new employees due to poor management and poor environments" (Baker, 2001, p. 9). If possible to raise social capital between growers and migrant farmworkers, market efficiency should increase, leading to higher output (Field, 2001, p. 56).

CHAPTER 3

THEORETICAL FRAMEWORK AND METHODOLOGY

3.1 *THEORETICAL FRAMEWORK*

Since personal and social capital factors also influence the hiring decisions of growers and work destinations of migrants, both social and economic variables must be included in the modeling. This chapter presents the rationale for including social capital variables and describes the migrant farm labor supply and demand shifters that must be included in a conceptualization of this model.

3.1.1 An Integrated Interpretation of the Problem

A perceived undersupply of migrant farm labor in Michigan is the central problem of this dissertation. In conjunction with a series of simplifying assumptions and the maintenance of *ceteris paribus* conditions, neo-classical economic theory argues that the wage rate (w) is established at the point where the supply (S) and demand (D) curves intersect (Figure 3.1). A decrease in labor supply causes the supply curve to shift left (S') in response to fewer workers, while, in the short run at least, the demand curve (D') remains unchanged. A new equilibrium wage rate (w') is established at the intersection of the D and S' curves. To maintain this new equilibrium level, wages must rise from w

in the original configuration to *w'* in the new configuration. Thus, the observance of a rise in wages would support the argument that migrant farm labor has declined in recent years.

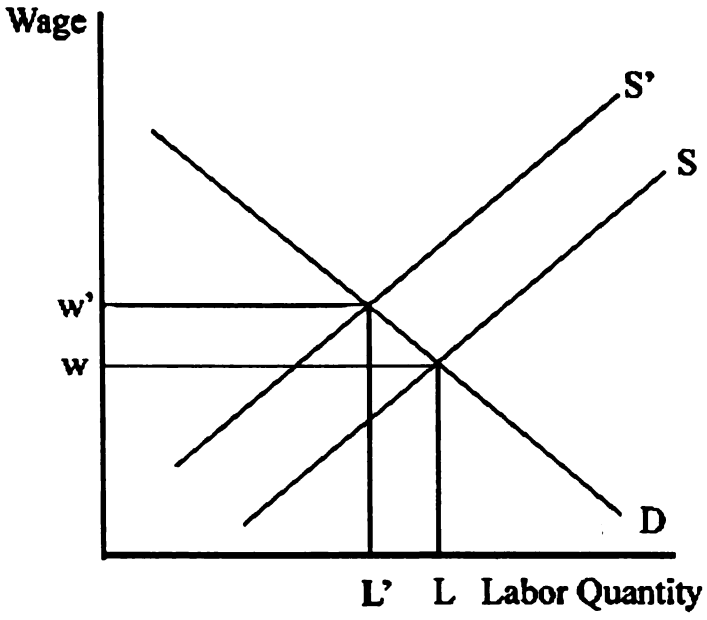

Figure 3.1: A neo-classical supply and demand diagram in response to a decline in labor supply

However, a preliminary analysis of available wage data provides inconclusive evidence as to whether or not wages have risen in recent years. The grower survey only requested wage data for the 2000 harvest season. This was because wages are difficult to estimate: 1) they can take many forms (hourly, piece rate, by the box, by the bucket etc.), 2) frequently depend on the type of growing season (conditions suited to a good crop or bad crop, for instance), and 3) may not be recalled with a great degree of accuracy over time.

While lacking multi-year wage data from growers, it is possible to use data obtained from migrant workers to identify trends in hourly wage rates. According to the focus group migrant workers interviewed (N = 8), mean migrant incomes (attributable to only Michigan farm work) rose by 9% between 2000 and 2001 and by 2% between 2001 and 2002 (Table 5.5). While this anecdotal evidence supports the labor decline argument, it is not statistically significant due to the small sample size. Further complicating the issue, the respondents to the grower survey typically reported paying workers more than minimum wage in 2000. Paradoxically, the migrant workers insisted that they rarely, if ever, receive the minimum wage for their harvesting activities[1].

The perceived decrease in migrant farm labor availability may be the result of migrants seeking work in guaranteed, minimum wage jobs elsewhere in the economy. While this would indicate that migrants are responding as rational decision-makers (seeking employment where the money is higher, with full information available to them), key informant interview indicated that migrants take many non-economic factors into account when seeking work.

Assuming the growers typically pay higher than minimum wage, economic theory suggests that rational-minded workers in the minimum wage service sector should seek farm jobs where standardized and real migrant farm wages exceed service sector wages, and where housing (a costly monthly expense in Michigan) is frequently provided.

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[1] The mean standardized wage rates calculated for the four grower groups ranged from $6.13/hour to $6.75/hour. This is 19% to 31% higher than the minimum wage rate of $5.15/hour paid elsewhere in the economy. A mean standardized real wage rate was also calculated, taking into account the perquisites such as housing that are frequently supplied by growers as in-kind supplements to their earnings. Generally speaking, these real wage rates were 4% to 44% higher than the standardized wage rates.

However, growers reported that fewer migrants are coming to their farms, which also implies that non-economic factors may contribute to influence migrant employment decisions.

As described in Chapter 2, social capital factors (*e.g.*, the opportunity to work with family members, to identify a 'good' farm through one's home of origin connections, or to maintain a friendly, comfortable relationship with a specific grower) are likely to influence a migrant's target destination. Likewise, worker status influences the employment options of a migrant worker. For example, an illegal immigrant, who is afraid of deportation, will look for employment at an anonymous, out of the way farm, rather than in a high-profile factory or restaurant where he or she is more likely to be noticed. On the other hand, a legal immigrant is free to seek opportunities where wage rates are more central to the employment decision. Likewise, a lack of education (*i.e.*, an inability to speak, read or write English) is a barrier to many job possibilities, which may explain why older migrant farmworkers tend to return to Michigan farms year-after-year while their more educated children have an easier time securing non-farm jobs. Finally, the focus group participants (all migrant students at MSU) consistently cited respect and fair treatment by growers as important factors guiding their decisions about where to work.

Interestingly, economists use the term 'labor shortage' differently from growers. An economist considers labor to be an input that increases or decreases as the wage level increases or decreases. Thus, a labor shortage can be corrected by simply offering higher wages. On the other hand, growers feel that a labor shortage exists if the number of migrant workers willing to work for a predetermined wage is insufficient to harvest

their crop on time. Because growers have a fixed wage rate in mind, they are unwilling or unable to offer higher wages to attract additional workers. Thus, whereas the economist sees a labor shortage as a problem that can be solved by increasing wages, the grower sees it as a chronic problem with no solution.

The growers' interpretation of a labor shortage is confirmed by the responses of roughly one-quarter of the grower respondents (across the four subsectors) who said they had an insufficient number of migrant workers to harvest their crops during the 1998-2000 harvest seasons. This percentage, which ranged from 27% in 1999 to 22% and 23% for 1998 and 2000, respectively), was highest among blueberry growers (Table 4.33). Paradoxically, less than one-half of the growers who said they had insufficient labor reported leaving any acres unharvested in 1998 through 2000 (Table 4.34). These results support that for a majority of the growers, a sufficient (if not optimal) number of workers were available to harvest their crop, raising doubt that they actually faced a labor crisis.

3.1.2 Proposed Determinants of Migrant Farm Labor Supply and Demand

Labor demand is impacted by external factors, including crop prices, government regulations, and weather conditions (Table 3.1). Crop prices are primarily determined by weather conditions, the state of the global economy and worldwide agricultural competition, whereas government regulations (*e.g.*, minimum wage, worker living conditions, and the stringency with which workers' immigration status is monitored) are determined by the state and federal political climate. In turn, these factors (over time) influence the demand for labor through their impact on growers' decisions regarding crop acreage, crop composition, and harvest mechanization investment decisions. These

shifters influence how many migrant workers a grower will employ in any given year, as illustrated in Figure 3.2.

Table 3.1: Labor supply and demand shifters, and their potential impact on supply and demand for migrant farm labor in Michigan

Labor Demand Shifters	Impact on Demand	Labor Supply Shifters	Impact on Supply
Crop prices	↓ or ↑	Higher wages elsewhere in the economy	↓
Crop acreage	↓ or ↑	Different types of job opportunities in MI (*e.g.*, service sector, landscaping)	↓
Crop composition	↓ or ↑	More job opportunities closer to permanent residence	↓
Mechanization of harvesting equipment	↓	Social capital networks leading workers to other destinations – or more to particular destinations in MI	↓ or ↑
Stringency of government regulations concerning worker status, living conditions, and wages	↓ or ↑	Better information through Internet resources, leading workers to better-paying jobs or jobs with better working conditions	↓ or ↑, depending on farm
Number of family members available to work on farm	↓ or ↑	Availability of perquisites, such as housing	↑
Weather conditions	↓ or ↑	Ability of family to stay together and work together	↑

In contrast, the supply of labor offered by migrant workers is impacted by a number of additional factors, especially (in recent years) growth in the number of employment options, including different and higher wage job opportunities throughout the economy (Table 3.1). Assuming their status in this country is legal, making such positions easier to acquire, these opportunities offer more security and stability to

Figure 3.2: Schematic diagram of the factors that influence migrant farm labor supply and demand in Michigan

families than traditional migrant farm labor work. Opportunities in the service sector (*e.g.*, fast food employment) or in agricultural, related enterprises (such as landscaping, which has grown tremendously in recent years) are available in Michigan as well as other parts of the country. These opportunities also offer migrant workers the option of staying closer to their permanent residence (for example, in Texas or Florida) or resettling in Michigan, where they may already have many contacts[2].

In recent years, the Internet has likewise become a supply shifter within the farm sector, influencing the work destinations of potential migrant workers. According to several key informants, migrant workers in Texas can use the computer literacy and language skills of their children to access migrant farm work information in Michigan. A web site established by the Employment Services Agency in Michigan allows migrants to compare the wages and living conditions of one farm against another, which better enables them to target the farms on which to seek work. This information supplements that of the already strong social capital networks, which use word-of-mouth communication to draw members of the same home communities to farms with more desirable working climates. Thus, Internet resources and social capital networks both serve to attract workers to farms with higher wages and/or improved working and living conditions.

In summary, growers face an increasing number of constraints that influence how they do business. Associated with these constraints are a growing number of costs that negatively impact an already financially compromised segment of our national economy.

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[2] This increased set of options implies that higher wages and improved perks are likely necessary to draw traditional migrant workers back to the field since growers must now contend with their competitors, adding to their cost of doing business.

In contrast, an increasing number of options are becoming available to migrant workers. More options imply more possibilities for moving away from migrant farm labor, an obvious choice in light of the hard labor and low wages associated with migrant farm work. Historically, Asian and European immigrants participated in the U.S.'s migrant farm labor work force but used their experience as a means towards eventually obtaining more rewarding work. Today, it appears that the predominantly Hispanic farmworkers are following a similar path, given that better-paying, more rewarding jobs are now in their grasp.

3.2 *METHODOLOGY*

In this study, a modified rapid appraisal, a grower survey, a migrant worker pilot survey, and a migrant worker focus group were used to collect data required to analyze factors that explain the perceived shortage of migrant farm labor in Michigan.

A modified rapid appraisal was used to collect quickly much disparate information about Michigan crops that require the employment of migrant farm labor. A rapid appraisal is described by McCracken, Pretty, and Conway (1988) as a timely, iterative, interactive way to assemble information from a variety of sources about a specific topic. The rapid appraisal was 'modified' in the sense that a single individual, rather than a multidisciplinary team, compiled the requisite information with experts in the field. Throughout the rapid appraisal, the assembled data were continually shared with the key informants in order to resolve inconsistencies and solicit their insights regarding the observed trends. This information served as the core source of information used to generate the study's hypotheses and design the research study.

The original intent of this study was to survey a sample of both growers and migrants in Michigan. Staff of the Julian Samora Research Institute (JSRI), at Michigan State University (MSU), agreed to interview the migrants, this researcher would survey the growers, and the information obtained from each group was to be shared equally by the two sets of researchers.

Disappointingly, a number obstacles and miscommunications led to the dissolution of this collaborative effort. The grower survey continued as planned, but a new approach was needed to collect similar data from migrant workers, hence reverting this round of data collection to a pilot survey and focus group. With assistance from the College Assistance Migrant Program (CAMP) at MSU, the on-campus office that recruits migrant students as undergraduates, a small sample (n = 10) of migrant workers were recruited to participate in a pilot survey[3]. Likewise, migrant students attending MSU (n = 8) were invited to participate in a focus group in order to validate and supplement the data obtained from Michigan migrant farmworkers.

The rest of this section elaborates on the four research components to this study.

3.2.1 Modified Rapid Appraisal

In Fall 1999, a modified rapid appraisal was carried out to collect background information on factors that affect the supply of and demand for migrant farm labor in Michigan. After reviewing the literature, key individuals were contacted to gain insights on issues related to migrant farm labor, including farm leaders, extension staff,

[3] Henceforth, this portion of the study is henceforth referred to as a pilot survey, rather than a survey, because of the small number of respondents and the potential bias associated with how the sample was obtained.

commodity groups, Michigan Department of Agriculture staff (including those on the recently-formed Jobs Commission Task Force which has a mandate to analyze farm labor issues), state legislators/staff with expertise in migrant labor issues, Michigan Farm Bureau members, and Michigan's several migrant service agencies.

Information collected at these meetings served to inform the types of questions that were included in the grower and migrant surveys. Likewise, as information was gathered and more questions arose, these key informants were contacted to clarify details about the key issues and problems associated with migrant farm labor in Michigan. The modified rapid appraisal provided the opportunity to quickly gain a thorough understanding of the problems faced by both growers and migrant farmworkers.

3.2.2 The Survey and Pilot Survey Populations

The sample of Michigan growers and migrant farmworkers were selected as described below.

3.2.2.1 Targeted Growers

MSU's county extension agents (MSUE), who worked in areas of the state where apple, asparagus, and pickling cucumber growers are widely grown, were contacted and asked to assist in identifying growers of these crops and to mail out surveys to ensure the anonymity of the growers. Blueberry growers were identified through two commodity groups, the Michigan Blueberry Growers Association (MBGA) and the United Producers of Michigan (UPM). Representatives of these groups mailed out the blueberry surveys.

In 2000, there were approximately 1,100 apple growers in Michigan (MASS, 2000). Of this total, 37% (representing 56% of Michigan's apple acreage) lived in eight counties—Berrien, Ionia, Kent, Manistee, Montcalm, Muskegon, Newaygo, and Ottawa county (Figure 3.3). The survey was mailed to 270 growers (25% of the state's apple growers) in these target counties.

In 2000, there were approximately 410 asparagus growers in Michigan (MASS, 2000). Of this total, 70% (representing 89% of the state's asparagus acres) lived in eight counties—Berrien, Manistee, Mason, Mecosta, Oceana, Ottawa, St. Joseph, and Van Buren counties. The survey was mailed to two-thirds of the growers (46% of the state's asparagus growers) in the target counties.

In 2000, there were approximately 575 blueberry growers in Michigan (MASS, 2000). Of this total, 81% (representing 95% of the state's blueberry acreage) lived in five counties—Allegan, Berrien, Muskegon, Ottawa, and Van Buren county. The survey was mailed to 240 growers (42% of the state's blueberry growers) in the target counties.

In 2000, there were approximately 160 pickling cucumber growers in the state (MASS, 2000). Of this total, 20% of the state's growers (representing 15% of Michigan's cucumber acreage) lived in four counties—Manistee, Montcalm, Newaygo, and Oceana county. However, it was only possible to obtain a list of twenty pickling cucumber growers, due to the large size of these enterprises and the reluctance of the high-profile firms associated with this industry (*e.g.*, Vlasic and Heinz) to identify their contract growers. The survey was mailed to the 20 pickling cucumber growers in the target counties. Despite the difficulty in selecting a representative sample of pickling cucumber growers, pickling cucumbers were included in this study for the insight they

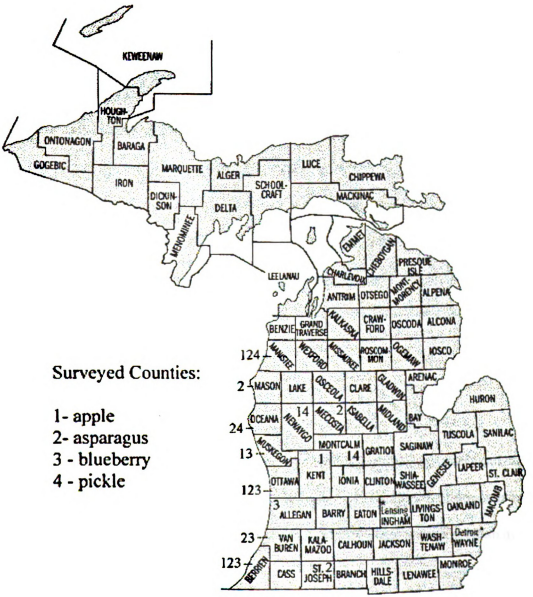

Figure 3.3 A map showing the counties targeted by the grower survey (Michigan, 2000)

have to offer regarding a different type of migrant labor usage. Nevertheless, given their small number, pickling cucumber data can only be reported as anecdotal findings.

3.2.2.2 Targeted Migrant Farmworkers (Pilot Survey and Focus Group)

The College Assistance Migrant Program identified 30 migrant farmworker families, ten of whom agreed to respond to the written migrant survey during Fall 2002. Since each family was an acquaintance of a student studying at MSU[4], the respondents do not represent a random sample of Michigan migrant workers. Thus, due to the small size and nature of the sample, data are reported as a pilot survey.

In addition, to supplement the pilot survey findings, a focus group involving MSU migrant students (n = 8) was conducted. Held in February 2003, the focus group served as a source of additional feedback from students who have spent their lives in migrant farm working families.

3.2.3 Survey Instruments

Three surveys were designed to collect data for this study--a grower mail survey, a supplemental grower mail survey, and a migrant pilot survey. Each survey was written in collaboration with Dr. Richard Bernsten, a data collection and survey specialist.

[4] These same MSU students were asked to administer the survey to respondent families, since the families were described as wary of outsiders. Although a degree of bias may have been introduced by having the students administer the survey, this bias was less significant than the likely bias that would have resulted from having the researchers ask the questions.

Likewise, each survey was written with the assistance of crop specialists and extension agents from around the state[5].

In Fall 2000, the mail survey was sent to apple, asparagus, blueberry, and pickling cucumber growers. In addition, a supplemental survey was sent to blueberry growers[6] (Appendices A and B, respectively). The survey of migrant farmworkers was conducted in Fall 2002 (Appendix C[7]).

Since available Michigan farm labor and wage rate data do not classify hired farmworkers by migrant or local hire status, the grower survey was constructed to collect information needed to calculate migrant worker supply, demand, and wage rate statistics. In addition, the surveys were designed to generate data required to carry out a regression analysis to identify the supply of and demand for migrant farm labor.

3.2.3.1 Grower Mail Survey

To document recent trends in wage rates and labor supply, as well as the growers' perceptions regarding the magnitude of migrant farm labor supply problems, the mail survey solicited data from growers to determine, among other things: 1) the number of

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[5] For example, Professor Don Ricks was a crucial contact for identifying questions to ask apple growers, and the three other growers. In particular, he offered advice about how to phrase questions so the responses could be interpreted with the least degree of ambiguity.

[6] The survey was first mailed to blueberry growers. Given the unexpectedly high number of blueberry growers who did not hire migrant labor in 2000, the survey for apple, asparagus, and pickle growers was modified to obtain additional information about growers who do *not* use migrant labor. This supplemental survey was also sent to all blueberry growers targeted by the first survey, in order to gather the same kind of information.

[7] The migrant pilot survey was mailed nearly two years after the grower survey, partly because of the difficulty of finding a reliable migrant farmworker connection and partly because the results of the grower survey were needed to determine the line of questioning for the migrant farmworkers.

migrant farmworkers hired in each of the previous three years and the period during which they were employed, 2) the number of migrant farmworkers actually *needed* during each of the previous three years to harvest crops, 3) the percentage of all hired laborers which migrant farmworkers represented, 4) the wage rates paid to migrant workers, 5) the types and value of perquisites (particularly housing) offered to attract migrant workers, 6) methods used to recruit migrant labor, 7) farmers' assessment of whether the supply of labor has been sufficient to meet his/her labor demand and, if not, what factors contributed to the shortage, 8) costs, other than wages and perquisites, associated with hiring migrant labor, 9) the cost of the next best alternative (non-migrant) source of farm labor, and 10) crop land area and value (if any) lost because of a shortage of harvest workers.

To assess future trends in the supply of and demand for migrant labor, the grower survey solicited information regarding both: 1) the growers' assessment of the factors that are likely to increase/decrease their demand, and 2) the growers' assessment of the future supply of migrant labor and factors that are likely to increase/decrease the supply.

To facilitate analysis of these data by type of enterprise/crop, additional data were collected including farm size, crops grown, area planted to each crop, gross farm revenues, percentage of production value attributable to apples, asparagus, blueberries or pickling cucumbers, and agricultural production value harvested by migrant workers.

3.2.3.2 Migrant Farmworker Survey

The survey of migrant farmworker families solicited information on the following: 1) wages received during each of the past three years, 2) location of permanent

residence, 3) migratory work pattern during a typical year and number of years seeking work in Michigan, 4) months spent in the state during the past three years, 5) reasons for seeking work in Michigan, 6) how they identify farm labor opportunities, including work in Michigan, 7) positive/negative aspects of working as a farm laborer in Michigan, as compared to other states, 8) impressions regarding the apparent labor shortage (*i.e.*, increased/decreased difficulty of finding work), 9) the amount of their earnings spent on food, clothing, rent, services, entertainment, and other expenses while in the state of Michigan, and 10) the ages of family members traveling and/or working with the laborer.

3.2.4 Data Analysis

Logit regressions are estimated to identify the variables that influence the labor decisions made by growers and migrant farmworkers. To transform the survey data into variables to be used in the analysis, a few preliminary steps are necessary. The first step is to construct several new variables. For example, perquisites must be assigned estimated values and real wages must be calculated for workers, based on the perquisites received at their places of employment. Second, information obtained from migrant workers about how they allocate their earnings is used to generate an estimate of the percentage of migrant farm earnings returned to the state of Michigan.

For statistical comparisons, two-sample t-tests and chi-square tests are performed. Given the levels of non-response, these tests do not provide quantifiable inferences for the populations but rather serve as descriptors of the sizes of the sample differences. If outliers are removed for the analyses, this will be noted.

3.2.4.1 Valuation of Perquisites

Perquisites received by farmworkers were assigned estimated weekly values in the following manner. First, the cases were divided according to which perquisites the respondents provided. For example, growers who supplied an end-of-season bonus were separated out from growers who did not. Within this sub-group of bonus providers, a mean perquisite value was calculated based on the responses of growers who assigned a value to the respective perquisites. In some instances, this mean value was based on numerous responses; in other cases, it was based on only a small number of responses. This estimated value was then assigned to all respondents who reported offering the perquisite but did not estimate its value. For all other respondents who reported the value of this perquisite, the actual value they assigned was retained. This process was repeated for all perquisites, and then these values were summed case-wise to estimate the weekly value of perquisites offered by each grower.

3.2.4.2 Standardized Wage Calculation

The wages reported by each grower were standardized by first normalizing the data across the different units of pay. For example, some growers paid by the hour, others by the bushel, bin, pound, bucket or piece in 2000, depending on the crop and type of farm operation. Thus, it was first necessary to estimate the mean number of bushels, bins, buckets or pounds harvested per hour, in order to compute a standardized hourly wage for each case. For example, since \$/lb/\$/hr = hr/lb, the known values for \$/lb and \$/hr make it possible to calculate how long it took (in hours) to harvest each unit type. Then, this number was substituted for the non-hourly payment unit for each unit type and

multiplied by the cost per harvest unit to calculate a standardized hourly wage for each case.

3.2.4.3 Real Wage Calculation

The real wage paid by growers is defined as:

migrant real wage = standardized wage + housing value + total perquisite value.

For each case, a "real hourly wage" was calculated by first converting the *housing value* (*i.e.*, rent and utilities) and *total perquisite value* (*i.e.*, transportation, daycare, or bonus) to an hourly rate; and then adding these values to the standardized wage rate.

3.2.4.4 Calculation of Earnings Percentages Returned to the State of Michigan By Migrant Workers

The migrant farmworker survey asked the ten respondents to estimate their weekly expenditures on typical purchases such as food, clothing, and medicine. These figures were then summed and multiplied by the number of weeks the family did migrant farm work in Michigan. A final calculation involved estimating the percentage of each migrant family's annual farm work earnings spent in the state[8].

[8] Given the small sample size on which these calculations were based, and the degree of data processing involved, the results may not be considered reliable. They are provided solely as an indicator about what a future, more extensive study may reveal.

3.2.5 A Logit Regression Model that Explores the Determinants of Having Sufficient Migrant Farm Labor

This section presents a logit regression model that was estimated to identify factors associated with the growers' assessment that they did/did not have sufficient migrant farm labor during the 2000 harvest season, including both economic and non-economic factors, as discussed in the theoretical framework.

A logit model is selected for this analysis because of the dichotomous nature of the dependent variable (*e.g.*, did/did not have sufficient harvest labor). Although probit or logit models give equivalent results when the sample size is small (n = 79)[9], the logit model is easier to estimate using SPSS, the statistical package used in the analytical component of this study. Generally speaking, the cumulative normal distribution is taken into consideration when working with the probit model, while the logistic distribution is associated with the logit model.

The regression relationship is described as follows:

$$y^*_i = \beta' x_i + u_i,$$

where y^*_i is unobservable yet influenced by a number of factors x_i . y^*_i can be replaced by a dummy variable y such that

$$y = 1 \quad \text{if} \quad y^*_i > 0, \text{ or}$$

$$y = 0 \text{ otherwise.}$$

In this model, Maddala (1990) defines $\beta' x_i$ as $E(y^*_i \mid x_i)$, with

$$\text{Prob}(y_i = 1) = \text{Prob}(u_i > -\beta' x_i) = 1 - F(-\beta' x_i) \text{ (p.22).}$$

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[9] According to Maddala, "Because the cumulative normal distribution and logistic distribution are very close to each other, except at the tails, we are not likely to get very different results using... the logit or the probit method, unless the samples are large (so that we have enough observations at the tails" (Maddala, 1990, p. 23).

In the logit model, the functional form for F depends on the logistic distribution and can be written as:

$$F(-\beta'x_i) = [\exp(-\beta'x_i)]/[1 + \exp(-\beta'x_i)] = 1/[1 + \exp(\beta'x_i)].$$

Subtracting $F(-\beta'x_i)$ from both sides of the equation gives:

$$1 - F(-\beta'x_i) = [\exp(\beta'x_i)]/[1 + \exp(\beta'x_i)].$$

Returning to the regression relationship cited at the top of this page and displaying the vector components of x_i gives:

$$ENOUGH00_{ij} = \beta_{11j}E_{1i} + \beta_{11j}F_{1i} + \beta_{13j}W_{1i} + \beta_{14j}S_{1i} + \beta_{15j}R_{1i} + U_{1ij}$$

$$\text{where } Y_1 = \quad 0 \text{ if } ENOUGH00_{ij} \leq 0$$

$$1 \text{ if } ENOUGH00_{ij} > 0$$

$$\text{and} \quad ENOUGH00 = \text{sufficient workers in 2000.}$$

In the above equation, E represents the economic vector. It consists of the standardized hourly wage and the real hourly wage paid to migrant workers.

Vector F represents farm characteristics, including the grower's main crop, farm earnings per acre, farm earnings per acre on a large versus small farm, migrant days per acre of crop of interest, migrant payroll as a percentage of farm operating expenses, number of years spent hiring migrant farmworkers, and mean hours per week spent off-farm at another job. As reported in Chapter 4, these vector components are used in different combinations in the regression presentation. Some of these independent variables could be included in the economic vector, but are included here instead since they fit in better as statistics that describe the financial size of the farm than as factors that might encourage migrants towards or away from a particular harvesting job.

Vector W represents the work environment, including the percentage of migrants living off-farm, as well as the number of perks provided to the migrant workers[10]. These independent variables are similar to social capital variables in that they are non-economic indicators that work separately from economic incentives, such as wages, to attract or deter migrant workers towards or away from a particular farm. Like wages, they are expected to influence where a migrant seeks employment.

Vector S represents social capital variables, including non-economic variables such as Spanish fluency level, the percentage of migrants that have worked on the farm in the past, the percentage of migrants that have worked on the farm for five or more years, and the point of origin (home location) of the workers on each farm.

Vector R represents recruitment methods that growers use to attract migrant labor to their farms. Vector U represents the error term.

The above vector series closely follows the vector components of Strauss's marketed surplus model (1984) and is similar to one used by Miklavcic (1995) to examine the determinants of farm household participation in an income-generating activity. In addition, it takes into account Glaeser's *et al.* (2000) observation that incorporating a social capital variable into the traditional economic model is not difficult. "Social capital is a meaningful, individual-level variable that can be studied with the tools of price theory. Human capital includes not only cognitive and physical abilities but also social capital, e.g., interpersonal skills, status, and access to social networks" (Glaeser *et al.*, 2000, p. 841).

[10] Note that real hourly wage and number of perks are never contained in the same regression trial since the latter variable is endogenously accounted for in the real hourly wage variable.

3.3 CONCLUSION

This chapter provides the rationale for utilizing a modeling framework that incorporates both economic and non-economic variables to identify factors associated with the decision-making paths followed by both growers and migrant workers in Michigan. It also describes independent variables that are included in the logit regression for analyzing the determinants of sufficient migrant farm labor supply on Michigan farms. This regression includes economic, farm characteristic, work environment, social capital, and recruitment method vectors.

CHAPTER 4

GROWER SURVEY RESULTS

4.1 *CHARACTERISTICS OF THE SURVEY POPULATION*

This chapter characterizes the sample of growers surveyed, reports the results of the grower survey, and presents the findings of the regression analysis.

4.1.1 Response Rate

According to MASS, Michigan had 52,000 growers across all commodities in 2000. Apple, asparagus, blueberry, and pickle growers comprised 4% of this total. Of the 2,205 apple, asparagus, blueberry, and pickle growers in-state, this survey was sent to 33% (n = 720), with 310 filled out and returned (43% of the surveyed growers). When broken down by subsector (Table 4.1), the data show that 32% of targeted apple, 29% of targeted asparagus, 59% of targeted blueberry, and 50% of targeted pickle growers responded to the survey. Although lower than the barely feasible 60% response rate desirable for a mail survey (Salant and Dillman, 1994), DSS Research[1] claims that a 10%

[1] DSS Research, a firm based in Arlington, TX, conducts mail surveys for research purposes.

to 15% response rate is common for a mail survey[2], although high involvement issues, as in this case, typically command a 30% to 50% response rate (DSS Research, 2001). In this context, the response rates for apple, asparagus, and blueberry growers are acceptable.

Table 4.1: Response rate, by subsector (Michigan, 2000)

Crop	Surveys sent	Responses received[a]	Grew crop and hired migrants[b]
Apple	270	85 (32%)	53 (61%)
Asparagus	190	73 (38%)	31 (42%)
Blueberry	240	142 (59%)	32 (23%)
Pickle	20	10 (50%)	10 (100%)
Total	720	310 (43%)	126 (41%)

a - The first number per cell is the number of respondents; the number in parentheses is the response rate per surveys sent.
b - The first number per cell is the number of respondents; the number in parentheses is the percentage of respondents per responses received.

On the other hand, although 50% of the pickle growers returned their survey, the sample size (n = 10) was small and only a small percentage of the population was sampled. Therefore, the pickle data are included in the statistical means, but not compared statistically against any of the other target groups.

The varying response rate among subsectors may be due to the degree to which growers are concerned with the problem of farm labor. Prior to conducting the survey,

[2] Such a response rate, however, is unavoidably biased since 85-90% of the targeted population is not represented in the data.

numerous blueberry growers contacted by the researcher complained about a labor shortage. Thus, because of their concern about the problem, it is likely that they were more inclined to return (59%) the survey. Another possible explanation may be how the grower lists were obtained. Whereas regional extension offices[3] provided the lists for apple, asparagus, and pickle growers, blueberry growers were surveyed through two grower associations-- the Michigan Blueberry Growers Association and the United Producers of Michigan. Perhaps association affiliation prompted a stronger response than extension affiliation. A third explanation may be that the survey was long. Potentially less-concerned apple and asparagus growers (with respective response rates of 32% and 38%) may have thought that answering the questionnaire was too taxing.

Of the growers who responded to the survey, 59% of the respondents (n = 184) either did not grow the crop in question or did not hire migrant labor in 2000. These numbers were unexpectedly high. The finding that a large number of growers no longer grew the crop in question is likely due to the dynamic nature of farming in Michigan. Even though the target lists were relatively current, some growers had changed their crops. For example, some growers reported that they had cut down their apple trees to make room for other, more profitable crops. A number of respondents also reported selling much of their cropland.

While it would have been desirable to target growers who had hired migrant workers in the past, no such sampling frame was available. In addition, some farmers who previously hired migrant labor may not have hired migrants in 2000 because they no longer planted the target crops.

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[3] These extension offices were primarily situated in southwest Michigan, where most of these four crops are grown.

Respondents who did not grow the crop in question or who did not hire migrant labor in 2000 were excluded from the statistical analyses that follow. This study is based on the responses of 126 growers--53 apple growers, 31 asparagus growers, 32 blueberry growers, and 10 pickle growers--all of who hired migrant labor for apples, asparagus, or blueberries in 2000.

4.1.2 Characteristics of the Survey Participants

The characteristics of the survey respondents are presented in the following sub-sections. However, these respondents may differ from the growers who chose not to respond. It is likely that the sample of growers who returned the questionnaire were more concerned about a labor shortage than the non-respondents.

4.1.2.1 Grower Distribution by County

The apple data (n = 53) were provided by growers from eight counties. Kent and Ottawa counties accounted for 65% of the total sample (Table 4.2). As these two counties are among Michigan's largest apple-producing regions (Section 3.2.2.1), this indicates that the respondents constitute a fairly representative sample of Michigan's apple growers. In addition, apple growers in Berrien, Ionia, Manistee, Montcalm, Muskegon, and Newaygo counties also responded to the survey. In total, 8% of Michigan's apple grower population responded to the survey.

The asparagus data (n = 31) were provided primarily by growers from Oceana and Mason counties (68% of the 31 responses), although Allegan, Benzie, Manistee, and Ottawa counties were also represented. These counties account for nearly 90% of

Michigan's asparagus acreage. In total, responses were obtained from 18% of Michigan's population of asparagus growers.

The blueberry data (n = 31) were provided mainly by growers from Ottawa and Van Buren counties (81%), while Allegan and Muskegon counties were also represented. These four counties account for 95% of blueberry acreage in Michigan. Twenty-five percent of Michigan's blueberry grower population responded to the survey.

Table 4.2: Distribution of respondents, by county and subsector (Michigan, 2000)[4]

County[a]	Apple	Asparagus	Blueberry	Pickle	Total
Kent	24 (45%)	0	0	0	24 (19%)
Manistee	0	0	0	6 (60%)	6 (5%)
Mason	0	9 (29%)	0	0	9 (7%)
Oceana	0	12 (39%)	0	2 (20%)	14 (11%)
Ottawa	11 (20%)	2 (7%)	12 (39%)	0	25 (20%)
Van Buren	0	0	13 (42%)	0	13 (10%)
Other	18 (35%)	8 (25%)	7 (19%)	2 (20%)	35 (28%)
Total	53 (100%)	31 (100%)	32 (100%)	10 (100%)	126 (100%)

a - The first number per cell is the number of respondents; the number in parentheses is the percentage of respondents by county.

The pickling cucumber data (n = 10) were mainly provided by growers from Manistee County (60%). Responses were also obtained from Oceana, Montcalm and

[4] These data represent the respondents who grew the target crop and hired migrant farm labor in 2000. Listed separately are the counties with the highest number of respondents. Other counties are combined under 'Other'.

Muskegon counties. This total represented eight percent of the pickling cucumber population in Michigan.

4.1.2.2 Grower Experience Working on a Farm and Hiring Migrant Farmworkers

Across the four target subsectors, growers had worked on a farm for a mean of 30 years. This high level of experience indicates that the growers are well versed in the issues addressed by this survey. As of 2000, apple growers had worked on farms for the longest time (31 years), followed by asparagus (29 years) and blueberry growers (28 years). Among growers in the three primary subsectors (*i.e.*, subsectors with a large enough sample size for statistical comparisons), farm experience varied very little (Table 4.3) and differences were not statistically significant (2-tailed t-test, 5% level). The ten pickle growers had worked on a farm a mean of 33 years.

Growers in the four subsectors had raised their target crop for a mean of 27 years. Apple growers had grown apples for the longest amount of time (30 years), followed by asparagus (24 years) and blueberry growers (27 years). However, the difference between grower's mean years of target crop experience was only significantly different for apple and asparagus growers. This is likely because asparagus did not become a prominent Michigan crop until the 1970s[5]. The ten pickling cucumber growers had only grown this crop for a mean of 16 years.

Growers from the four target subsectors had managed a farm for a mean of 24 years. However, there were no significant differences by grower type. Pickle growers had run a farm for a mean of nearly 27 years.

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[5] The Michigan Asparagus Advisory Board was established in 1978.

Growers from the four target subsectors had hired migrants for farm labor for a mean of 21 years. Apple growers had the most experience (23 years), followed by blueberry (21 years), and asparagus growers (16 years). The difference in these means was statistically significant between apple and asparagus growers. The ten pickle growers had hired migrant farmworkers a mean of 21 years.

Table 4.3: Grower experience working on a farm and hiring migrant farmworkers, by subsector (Michigan, 2000)

Mean years[a]	Apple (n = 52)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)
Worked on a farm[b]	31 (13)	29 (12)	29 (12)	33 (12)
Grew target crop[c]	30 (14)	24 (8)	27 (11)	16 (8)
Managed farm[b]	24 (13)	23 (13)	23 (12)	27 (11)
Hired migrant[e]	23 (12)	16 (9)	21 (12)	21 (7)

a - Standard deviations are given in parentheses.
b - Two-tailed t-test shows non-significant difference across the primary crop pairs.
c - Two-tailed t-test shows significant difference for apple-asparagus pairing (sig = .009).
e - Two-tailed t-test shows significant difference for apple-asparagus pairing (sig = .007).

4.1.2.3 Crop Acreage

Asparagus growers had the largest farms (545 acres), followed by apple (439 acres) and blueberry growers (435 acres) (Table 4.4). However, the differences in the primary subsectors were not statistically significant. Pickling cucumber growers' farms averaged 323 acres.

Asparagus growers planted the largest acres to annual crops, followed by blueberry (149 acres) and apple growers (63 acres). However, the difference in mean acreage planted to annual crops was only significant between apple and asparagus growers. Pickle growers planted an average of 197 acres to annual crops.

Table 4.4: Mean farm size and acreage planted to annual and target crops, by subsector (Michigan, 2000)

Mean acreage[a]	Apple (n = 52)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)
Of overall farm[b]	439 (481)	546 (606)	345 (793)	323 (276)
Planted to annual crops[c]	63 (109)	188 (286)	149 (549)	197 (251)
Planted to target crop[c]	246 (318)	97 (90)	161 (221)	60 (55)

a - Standard deviations are given in parentheses.
b - Two-tailed t-test shows non-significant difference across the primary crop pairs.
c - Two-tailed t-test shows significant difference between apple and asparagus growers (sig = .002).

Apple growers planted the largest area to their target crop (246 acres), followed by blueberry (161 acres) and asparagus growers (97 acres). The difference in mean acreage planted to target crops was only significantly different between apple and asparagus growers. Pickle growers averaged 60 acres of pickles.

Apple growers allocated the highest share of their land to the target crop (56%), followed by blueberry (47%) and asparagus growers (18%). These data indicate greater diversification among asparagus growers than apple growers. Pickle growers planted 19% of their land to pickling cucumbers.

4.1.2.4 Off-Farm Work

Asparagus growers were most likely to work part-time off-farm (32%), followed by apple (23%) and blueberry growers (22%) (Table 4.5). However, these differences were not statistically significant (chi-square test[6], 5% level). These results likely indicate that, due to low crop profitability, many growers in each subsector find it necessary to seek off-farm employment part-time. Among pickle growers, 20% sought off-farm work.

Table 4.5: Percentage of growers who work off-farm, number of hours/week they spent working elsewhere, and the number of extension meetings attended annually, by subsector (Michigan, 2000)

Mean[a]	Apple (n = 53)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)
Growers who work off-farm (%)[b]	22.6% (12)	32.3% (10)	21.9% (7)	20.0% (2)
Hours/wk at off-farm job[c,d]	31.7 (14.2, 11)	36.4 (17.7, 9)	39.4 (14.8, 6)	30.50 (21.0, 2)
Annual extension meetings attended[e]	5.6 (4.1, 52)	3.9 (5.3, 31)	2.2 (2.2, 31)	4.5 (2.7, 8)

a - Numbers in parentheses indicate n if presented alone, or standard deviation followed by n if more than one number.
b - Chi-square test shows non-significant difference across all grower pairs.
c - Two-tailed t-test shows non-significant difference across all grower pairs.
d - These data are based only on those growers who work off-farm.
e - Two-tailed t-test shows significant difference between number of meetings attended by apple and blueberry growers (sig = .000).

Among the growers who work off-farm, the number of hours spent working off-farm was highest for blueberry growers (39 hours), followed by asparagus (37 hours) and

[6] A Pearson chi-square test was used. This non-parametric test requires no assumptions about the shape of the underlying distribution yet assumes a random sample. Expected frequencies for each category must be at least one with fewer than 20% of the cells showing an expected frequency less than five.

apple growers (32 hours). However, these differences were not statistically significant (2-tailed t-test, 5% level) across the three primary crop pairings. Pickle growers who work off-farm spend 31 hours per week at other jobs.

4.1.2.5 Attendance at Extension Meetings

Apple growers attend the most extension meetings annually (5.6/year), followed by asparagus (3.9/year) and blueberry growers (2.2/year) (Table 4.5). However, the means were only significantly different (2-tailed t-test, 5% level) between apple and blueberry growers. The eight pickle growers who responded to this question attended 4.5 meetings annually.

4.1.2.6 Spanish-Speaking Ability

Apple growers were most likely to speak some Spanish (54%), followed by asparagus (45%) and blueberry growers (44%) (Table 4.6). These numbers were not significantly different (chi-square test, 5% level) in any of the primary subsector pairs. Fifty percent of the pickle respondents claimed some ability to communicate in Spanish.

Growers who claimed some Spanish-speaking ability (49%) were asked to rate their level of Spanish fluency on a scale of 1 to 5, where 1 represented 'basic vocabulary' and 5 represented 'fluent'. The growers' mean fluency level ranged from 1.3 for asparagus to 1.8 for blueberry growers—which indicated slightly more than rudimentary ability to communicate in Spanish. Pickle growers had a slightly better Spanish ability, with a mean fluency level of 2.

These results indicate that since growers and migrant workers are typically unable to communicate well with one another, an interpreter is likely needed to communicate all

but the simplest information messages between the two parties—which likely widens the social and emotional gap between growers and migrant workers.

Table 4.6: Percentage of growers claiming ability to communicate in Spanish and mean fluency level, by subsector (Michigan, 2000)

Spanish-speaking ability[a]	Apple (n = 52)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 8)
% claiming Spanish ability[b]	53.8% (28)	45.2% (14)	43.8% (14)	50.0% (4)
Mean fluency level[c,d]	1.4 (0.7, 28)	1.3 (0.6, 14)	1.7 (1.1, 14)	2.0 (0.8, 4)

a - Numbers in parentheses indicate n if presented alone, or standard deviation followed by n if more than one number.
b - Chi-square test shows non-significance across all primary grower pairs.
c - Two-tailed t-test shows non-significance across all primary grower pairs.
d - Mean fluency level, where 1 indicates basic Spanish vocabulary and 5 indicates fluency.

4.1.3 Characteristics of Those Surveyed Who Did Not Hire Migrants in 2000

Several questions were directed at the 83 growers who did not hire migrants in 2000. Of this group, only 27 (33%) had hired migrants sometime in the past. Twenty-six of these growers (96%) were blueberry growers. Ironically, blueberry growers are the group that now claims to have difficulty finding migrant labor. These same 26 blueberry growers reported having hired migrant labor for a mean of 8.5 years (ranging from 1 to 22 years), indicating that they were seasoned employers of migrant labor. The sole asparagus grower with a history of migrant hires had done so for only one year.

In most cases, these blueberry growers stopped hiring migrants in 1989. However, 36% stopped between 1988 and 1994 and 23% terminated their use of migrant labor between 1998 and 1999. These growers most frequently reported that they no longer

hired migrant labor because they had recently bought harvesters and no longer needed the workers (38%) or claimed that the government worker records had become too difficult and expensive to keep (15%). A variety of other reasons were also cited, including that migrants were not reliable, their housing did not meet new standards, they now managed u-pick operations or hired labor contractors, the farm was too small to attract help, or that local workers were used instead of migrant laborers. Most of the answers accounted for only one grower apiece.

Since no longer hiring migrant labor, 63% reported that their income had increased, while 25% reported no change, and 12% reported a decrease.

When asked why net income had changed, over 52% attribute the change to their switch to mechanical harvesting, a less costly alternative to hiring migrant workers. Other answers included weather, prices, contract labor, and the use of non-migrant harvesters as influencing net earnings.

When asked how many days of non-migrant labor they hired for the 2000 harvest, the growers across the four target subsectors reported employing an average of three non-migrants/day, with a range of zero to 30. Apple and asparagus growers hired a mean of 3.8 non-migrant workers/day, while blueberry growers hired 2.9 non-migrants/day.

Finally, a mean of 0.5 year-round workers were hired across the four subsectors. Although no apple and asparagus growers hired year-round employees, blueberry growers hired a mean of 0.59 year-round workers, with a range of zero to 30.

4.2 *RESULTS OF THE GROWER SURVEY*

This section analyzes information that growers provided about themselves and their migrant workers.

4.2.1 Statistics About Growers

This section reports statistical analysis of growers' income, migrant payroll, and crop sales.

4.2.1.1 Gross Crop Income Versus Net Crop Income

Due to an oversight in questionnaire design, blueberry growers were asked different income questions than the three other types of growers. Whereas blueberry growers were asked about their net crop income (NCI) from blueberries during a three-year interval (1998-2000), apple, asparagus, and pickle growers were asked only about their gross crop income (GCI) for the year 2000.

GCI is defined as total crop sales (from the target crop). NCI is defined as total crop sales minus all expenses related to the target crop. For each question, growers were provided a list of income intervals and asked to estimate into which interval their target crop income fell.

As Table 4.7 shows, more apple growers in 2000 earned a GCI > $30,000 (73.8%) than asparagus (33.8%) or pickle growers (33.4%). In contrast, more asparagus (64.2%) and pickle growers (67.0%) earned a GCI < $30,000. These figures do not take into account the expenses associated with producing the respective crops.

In contrast, in 2000, 68.2% of the blueberry growers reported an NCI > $30,000 (Table 4.8). Accounting for the numerous expenses included in the NCI, the blueberry grower GCI must be greater than the cited apple, asparagus, or pickle grower GCI.

Table 4.7: Gross crop income distribution (sales) of apple, asparagus, and pickle producers, (Michigan, 2000)

GCI distribution (by intervals)[a]	Apple (n = 38)	Asparagus (n = 28)	Pickle (n = 9)
< $9,999	18.4%	21.4%	33.3%
$10,000-29,999	7.8%	42.8%	33.3%
$30,000-39,999	26.3%	21.4%	11.1%
> $40,000	47.5%	14.4%	22.3%
Total	100.0%	100.0%	100.0%

a - The number of growers reporting GCI is smaller than the respective sample sizes, as some growers did not report their gross earnings.

Table 4.8: Net crop income distribution (sales minus expenses) of blueberry producers (Michigan, 1998-2000)

NCI distribution (by intervals)[a]	2000 (n = 22)	1999 (n = 23)	1998 (n = 22)
< $9,999	18.2%	21.7%	40.9%
$10,000-29,999	13.6%	21.8%	9.1%
>$30,000	68.2%	56.5%	50.0%
Total	100.0%	100.0%	100.0%

a - The number of growers reporting NCI is smaller than the sample size, as some growers did not report their net earnings.

Although income data were not collected from apple, asparagus, or pickle growers for 1998 or 1999, it was gathered from blueberry growers. The percentage of blueberry respondents with NCI > $30,000 rose by 7% from 1998 to 1999 and by 11% from 1999 to 2000. Simultaneously, the percentage of blueberry respondents with NCI <

$9,000 declined by 19% from 1998 to 1999, and by another 4% from 1999 to 2000. These numbers indicate an increasing NCI in the blueberry subsector from 1998 to 2000.

4.2.1.2 Migrant Payroll as a Percentage of Total Farm Operating Expenses

Blueberry growers reported the largest percentage of expenses going towards migrant payroll (34%), followed by apple (30%) and asparagus growers (23%)[7] (Table 4.9). In each of the three years, these mean percentages were significantly different between apple and asparagus growers, and between asparagus and blueberry growers (2-tailed t-test, 5% level). Pickle growers reported 36% of expenses going towards migrant payroll.

Table 4.9: Migrant payroll as a percentage of total farm operating expenses, by subsector (Michigan, 1998-2000)

Grower type[a]	Year		
	2000	1999	1998
Apple (n = 36-39)	30 [b] 0.04 (12)	31 [d] 0.05 (14)	30 [f] 0.04 (13)
Asparagus (n = 29)	24 [b] 0.04 [c] 0.01 (13)	23 [d] 0.05 [e] 0.07 [h] (13)	23 [f] 0.04 [g] 0.02 (13)
Blueberry (n = 26-27)	35 [c] 0.01 (20)	33 [e] 0.07 (22)	35 [g] 0.02 (21)
Pickle (n = 8)	31 (19)	38 (19)	39 (17)

a - Standard deviations are given in parentheses.
b-g - Means followed by the same letter (one above the other within a column) are significantly different according to a 2-tailed t-test, at significance level that appears beside letter.
h- Although above the 5% cut-off point, this significance level marked by the letter e was considered sufficiently close to report.

[7] These percentages are averaged across three years.

During 1998 through 2000, migrant payroll increased as a percentage of farm operating expenses for asparagus growers. Although blueberry and apple grower payrolls showed no consistent trends, their migrant payroll expenses (as a percentage of total farm operating expenses) were slightly higher in 2000 than 1998. Pickle growers showed a decrease in migrant payroll as a percentage of farm operating expenses (1998-2000).

If migrant expenses that are not part of the actual payroll (*i.e.*, medical care, transportation, daycare provision, and housing) were added to payroll expenses, the costs associated with migrant farm labor would increase as a percentage of a grower's expenses, to more than 30%.

4.2.1.3 Crop Sales as a Percentage of Total Farm Earnings (2000)

Although the majority of farm income in all four subsectors comes directly from the target crops, the level of diversification varied considerably (Table 4.10). Blueberry growers were the least diversified, with 96% of total farm earnings coming from blueberry sales, followed by apple (79%) and asparagus sales (47%). These differences were statistically significant between apple and asparagus growers, and between asparagus and blueberry growers, across all three years (2-tailed t-test, 5% level). They were also statistically significant between apple and blueberry growers in 1999 and 1998. During 1998-2000, pickle growers reported that 42% of their farm earnings were from pickle sales.

Given that blueberry growers are the least diversified, they are at the most risk should a labor shortage arise.

4.2.2 Migrant Worker Statistics

The grower survey solicited information from growers in each subsector regarding the characteristics of their migrant farm workers: state or foreign country where the migrants reside during most of the year, recruitment methods, when recruitment began for the 2000 harvest season, number of migrants who worked previously on the farm, migrant hires per day during the harvest season, wage arrangements, migrant housing arrangements, perquisites and services provided to migrant workers, and mean crop percentages harvested by migrants.

Table 4.10: Specified crop sales as a % of total farm earnings, by subsector (Michigan, 1998-2000)

Grower type[a]	Year		
	2000	1999	1998
Apple (n = 39-40)	78 [b] 0.00 [c] 0.00 (26)	79 [e] 0.00 [f] 0.00 (23)	80 [h] 0.00 (22)
Asparagus (n = 28)	48 [b] 0.00 [d] 0.00 (32)	47 [e] 0.00 [g] 0.00 (33)	47 [h] 0.00 [i] 0.03 (33
Blueberry (n = 25-26)	96 [c] 0.00 [d] 0.00 (10)	96 [f] 0.00 [g] 0.00 (10)	96 [i] 0.03 (10)
Pickle (n = 7-8)	38 (36)	43 (36)	45 (34)

a - Standard deviations are given in parentheses.
b - i Means followed by the same letter (one above the other within a column) are significantly different according to a 2-tailed t-test, at significance level that appears beside letter.

4.2.2.1 Migrant Origins

Across the four subsectors, growers reported that in 2000, an equal percentage (29%) of the migrants traveled to Michigan from two states - Florida and Texas (Table

4.11). In contrast, a much smaller percentage of the migrants came from Mexico (10%)[8], Guatemala, and mixed origins (Texas and Mexico, 8.9%; Texas and Florida, 10.5%; Mexico and Florida, 7.3%; and Texas, Mexico, and Florida, 3.2%). Clearly, the data indicate that Florida and Texas are most crucial to the survival of Michigan's migrant-based agricultural economy.

Table 4.11: Migrant worker origins, by subsector (Michigan, 2000)

Migrant origin[a]	Grower type (%)				Total (n = 114)
	Apple (n = 51)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)	
Texas	10	65	28	20	29
Florida	45	6	25	30	29
Mexico	10	7	19	0	11
Guatemala	0	3	3	0	2
TX & MX	8	6	16	0	9
TX & FL	10	7	9	30	10
MX & FL	12	6	0	10	7
TX, MX & FL	5	0	0	10	3

a - A 2x2 chi-square test[9] for goodness of fit indicated a significant difference in the distribution of grower-observed Florida versus Texas migrant origins for all primary crop pairings (apple-blueberry significance = .01, apple-asparagus significance = .00, asparagus-blueberry significance = .01 (FET)). Likewise, two of the three primary crop pairings showed a significant difference in the distribution of Texas versus Mexico origins (apple-asparagus significance = .02 (FET), asparagus-blueberry significance = .04 (FET)).

However, the source of migrant labor varied considerably by primary subsector. Apple growers were more likely to hire workers from Florida (45%), while asparagus

[8] This figure, however, must be treated with caution since illegal immigration fears may influence the answers given by respondents.

[9] In instances where the expected value of more than 20% of the cells was less than five, a two-sided Fisher's Exact Test was conducted. These results are identified by placing (FET) after the significance value.

growers were more likely to hire from Texas (nearly 65%). In contrast, blueberry growers hired workers from more diverse origins—almost equally from Texas (28%) and Florida (25%).

Some statistically significant differences were noted in the distribution of Texas versus Florida and Texas versus Mexico migrant origins by primary subsector pairing (Pearson chi-square test, 1% and 5% levels respectively), suggesting that growers from different subsectors follow different hiring patterns. The ten pickle growers hired 80% of their migrant farm workers from Texas and Florida.

4.2.2.2 How and When Growers Recruited Migrant Workers

Growers recruit their workers in several different ways, and some use more than one method to recruit workers in a given season (Table 4.12). Across all four subsectors, 73% of growers recruited at least some of their workers in 2000 through a verbal agreement (*i.e.*, these growers asked their 1999 workers to return in 2000). In addition, 61% of the growers reported hiring at least some of their workers from among those who sought work at the farm gate. Growers tend to use the first method to insure the availability of a minimum number of workers while they use the second method to hire additional migrants, if the number of returnees is insufficient to meet their labor needs.

Michigan has two state programs[10] whose funding is provided specifically to assist growers in recruiting farmworkers. First, a state matching service is available to help growers locate and hire migrant farmworkers (of domestic origin) who are actively seeking work in Michigan. In addition, the H2A program arranges for foreign workers

[10] Both the traditional matching service and H2A matching service are offered by Michigan's Employment Services Agency.

(often from the Caribbean) to work for growers who provide thorough documentation that he or she has tried, but is unable, to locate sufficient workers. Despite the availability of these services, they were either unused or underused by the survey group in 2000. Only 9% of the survey participants used state matching services in 2000 and none of the growers employed any H2A hires.

Growers' recruiting practices were similar across the target subsectors in 2000 (Table 4.12). A 'verbal agreement with past workers' was used most by apple (75%) and asparagus growers (74%), followed by blueberry growers (59%). Migrants were 'hired at the farm gate' by more apple (75%) than blueberry (56%) or asparagus growers (42%). Furthermore, only a few growers in each category used state matching services to recruit workers (less than 10% in any group) in 2000. Ninety percent of the pickle growers used verbal agreements while 60% used farm gate hires.

Table 4.12: Growers' methods for recruiting migrant workers, by subsector (Michigan, 2000)

Hiring method[a]	Grower type (%)			
	Apple (n = 53)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)
Verbal agreement with past workers	75	74	59	90
Farm gate hires	75	42	56	60
Crewleader hires	21	19	28	20
Other	25	23	22	10
State matching services	9	10	9	0

a - A grower may use more than one hiring method.

Growers were asked what percentage of their hires they recruited using each method. Table 4.13 shows that verbal agreements accounted for the largest share of

growers' recruits among asparagus (49%), apple (47%), and blueberry growers (37%). Farm gate hiring was the second most used method (apple, 28%; blueberry, 25%; and asparagus growers, 22%). Growers reported hiring only a small share of their migrants via other methods. State matching services accounted for no more than 2% of hires for any subsector. Crewleader hires accounted for 20% among blueberry growers, 11% among apple growers, and 10% among asparagus growers. In addition, a few growers reported hiring migrants by: 1) word-of-mouth, 2) recruiting individuals employed by another grower, 3) referrals from local families of Mexican origin, and 4) advertising openings in local businesses. A series of two-tailed t-tests shows no significant difference in how growers in the three primary subsectors recruited migrant labor in 2000. Among pickle growers, 62% of the workers were hired by verbal agreement, 18% by farm gate hires, and 14% through crewleaders.

Table 4.13: Percentage of workers hired by different methods, by subsector (Michigan, 2000)

Hiring method[a]	Grower type (mean %)			
	Apple (n = 53)	Asparagus (n = 31)	Blueberry (n = 32)	Pickle (n = 10)
Verbal agreement	47.3	48.9	36.6	62.2
State matching services	2.2	1.5	1.0	0.0
Crewleader	11.1	9.5	20.8	16.0
At the farm gate	28.1	21.7	25.0	17.8
Other	6.9	14.7	12.7	2.0

a - Since these are mean percentages across all growers in a subsector, they do not necessarily sum to one hundred.

Some growers began to recruit migrant farm labor as long as a year ahead of the harvest (Figure 4.1). This finding is consistent with growers' widespread use of verbal

agreements with past workers. As one harvest year ends, the growers typically recruit as much labor as possible for the following year. Roughly a quarter of the apple growers made arrangements in this way (12 of 46 apple growers) for the 2000 harvest season, as did 25% of the asparagus growers and 20% of the blueberry growers. Only one of the nine pickling cucumber respondents made such early arrangements.

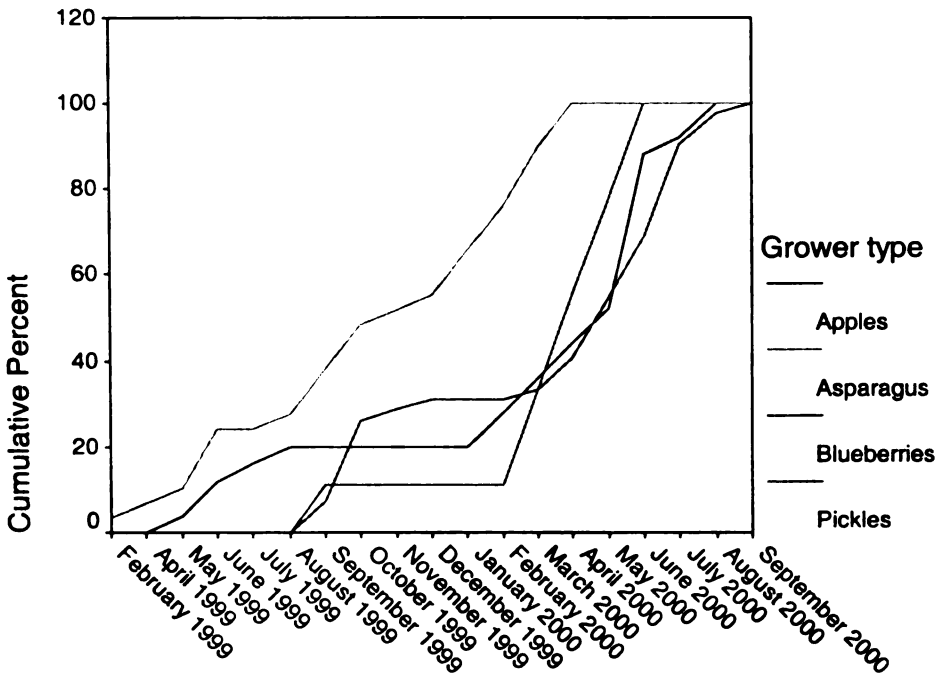

Figure 4.1: Cumulative percent of growers according to when they initiated their search for the 2000 harvest, by subsector (Michigan, 2000)

However, many growers hired their workers closer to harvest time. More than one-half of the apple growers initiated their recruitment efforts after June 2000 (for work that was to begin in August); just under one-half of the asparagus growers began to hire migrants in the first three months of 2000 (just ahead of the April harvest), and the same

was also true of blueberry growers, nearly half of who began their hires in June, July, or August of 2000.

4.2.2.3 Number of Migrants Returning to Previous Employers

The mean percentages of migrant laborers who worked previously for the same grower ranged from 0% to 100%. However, across the four target subsectors, about 60% had previously worked for the same grower, and nearly 45% had returned to the same farm for five or more years (Table 4.14).

Table 4.14: Mean percentages of migrant laborers that worked previously for the same grower, by subsector (Michigan, 2000)

Grower type[a,b]	Worked previously on grower's farm	Worked 5 or more years for grower
Apple (n = 53)	57.2% (29.6)	32.9% (32.6)
Asparagus (n = 31)	64.6% (35.5)	41.7% (37.3)
Blueberry (n = 32)	55.8% (36.4)	32.3% (33.7)
Pickle (n = 10)	73.5 (17.5)	55.0% (27.0)
Total (n = 126)	60.0 (32.3)	36.7% (34.0)

a - Standard deviations are given in parentheses.
b- Two-tailed t-test shows non-significance across all primary crop pairs.

Across the four target subsectors, asparagus growers (65%) were most likely to hire former employees, followed by apple (57%) and blueberry growers (56%). Asparagus growers (42%) were also most likely to have migrants that had worked for them for five or more years, followed by apple (33%) and blueberry growers (32%).

Thus, despite the existence of other job opportunities throughout Michigan, a fairly steady number of workers return to the farms on which they previously worked. However, the differences in these mean retention rates were not statistically different across the three primary subsectors (two-tailed t-test, 5% level). Pickle growers showed the highest retention rate—74% of the migrants had worked previously on the farm, while 55% had worked for the grower for five or more years.

4.2.2.4 Migrant Hires Per Day During the Harvest Season

Apple and blueberry growers reported hiring the largest number of migrant workers per day during the harvest season.[11] (See Table 4.15.) However, apples are harvested once a year per type of apple, whereas blueberries are harvested twice a year—early in the summer, and again late in the summer. In 2000, apple growers hired a mean of 40.3 migrant workers per day, compared to 44.9 among blueberry growers, and 13.3 among asparagus workers. This mean number of migrants was significantly different between apple and asparagus growers, and asparagus and blueberry growers, in 2000 (2-tailed t-test, 5% level). Pickle growers hired a mean of 37.3 workers per day.

These differences in mean migrant hire numbers were statistically significant between apple and asparagus growers, and between asparagus and blueberry growers, in all three years (2-tailed t-test, 5% level). However, no statistically significant difference was found between apple and blueberry labor hires in any of the three years.

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[11] This survey is exclusively concerned with labor needs during the harvest season. Although a few questions are asked regarding labor needs during other times in the crop season, growers' answers will indicate whether a future survey should focus on other labor-intensive periods.

From 1998 to 2000, the mean number of workers hired per day increased more among blueberry growers (+6.2) than among apple (+1.9) or asparagus growers (+0.7). This is consistent with the impression that blueberry growers are more concerned about a lack of migrant labor than are other types of growers. However, it is inconsistent with the finding that fewer blueberry growers actually hire migrant labor than do growers in the other primary subsectors.

Table 4.15: Mean number of migrants needed per day for subsector harvests (Michigan, 1998-2000)

Grower type[a]	Year		
	2000	1999	1998
Apple (n = 51)	40.3 [a] 0.05 (68.4)	41.3 [c] 0.05 (61.8)	38.4 [e] 0.05 (54.8)
Asparagus (n = 31)	13.3 [a] 0.05 [b] 0.05 (9.3)	12.8 [c] 0.05 [d] 0.05 (7.7)	12.6 [e] 0.05 [f] 0.05 (7.3)
Blueberry (n = 31-32)	44.9 [b] 0.05 (52.6)	34.5 [d] 0.05 (41.7)	38.7 [f] 0.05 (43.5)
Pickle (n = 9-10)	37.2 (24.6)	38.9 (23.7)	39.4 (23.0)

a - Standard deviations are given in parentheses.
b - f Means followed by the same letter (one above the other within a column) are significantly different according to 2-tailed t-test, at significance level that appears beside letter.

4.2.2.5 Migrant Worker Harvest Days By Subsector

The information from the preceding section is combined with the harvest length data to calculate the mean number of migrant worker harvest days per farm, per subsector (Table 4.16). Migrant worker harvest days (MWHDs) are defined as the number of migrant workers per day during the harvest season multiplied by the harvest season

length in days[12]. MWHDs were calculated by farm, based on individual grower statements about harvest length.

Table 4.16: Mean number of migrant worker harvest days (MWHDs), by subsector (Michigan, 1998-2000)

Grower type[a]	Year			Three-year mean
	2000	1999	1998	
Apple (n = 51)	2,500 [b] 0.04 (5,100)	2,500 [c] 0.02 (4,600)	2,400 [d] 0.02 (4,000)	2,500 [e] 0.03 (4,500)
Asparagus (n = 30)	600 [b] 0.04 (400)	600 [c] 0.02 (400)	600 [d] 0.02 (400)	600 [e] 0.03 (400)
Blueberry (n = 5)	2,100 (1,600)	900 (1,300)	1,000 (1,100)	1,500 (1,300)
Pickle (n = 10)	1,800 (1,300)	1,900 (1,400)	2,000 (1,300)	1,900 (1,400)

a - Standard deviations are given in parentheses.
b - Means followed by the same letter (one above the other within a column)
e are significantly different according to analysis of variance test (ANOVA), at significance level that appears beside letter.

The apple, blueberry, and pickling cucumber growers used much more total labor in each of the three years than did the asparagus growers. Over the course of the three years, apple growers hired an average of more than 2,500 MWHDs per farm, blueberry growers hired less than 2,000 MWHDs, and asparagus growers hired not quite 600. On average, between 1998 and 2000, apple growers used about four times as much labor as did asparagus growers, while blueberry and pickling cucumber growers used about three times as much labor.

[12] Data from this study indicate that the typical apple and blueberry harvests last 56 days (apple harvest range = 28 to 90 days; blueberry harvest range = 30 to 80 days). The typical asparagus harvest lasts 44 days (range = 20 to 60 days). The typical pickle harvest lasts 47 days (range = 35 to 65 days).

An analysis of variance test shows that apple and asparagus growers required significantly different amounts of migrant worker days in the three years covered by this study. As indicated by the large standard deviation (Table 4.16), the range in worker days used by growers was enormous across all three years. Since farm size varies, labor use patterns differ greatly.

4.2.2.6 Wage Arrangements

This section reports the units used by growers to pay migrant workers, estimates the standardized wages that migrant workers receive, estimates their real wages (taking into account rent, utilities, perquisites, and services), and looks at the expected cost of alternative forms of labor.

4.2.2.6.1 How Migrant Workers Are Paid

A total of 116 growers provided information on how they paid their workers. Apple growers generally (84%) pay their workers by the box or bin in 2000 (Table 4.17). While blueberry (66%) and asparagus growers (52%) are more inclined to pay by the hour, some also pay by the pound (asparagus, 42%; blueberry, 24%). Pickle growers pay by the hour or offer harvest splits to the migrants, in which the migrants receive 45-50% of the gross harvest proceeds[13].

[13] The five other pickle growers offered 50/50 or 55/45 splits to their migrants, in which 50% or 45% of the gross pickling cucumber sales were given to the migrants instead of regular pay.

4.2.2.6.2 Standardized Hourly Wages

Since growers paid migrants in a variety of ways, it was necessary to standardize wages to an hourly rate, which could be compared across the subsectors and used in the real wage estimate. The mean hourly wage estimated for each subsector in Table 4.17 was used as the estimate in cases where hourly wages were not paid. In all other instances, the hourly wages supplied by each grower were used. A distribution of the estimated standardized wages is shown in Table 4.18.

Table 4.17: Percentage of growers using different wage types for migrant workers and mean dollars paid per unit, by subsector (Michigan, 2000)

Grower type[a]	Wage type				
	Hour	Box/bin	Bushel	Bucket	Pound
Apple (n = 51)	12% (7.3, 2.6)	84% (12.4, 1.4)	4% (0.9, 0.2)	0%	0%
Asparagus (n = 31)	52% (6.2, 0.6)	0%	6% (0.1, 0.0)	0%	42% (0.1, 0.0)
Blueberry (n = 29)	66% (7.1, 1.2)	0%	0%	10% (1.8, 0.2)	24% (0.3, 0.1)
Pickle (n = 5)	80% (5.9, 0.3)	0%	0%	20% (30.0, 0.0)	0%

a - Mean $/unit and standard deviations are given in parentheses, respectively.

Apple growers paid the highest mean standardized wages ($7.28/hour), followed by blueberry ($7.14/hour) and asparagus growers ($6.18/hour). Eighty-eight percent of the apple growers paid two to three dollars above Michigan's minimum wage of $5.15 per hour while two thirds of the asparagus and blueberry growers paid from one to two dollars above minimum wage. A two-tailed t-test shows that the differences in mean standardized hourly wages were statistically significant (5% level) between apple and

asparagus growers, and between asparagus and blueberry growers. The mean standardized hourly wage paid by pickle growers was $5.94/hour, with four of the five pickle growers paying less than a dollar above minimum wage.

Table 4.18: Percent distribution of standardized wages paid by growers in the target subsectors (Michigan, 2000)

Standardized wage rate ($/hour)[ab]	Grower type (%)			
	Apple (n = 51) (7.28, 0.81)	Asparagus (n = 31) (6.18, 0.39)	Blueberry (n = 29) (7.14, 0.95)	Pickle (n = 5) (5.94, 0.27)
< 5.15[c]	0.0	3.2	0.0	0.0
5.16 - 6.15	7.9	29.1	10.3	80.0
6.16 - 7.15	0.0	67.7	65.6	20.0
7.16 - 8.15	88.2	0.0	17.2	0.0
> 8.15	3.9	0.0	6.9	0.0

a - Mean and standard deviation given in second set of parentheses, respectively.
b- Two-tailed t-test shows significant difference between apple and asparagus means (level = .01), and asparagus and blueberry means (level = .01).
c- This is the minimum wage rate paid in Michigan.

4.2.2.6.3 Expected Wage Rates in the Absence of Migrant Workers

A total of 59 growers estimated the daily wages that they would have to pay to other workers, if migrants were not available. Apple growers estimated the highest rate ($83/day), followed by asparagus ($73) and blueberry growers ($72) (Table 4.19). Pickle growers estimated that they would have to offer $63/day. Assuming a ten to twelve hour work day, these figures translate to $6.90-8.30 per hour paid by apple growers, $6.10-7.30 per hour paid by asparagus growers, $6.00-7.20 per hour paid by blueberry growers,

and $5.25-6.30 per hour paid by pickle growers. Each estimate is above the $5.15 per hour minimum wage offered in Michigan.

Table 4.19: Mean expected daily wage in absence of migrant workers, by subsector (Michigan, 2000)

Grower type[a]	Mean wage ($)[b]
Apple (n = 27)	83 (41)
Asparagus (n = 15)	73 (24)
Blueberry (n = 14)	72 (18)
Pickle (n = 2)	63 (18)

a - The number of responses was too small to conduct a reliable t-test.
b - Standard deviation given in parentheses.

Many of the respondents said that this question was irrelevant, since it would be impossible to find workers to do the kind of work that they would be asked to do—regardless of the wage offered. Some growers even said they would sell their farms if they had to look for other workers.

4.2.2.7 Primary Migrant Worker Perquisites: Housing and Utilities

The following sub-sections explore the availability of housing to migrants across the four subsectors. Housing and utilities are considered primary migrant worker perquisites because they comprise the largest non-pecuniary compensation received by migrant workers.

4.2.2.7.1 On-Farm Migrant Housing

Eighty-one percent of the growers who responded to this question (n = 125) supplied housing for at least some of their migrant workers in 2000 (Table 4.20). More apple growers supplied housing (93%) than did asparagus (75%) or blueberry growers (58%). As expected, based on the key informant interviews, the blueberry growers were least inclined to supply migrant housing, although more than one-half did. A 2x2 chi-square test indicated a significant difference between apple and blueberry growers (level = .001).

Table 4.20: Percentage of growers that provide migrant housing, by subsector (Michigan, 2000)

Provided migrant housing[a]	Grower type			
	Apple (n = 53)	Asparagus (n = 31)	Blueberry (n = 31)	Pickle (n = 10)
Yes	93%	75%	58%	100%

a - Chi-square test showed significant difference in percentages between apple and blueberry growers (level = .001).

Growers in Michigan provide housing for single workers that is separate from housing provided for families traveling together. Apple growers reported having a capacity to house the most single migrants (44) in 2000, followed by blueberry (25 single migrants) and asparagus growers (16) (Table 4.21.) A 2-tailed, t-test indicated that this number was significantly different (1% level) between apple and asparagus growers. However, upon standardizing the data to account for differences in migrants/acre (*i.e.*, dividing the number of migrants per farm by the farm's total acreage), this difference disappeared. Pickle growers were able to house a mean of 43 single workers.

Table 4.21: Mean housing capacity, by subsector (Michigan, 2000)

Housing capacity	Grower type[a]			
	Apple (n = 48)	Asparagus (n = 24)	Blueberry (n = 18)	Pickle (n = 10)
Single migrants[b]	43.8 (54.7)	15.7 (19.9)	25.4 (25.1)	43.3 (43.3)
Migrant families[c]	7.9 (8.3)	5.4 (4.6)	9.1 (12.3)	15.3 (16.5)

a - Standard deviations are given in parentheses.
b - Two-tailed t-test shows significant difference between apple and asparagus growers (level = .02).
c - Two-tailed t-test shows no statistically significant differences between primary crop pairs.

In terms of being able to house *migrant families*, blueberry growers had the capacity to house the most (nine families), followed by apple (eight) and asparagus growers (five). However, these differences were not statistically significant across the primary subsectors (2-tailed t-test, 5% level). Pickle growers had the capacity to house a mean of 15 families in 2000.

The asparagus subsector supplied the greatest number of workers per migrant family (4.4, standard deviation = 1.4), followed by the blueberry (3.9 workers, standard deviation = 1.6) and apple subsectors (3.3, standard deviation = 1.5). While a 2-tailed, t-test indicated that this number was significantly different between the apple and asparagus subsectors (level = .006), this difference was not significant after standardizing the data to account for differences in migrants/acre.

Interestingly, there was a large disparity between the number of workers that growers could house in 2000 and the number of workers they actually employed (Table 4.22). The fact that growers housed fewer migrants per farm than their capacity allowed

for may indicate the existence of a labor shortage. On the other hand, it may indicate that not all housing on a farm has met state approval for migrant usage. In this case, growers may report it as available housing when, in fact, it may not be approved. In this instance, some workers may be forced to live elsewhere during their tenure on a particular farm, even though it appears that housing is available.

Table 4.22: Mean number of workers housed in 2000, number that were employed, and additional workers needed, by subsector (Michigan, 2000)

Type[ab]	Migrants hired[c]	Add'l workers needed[d]	Total[e]	Housing capacity[f]	Housing surplus/deficit[g]
Apple	40.3 (51)	6.4 (8)	46.7	69.9 (48)	23.2
Asparagus	13.3 (31)	3.6 (8)	16.9	39.5 (23)	23.4
Blueberry	44.9 (32)	22.5 (10)	67.4	60.9 (18)	-6.5
Pickle	37.2 (10)	15.0 (1)	52.2	109.1 (10)	56.9

a - Number of respondents given in parentheses.
b - Standard deviations cited elsewhere in text.
c- Mean worker days/farm based on responses of those with and without sufficient workers in 2000. If calculated to include only those without sufficient workers, these numbers are even lower, resulting in an even greater
d - housing surplus.
Based on responses of those without sufficient workers in 2000.
e - Sum of hired and needed migrants/day.
f - Based on those with and without sufficient workers in 2000.
g - Housing capacity minus sum of hired and needed migrants/day.

These data indicate that, on average, only the blueberry growers would have had insufficient housing in 2000, had they been able to employ as many migrant workers as they felt they needed. While the means show that, on average, even blueberry growers

had sufficient capacity to house the mean number of workers hired in 2000, it is likely that certain blueberry farms had excess capacity for housing migrants, while others had a housing shortage.

4.2.2.7.2 Rent and Utility Issues

Seventeen percent of asparagus growers charged migrant workers rent while they lived on their farm, as did 11% of blueberry growers, and 2% of apple growers. Given the blueberry growers' apparent difficulty in attracting labor, relative to other growers, it is surprising that blueberry growers, who are less likely to charge rent than those growing asparagus, noted having a harder time attracting workers than the asparagus subsector (Table 4.23).

Table 4.23: Migrant housing rental payments, by subsector (Michigan, 2000)

Housing rental payments		Grower type			
		Apple	Asparagus	Blueberry	Pickle
Charged rent?[ab]		2% (49)	17% (24)	11% (18)	30% (10)
If yes, when?	-- Always	0%	0%	50%	0%
	-- While working elsewhere	100%	75%	50%	100%
	--Other	0%	25%	0%	0%
		(1)	(4)	(2)	(3)
Weekly rental charge?[c]	Single workers:	$25.00 (NA, 10)	$7.50 (10.6, 2)	$30.00 (28.3, 2)	$12.70 (NA, 3)
	Families:	$100.00 (NA, 1)	$92.80 (77.45, 4)	$75.90 (65.5, 2)	$19.30 (5.1, 3)

a - Chi-square test of primary crop pairs indicates a significant difference between apple and asparagus growers (level = .02).
b - Number in parentheses refers to the number of respondents to that question.
c - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

When asked under what conditions migrants were obliged to pay rent, 80% of those charging rent (n = 10) said that they only charged rent while the migrants were working on another farm. In only one instance (a blueberry grower) was rent paid in all cases.

Rents varied according to whether the worker was living alone or with a family. Across all subsectors, a mean of $17.30/week was paid by single workers, while $59/week was paid by families.

Given the small number of responses, statistical analyses of these data by subsector were carried out only for whether or not growers charged rent. A statistically significant difference was only observed between apple and asparagus growers.

Fifty percent of asparagus growers charged for utilities, as did 33% of apple and 22% of blueberry growers (Table 4.24). Forty percent of pickle growers charged for utilities.

Of the growers who charged for utilities, 93% of the apple growers (n = 15) charged utilities in all situations, as did 83% of the asparagus growers (n = 12) and 50% of the blueberry growers (n = 4). Less than 10% of the growers only charged utilities while migrants were working on another farm. All of the pickle growers charged utilities in all situations.

Among those growers who charged for utilities, the utility rate for single migrant workers ranged from a low of $2.50/week by blueberry growers (n = 2), to $9.50/week by apple growers (n =14), to $21.50/week by asparagus growers (n = 5). Pickle growers charged a mean of $10.00/week (n = 3).

Table 4.24: Migrant utility payments by subsector (Michigan, 2000)

Housing utility payments:		Grower type			
		Apple	Asparagus	Blueberry	Pickle
Charged utilities?[ab]		33% (49)	50% (24)	22% (18)	40% (10)
If yes, when? -- Always -- While working elsewhere -- Propane only -- Only when working		93% 7% 0% 0% (15)	83% 17% 0% 0% (12)	50% 0% 25% 25% (4)	100% 0% 0% 0% (4)
Weekly utility rate charged[c]	Single workers:	$9.30 (7.9, 14)	$21.50 (41.3, 5)	$2.60 (1.9, 2)	$10.20 (12.9, 3)
	Families:	$24.10 (26.3, 14)	$24.40 (29.5, 9)	$28.10 (30.9, 2)	$9.90 (10.9, 4)

a - Chi-square test shows no significant differences by subsector.
b - Number in parentheses refers to the number of respondents to that question.
c - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

Blueberry growers (n = 2) charged families the highest utility rates ($28.00/week), followed by apple (n = 14) and asparagus growers (n = 9) that charged a mean of $24.00/week[14]. Pickle growers charged $10.00/week. Given the small number of responses, statistical analysis of these data by subsector was only possible concerning whether or not growers charged for utilities[15]. No statistically significant difference was observed between any of the primary crop pairings.

The mean rent and utility rates shown in Tables 4.23 and 4.24 will be used to estimate a monetary value for migrant worker benefits.

[14] It is assumed that families are charged a higher utility rate because of their overall higher utility usage, caused by several family members living together under the same roof.

[15] The other utilities data did not have sufficient numbers per category for statistical analysis.

4.2.2.7.3 Off-Farm Migrant Housing

More blueberry growers had workers that lived-off farm in 2000 (75%) than did apple or asparagus growers (42% each) (Table 4.25). This appears contrary to the findings in Section 4.2.2.7.1, which reported that, on average, housing availability exceeded the number of workers who actually lived on these farms. A chi-square test indicated that the differences in the percentages of migrants who live off-farm were statistically significant between apple and blueberry growers, and between asparagus and blueberry growers.

Table 4.25: Mean number of growers with migrants who lived off-farm, where they lived, and distance traveled to work, by subsector (Michigan, 2000)

Migrants that live off-farm	Grower type			
	Apple	Asparagus	Blueberry	Pickle
Growers with migrants living off-farm[ab]	42% (53)	42% (31)	75% (32)	30% (10)
If yes, mean number[c]	14.6 (17.2, 22)	10.1 (8.3,13)	35.2 (36.5, 23)	23.7 (27.2, 3)
Where they lived:[b]				
-- Other farm	24%	59%	32%	100%
-- Quarters self-secured	71%	33%	58%	0%
--With a local, permanent resident	0%	0%	5%	0%
-- Other	5% (17)	8% (12)	5% (22)	0% (3)
Mean travel distance (miles)[c]	14.8 (19.5, 22)	8.5 (6.3, 13)	14.1 (9.4, 23)	8.3 (5.8, 3)

a - Chi-square test shows significant difference between apple and blueberry growers (level = .00) and between asparagus and blueberry growers (level = .01).
b - Number in parentheses refers to the number of respondents to that question.
c - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

When taking into account only those farms where *some* migrants lived off-farm in 2000 (n = 62), this number was highest among blueberry growers (35 migrants), followed by apple (15) and asparagus growers (10). Pickle growers had a mean of 24 migrants live off-farm.

More than 50% of the growers with some migrants living off-farm stated that these migrants lived in quarters that the migrants secured themselves and close to 40% of the growers said that their workers lived in migrant housing on a neighboring farm.

On average, migrants who lived off-farm commuted nearly 13 miles to work in 2000, ranging from 15 miles for apple workers (one way), 14 miles for blueberry workers and nine miles for asparagus workers. Pickle migrants who lived off-farm traveled a mean of eight miles to work.

4.2.2.8 Secondary Migrant Worker Perquisites and Services

This sub-section reviews secondary perquisites provided by growers to their migrant workers. Secondary perquisites extend beyond rent and utilities to include such things as laundry facilities, telephone access, and end-of season bonuses. Secondary services provided to migrant workers by outside sources (i.e., churches, stores, daycare) are reported in Section 4.2.2.8.2.

4.2.2.8.1 Secondary Perquisites Provided to Migrant Workers

As shown in Table 4.26, the percentage of growers who provided any secondary perquisites was higher for apple growers (58%) than for asparagus and blueberry growers (35% each). Secondary perquisites are defined as non-wage benefits (in addition to

housing and utilities) that growers provided to migrant workers in 2000. These differences were statistically significant between apple growers and both asparagus and blueberry growers (chi-square test, 5% level). Fifty-eight percent of the pickle growers provided secondary perquisites.

Table 4.26: Number and percentage of growers providing secondary perquisites to migrant workers, and mean harvest season value, by subsector (Michigan, 2000)

Growers providing perquisites		Grower type			
		Apple	Asparagus	Blueberry	Pickle
Provided migrant perquisites[ab]		58% (52)	35% (31)	35% (31)	60% (10)
Type of perquisite[c]	Number of respondents	30	11	11	6
	End-of-season bonus	63% ($191.92)	45% ($207.50)	45% ($63.06)	33% --
	Improved lunch facility	17% ($41.67)	9% ($10.00)[d]	0%	33% ($100.00)[d]
	Telephone Access	43% ($49.13)	27% ($10.00)[d]	55% ($7.26)	50% ($20.00)[d]
	Transportation	23% ($118.75)	18% ($150.00)	18% ($11.42)	33% ($150.00)
	Laundry facilities	40% ($56.88)	18% ($30.00)[d]	27% ($6.00)[d]	50% ($20.00)[d]
	End-of-season fiesta	30% ($14.00)	55% ($27.50)	27% ($50.01)	67% ($80.00)
	Other[e]	17%	0%	36%	50%

a - Chi-square test shows significant difference between apple and asparagus growers (level =.05), and apple and blueberry growers (level = .05).
b - Number in parentheses refers to the number of respondents to that question.
c - Number in parentheses refers to subsectoral mean for perquisite.
d- Indicates that mean is based on only one observed value for that subsector.
e - Other perks included paid rain days, overtime, meals or food, new housing, an interpreter, jail bond money, daycare, and loans. Each of these was cited no more than twice by growers.

The kinds of perquisites offered to the migrant workers varied from farm-to-farm. The most common perquisites given by growers were an end-of-season bonus, telephone access, laundry facilities, and an end-of-season fiesta.[16]

An end-of-season bonus was given by 63% of apple growers and 45% each of asparagus and blueberry growers. Asparagus growers gave the largest mean bonus ($208.00/season), followed by apple ($192.00) and blueberry growers ($63.00). Only two of the six pickle respondents to this question provided an end-of-season bonus.

Asparagus growers reported the highest mean bonus value in 2000 ($208/season/worker), followed by apple ($192) and blueberry growers ($63). These values indicate that growers perceive end-of-season bonuses as important incentives to attract and keep migrants on their farms. Since bonuses are distributed when the harvest is complete, they encourage migrants to stay until the end of the harvest season.

Fifty-five percent of blueberry growers supplied telephone access as a perquisite, followed by 43% of the apple growers and 27% of the asparagus growers. Apple growers reported a mean value of $49/season/worker, followed by asparagus ($10) and blueberry growers ($7). Three of the six pickle respondents to this question provided telephone access.

Laundry facilities were supplied by 40% of the apple growers, 27% of the blueberry growers, and 18% of the asparagus growers. Apple growers valued laundry

[16] Growers were asked to list the perquisites that they provided in 2000. Since a list of secondary perks was not provided to growers, this question was left to interpretation by the survey respondents. To answer this question, the grower had to think about what they considered a perquisite in excess of cash payment. Thus, a provision recognized as a perquisite by one grower may not have been thought of as a perquisite by another grower. Likewise, since this question took more effort to answer, several respondents simply skipped it.

facilities at $57/season/worker, followed by asparagus ($30) and blueberry growers ($6). Fifty percent of the pickle growers supplied laundry facilities.

An end-of-season fiesta was provided by 55% of the asparagus growers, 30% of the apple growers and 27% of the blueberry growers. Blueberry growers valued the end-of-season fiesta at $50/season/worker, followed by asparagus ($28) and apple growers ($14). Sixty-six percent of the pickle growers provided workers with an end-of-season fiesta.

Other perquisites cited by growers as part of their incentive structure (n = 124) included transportation (22%), improved lunch facilities (16%), paid rain days (2%), paid overtime (2%), meals or food (3%), new housing (2%), interpreter costs (2%), jail bond provisions (4%), daycare facilities (4%), and financial loans (4%).

Interestingly, only 2% of the growers used new housing as a perquisite. Considering the importance placed on housing by both growers and migrant workers, this is surprising. However, this may be due to the high cost of constructing new housing. In a cost-benefit scenario, it is likely that the cost of building new migrant housing outweighs its benefit as an incentive for attracting more migrant labor.

This analysis suggests that growers frequently provide perquisites as a way to supplement migrant monetary wages. These estimated perquisite values will be used to construct an overall real wage rate across the four subsectors, which will then be compared with wages paid elsewhere in the economy, against which growers are competing for labor.

4.2.2.8.2 Secondary Services Available for Migrant Use

In addition to wages and perquisites, the availability of services to migrant workers may attract them to a particular farm. This section analyzes whether or not access to services is associated with a grower's ability or inability to attract migrants to work on his/her farm. Six services were selected for inclusion in this analysis. They include availability of religious services, schooling for migrant children, medical services, a grocery store, a clothing/all-purpose store, and migrant job location services. More than 90% of the growers reported access to each of these services from their farms.

As shown in Table 4.27, the mean distance between farms and religious services was only 5.85 miles across the four target subsectors. Asparagus migrants traveled nearly eight miles to religious services, while apple and blueberry migrants traveled less than five miles. Pickle migrants traveled seven miles to religious services.

The mean distance between farms and schools was highest for asparagus migrants (six miles), followed by apple and blueberry migrants (five miles each). Pickle migrants traveled less than four and one-half miles to school.

On average, asparagus migrants traveled more than 11 miles to medical services, while apple migrants traveled seven miles and blueberry migrants traveled slightly more than five miles. Pickle migrants traveled ten and one half miles to medical services.

Apple migrants traveled more than four and one-half miles to a grocery store while asparagus migrants traveled just under four and one-half miles and blueberry migrants traveled four miles. Pickle migrants also traveled approximately four miles to a grocery store.

Table 4.27: Mean distance from farms to services, as reported by growers, by subsector (2000)

Distance to services in miles[a]	Grower type			
	Apple (44-51)	Asparagus (26-29)	Blueberry (20-26)	Pickle (8-9)
Religious services[b]	4.95 (3.52)	7.73 (7.80)	4.93 (3.21)	7.25 (3.01)
Schooling	5.02 (2.78)	5.75 (3.92)	4.96 (2.94)	4.44 (4.72)
Medical services	6.93 (4.15)	11.33 (5.78)	5.31 (2.83)	10.50 (4.58)
Grocery store	4.65 (2.31)	4.38 (3.13)	3.92 (2.71)	4.17 (3.14)
Clothing/All-Purpose Store	7.87 (4.19)	10.07 (6.08)	7.28 (3.81)	11.94 (7.19)
Migrant services for locating jobs	11.34 (7.52)	14.41 (5.90)	9.25 (5.36)	16.33 (4.61)

a - The number of responses to each question varied slightly, as indicated by the range in n (as shown in parentheses following the crop name).
b - Numbers in parentheses refer to standard deviation.

Asparagus migrants traveled ten miles to a clothing/all-purpose store while apple migrants traveled eight miles and blueberry migrants traveled seven miles. Pickle migrants traveled twelve miles to a clothing/all-purpose store.

Asparagus migrants traveled nearly 14.5 miles to migrant services for locating jobs while apple migrants traveled approximately 11.5 miles and blueberry migrants traveled greater than nine miles. Pickle migrants traveled greater than sixteen miles to migrant services for locating jobs.

Since almost none of these services were available on-farm, they cannot be considered direct perquisites. Also, no significant differences were found in the availability of perquisites offered across the three primary subsectors (chi-square test, 5%

level). Thus, no attempt will be made to assign values to these services in the shadow wage estimation. Furthermore, as these services were all widely available across the four subsectors, it is unlikely that they influence migrants' decision as to where to seek a job. However, the availability of these services may attract workers towards farm employment in Michigan and, in turn, contribute to the social welfare of migrant workers from faraway places like Florida and Texas.

4.2.2.9 An Estimation of Real Wages Paid to Migrant Workers in Michigan

As describe in Section 3.3.2, the 'real wages' paid to migrant workers are defined as:

$$\textit{real wages} = \textit{standardized wages} + \textit{housing value (rent and utilities)} + \textit{estimated total perquisite value}$$

To estimate the "real wage" for each subsector, the previously estimated standardized wages (Section 4.2.2.6.2), housing values (Section 4.2.2.7.2) and perquisite values (Section 4.2.2.8.1) are inserted in the above equation for each case (grower). If a grower did not provide an estimated value for the rental, utility, or perquisite categories, but provided the perquisite, the mean value obtained through other growers in the same subsector was used instead. Sufficient data to make these calculations was available for 66 growers across the four target subsectors.

Table 4.28 reports the estimated mean real wage paid by growers in each subsector. As in the standardized wage case, 76% of the growers paid a real wage ranging from $5.50-$7.50 per hour. This included 90% of asparagus growers, 70% of

apple growers, and 60% of blueberry growers. As expected, real wages are consistently higher than standardized wages, ranging from a difference (attributable to housing and other perquisites) of $0.45/hour for asparagus workers to $0.86/hour for apple workers (Table 4.29).[17]

Table 4.28 Estimated real wage rates, by subsector (Michigan, 2000)

Real wage rate ($/hour)[a]	Grower type[b] (%)			
	Apple n = 31 (7.3, 0.8)	Asparagus n = 20 (6.6, 1.3)	Blueberry n = 5 (7.3, 1.0)	Pickle n = 8 (8.8, 4.3)
< $5.50	0	5	0	0
$5.51-6.50	13	55	40	50
$6.51-7.50	58	35	20	25
$7.51-8.50	19	0	40	0
$8.51-9.50	10	0	0	0
> $9.50	0	5	0	25

a - No 2-tailed t-test was conducted given the unreliability of results when n < 30.
b - Numbers in parentheses refer to the mean and the standard deviation.

Although it was expected that real wages would exceed the minimum wage, it was not clear that the same would be true of standardized wages. However, on average, both the estimated standardized and real wages are above Michigan's $5.15/hour state-mandated minimum wage rate[18]. In fact, across the four target subsectors, the average real wage rate ($7.28/hour) was 46% higher than the minimum wage rate and the standardized wage rate ($6.39/hour) was 24% higher than the minimum wage.

[17] A difference of $2.70 was noted for the pickle subsector. However, due to the small number of respondents, this estimate is not considered to be reliable.

[18] Michigan's minimum wage rate is the same as the federal government's minimum wage rate (U.S. Department of Labor, 2003).

Table 4.29 A comparison of real and standardized wages, by subsector (MI, 2000)

Wage rate ($/hour)	Grower type				Total n = 66
	Apple n = 31	Asparagus n =20	Blueberry n = 7	Pickle n = 8	
Real wage rate	7.31	6.43	7.28	8.83	7.28
Standardized wage rate	6.45	6.18	6.75	6.13	6.39
Real wage rate minus standardized wage rate	.86	.45	.53	2.70	.89

4.2.2.10 Mean Crop Percentages Harvested By Migrants

Growers who hired migrants reported that migrants harvested 98% of their apple and asparagus crops but only 59% of growers' blueberry crops (Table 4.30). Pickle growers reported that migrants harvested 100% of their pickling cucumber crops. These data highlight the key role that migrant labor plays in harvesting these crops and the severe impact that a disruption in the migrant labor supply would have on these subsectors.

4.2.3 Has There Been a Migrant Labor Shortage in Michigan?

In 2000, 85% of the apple growers, 74% of the asparagus growers, and 63% of the blueberry growers reported that they were able to hire enough migrant workers at harvest time (Table 4.31). In all but the asparagus subsector, these percentages were slightly lower in the previous two years but did not differ significantly from year-to-year (two-tailed t-test). These percentages were significantly different (Pearson chi-square test) between apple and blueberry growers in all three years, and between asparagus and blueberry growers in all years but 2000. Ninety percent of the pickle growers reported that they were able to hire enough migrant workers for the 2000 harvest.

Table 4.30 Mean crop percentages harvested by migrants, by subsector (Michigan, 2000)

Grower type	Mean percent[a]
Apple (n = 50)	97.9 (4.7)[b] 0.001
Asparagus (n = 31)	97.6 (9.1) [c] 0.001
Blueberry (n = 31)	59.2 (34.5)[b] 0.001 [c] 0.001
Pickle (n = 10)	100.0 (0.0)

a - Numbers in parentheses refer to standard deviation.

b-c - Means followed by the same letter (one above the other within a column) are significantly different according to a 2-tailed t-test, at significance level that appears beside letter.

Table 4.31: Percentages of growers reporting a shortage of migrant labor and the mean number of additional workers needed, by subsector (MI, 1998-2000)

Year	Grower Type			
	Apple (53)[f]	Asparagus (31)	Blueberry (29-32)	Pickle (9-10)
2000[a]	15%	26%	38%	10%
Additional workers needed[d]	6.4 (5.7, 8)	3.6 (2.1, 8)	22.5 (30.5, 10)	15.0 (na, 1)
1999[b]	21%	6%	53%	44%
Additional workers needed	7.6 (8.1, 10)	3.5 (2.1, 2)	23.6 (32.0, 15)	13.0 (5.72, 4)
1998[c]	21%	32%	41%	33%
Additional workers needed	11.6 (15.1, 10)	2.0 (na, 1)	20.6 (27.6, 11)	8.3 (5.8, 3)

a - Pearson chi-square test shows significant difference between apple and blueberry growers in whether or not there were sufficient workers (level = .02).

b - Pearson chi-square test shows significant difference in apple-blueberry (level = .00) and asparagus-blueberry pairings (level = .00).

c - Pearson chi-square test shows significant differences in all three pairings: apple-asparagus (level = .03), apple-blueberry (level =.05), and asparagus-blueberry (level = .00).

d - 'Additional workers needed' refers to the mean number needed by respondents reporting a labor shortage within a subsector, per farm per day.

e - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

f - Refers to the number of respondents reporting whether or not they experienced a labor shortage.

In all three years, blueberry growers were most likely to report that they had insufficient migrant workers (38-53%, depending on the year) to meet their labor requirements. Blueberry growers who reported a labor shortage estimated that they needed 21-24 additional workers, depending on the year. In contrast, apple growers who reported insufficient labor (15-21%) estimated they needed six to twelve additional workers, and asparagus growers (6-32%) estimated they needed two to four additional workers, depending on the year. However, as the number of respondents per subsector in any given year was quite small, differences in additional workers needed were not statistically significant.

4.2.3.1 Labor Shortage in Relation to Unharvested Acres

Of the growers who reported a labor shortage, many claimed that, in at least one of the three years, this shortage resulted in at least some of their crop being unharvested. This number included 88% of the asparagus growers (n = 8), 33% of the blueberry growers (n = 18), and 31% of the apple growers (n = 16) (Table 4.32). All of the pickle growers that reported a labor shortage (n = 4) also reported unharvested acres.

Between 1998 and 2000, affected blueberry growers (n = 3-6, depending on the year) reported a mean acreage loss of seven to 19 acres, resulting in an estimated financial loss of $1,800 to $2,200 per acre. Affected apple growers (n = 2-4) reported an acreage loss of 8 to ten acres, resulting in an estimated financial loss of $1,500 to $3,000 per acre. Asparagus growers (n = 0-7) reported a mean acreage loss of six to 22 acres, resulting in an estimated financial loss of $0 to $2,800 per acre. Affected pickle growers

(n = 1-4) reported an acreage loss of five to ten acres, resulting in an estimated financial loss of $1,400 to $1,500 per acre.

Table 4.32: Mean unharvested acres and financial loss per acre, among growers who reported a shortage of migrant labor, by subsector (Michigan, 1998-2000)

Grower type	Mean acres left unharvested in:[a]		
	2000	1999	1998
Apple	10 (10, 2)	8 (4, 2)	9 (9, 4)
Mean financial loss ($/acre)	$3000 (na, 1)	$1500 (na, 1)	$1700 (2100, 3)
Asparagus	22 (11, 7)	6 (9, 2)	0 (na, 0)
Mean financial loss ($/acre)	$800 (900, 7)	$2800 (4000, 2)	$0 (na, 1)
Blueberry	19 (21, 4)	17 (16, 6)	7 (3, 3)
Mean financial loss ($/acre)	$2100 (2000, 4)	$2200 (1900, 6)	$1800 (1300, 3)
Pickle	10 (na, 1)	7 (3, 4)	5 (4, 3)
Mean financial loss ($/acre)	$1500 (na, 1)	$1400 (600, 4)	$1400 (700, 3)

a - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

Another way to look at this is from an industry-wide perspective, roughly estimating what each subsector would look like if similar percentages of each subsector faced similar labor-related losses due to unharvested acres[19]. Using the mean acreage and financial loss figures cited for 2000, the blueberry subsector could face annual losses of more than $2 million, the asparagus subsector more than $1 million, the apple subsector nearly $1 million, and the pickle subsector $200 thousand.

[19] The losses were projected by averaging the growers' estimated 1998-2000 unharvested crop loss values and multiplying by the relevant percentage of growers per subsector.

4.2.3.2 Labor Shortage in Relation to Late-Harvested Acres

Of the respondents who reported a labor shortage, many claimed that in at least one of the last three years, this shortage resulted in some of their crop being harvested later than at the optimal time. This included 88% of the apple growers (n = 16), 78% of the 18 blueberry growers (n = 18), and 63% of the asparagus growers (n = 8) (Table 4.33). Fifty percent of the pickle growers (n = 4) that reported a labor shortage also reported late-harvested acres.

For the years 1998 through 2000, affected apple growers (n = 7-9, depending on the year) reported harvesting 21 to 30 acres later than at the optimal time, resulting in a mean financial loss of $500 to $8,500 per acre[20]. Affected blueberry growers reported harvesting eight to 14 acres later than at the optimal time, resulting in a mean financial loss of $2,700 to $3,600 per acre. Asparagus growers reported harvesting zero to to 31 acres later than at the optimal time, resulting in a financial loss of zero to $4,500 per acre. Affected pickle growers reported harvesting three to ten acres later than at the optimal time, resulting in a financial loss of $500 to $1,000 per acre.

As before, this can also be looked at from an industry-wide perspective, estimating what each subsector would look like if a similar percentage of all Michigan growers in that subsector faced similar labor-related losses due to late harvested acres[21]. Using the mean acreage and financial loss figures cited above, Michigan's apple and

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[20] Since the sample sizes on which these estimates are based are very small, they must be treated with caution. Nevertheless, the figures provide a rough estimate regarding the troubles faced by Michigan growers who reported an inability to hire sufficient migrant farm workers in recent years.

[21] These losses were projected by averaging the growers' estimated 1998-2000 crop loss values and multiplying by the relevant number of growers per subsector.

asparagus subsectors could face annual losses of more than $5 million apiece, the blueberry subsector $2.5 million, and the pickle subsector less than $100 thousand.

4.33: Mean acres harvested beyond the optimal time and financial loss per acre, among growers reporting a shortage of migrant labor, by subsector (Michigan, 1998-2000)

Crop	Year[a]		
	2000	1999	1998
Apple	28 (34, 7)	21 (17, 9)	30 (47, 9)
Mean financial loss ($/acre)	$500 (500, 5)	$8,500 (18,400, 7)	$2,000 (3,300, 8)
Asparagus	31 (35, 5)	24 (na, 1)	0 (na, 1)
Mean financial loss ($/acre)	$4,500 (3,100, 5)	$4,000 (na, 1)	0 (na, 1)
Blueberry	14 (14, 10)	14 (12, 14)	8 (9, 10)
Mean financial loss ($/acre)	$3,600 (8,100, 9)	$2,900 (5,700, 12)	$2,700 (5,200, 8)
Pickle	10 (na, 1)	9 (1, 2)	3 (na, 1)
Mean financial loss ($/acre)	$1,000 (na, 1)	$800 (350, 2)	$500 (na, 1)

a - Numbers in parentheses refer to standard deviation and number of respondents to that question, respectively.

Industry-wide, annual losses attributable to both unharvested and late-harvested acres are potentially as high as $6 million for the apple subsector and asparagus subsectors, $4.5 million for the blueberry subsector, and $300 thousand for the pickle subsector.

4.2.3.3 Labor Shortage in Relation to Farm Size

Across the four subsectors, farm size was defined in two ways. First, it was defined by total farm acreage; second, by crop earnings in 2000 and estimated total farm earnings for 1998 through 2000. To test Hypothesis 3 that large farms have an easier time recruiting migrant farm labor than do small farms, a discriminant analysis was conducted using 'farm size' as the continuous, independent variable and 'ability to recruit sufficient migrant labor' as the categorical, dependent variable (Alreck and Settle, p. 320). Neither farm size by acreage nor farm size by crop earnings (or estimated total farm earnings) was found to have a statistically significant correlation with the ability of growers to recruit sufficient migrant labor at harvest time for any of the three years for which data were collected (1998-2000).

4.2.3.4 Labor Shortage in Relation to Real Wages

To test Hypothesis 4 that higher real wages lead to easier recruitment and retention of workers, a discriminant analysis was conducted using 'estimated real wages' as the continuous, independent variable and 'ability to recruit sufficient migrant labor' as the categorical, dependent variable (Alreck and Settle, p. 320). Real wage rates were not found to have a statistically significant correlation with the ability of growers to recruit sufficient migrant labor at harvest time in 2000[22]. Likewise, a 2-tailed test of significance (Pearson correlation) indicated no statistically significant correlation between the real wage rates calculated in this chapter and: (1) the number of migrants who had worked previously on the same farm (corr = .067, sig = .559), and (2) the

[22] This was the only year for which sufficient data was available to make this calculation.

number of migrants who had worked on a particular farm for five or more years (corr = .060, sig = .663). Thus, these results do not support the hypothesis that growers who pay higher real wages can more easily recruit and retain workers.

4.2.3.5 Labor Shortage in Relation to the Provision of Housing

'Housing' and 'ease of recruiting' were not significantly correlated for any of the three years.

4.2.3.6 Labor Shortage in Relation to Growers' Ability to Communicate in Spanish

Although a weakly statistically significant relationship was noted between a grower's ability to speak or understand some Spanish (regardless of fluency level) and having a sufficient number of migrants in 2000 (chi-square = 3.1, sig = .078), non-significant results were obtained for 1999 and 1998. Non-significant associations were also obtained between levels of fluency and having a sufficient number of migrants for 1998 through 2000.

4.2.3.7 Labor Shortage in Relation to Migrants that Return to Same Farms Year-After-Year

The Pearson correlation between sufficient labor and the percent of migrants returning to the same farm for five or more years is significant (corr = 0.756, indicating that nearly sixty percent of the variation is shared by the two variables (Alreck and Settle, p. 315)), although sufficient labor is not significantly correlated with the more general category of percentage of workers who have worked on the farm in previous years. Thus,

the analysis generally supports the hypothesis that growers with a high percentage of long-term return employees are better able to access sufficient quantities of migrant farm labor.

4.2.3.8 Potential Explanations for the Perceived Labor Shortage

One survey question solicited growers' opinions about why they have experienced a labor shortage in recent years by asking them to rank a series of possible reasons (Table 4.34).[23] Approximately two-thirds of the apple growers that responded to this question (n = 16) identified among their top two rankings 'higher-paying non-farm-work elsewhere' (69%) and 'too few migrants coming to Michigan now' (63%). Two-thirds of the asparagus growers who responded to this question (n = 8) also identified 'higher-paying non-farm-work elsewhere' (63%) among their top two reasons. More than one-third of the blueberry respondents (n = 18) cited 'too few migrants' and 'tighter INS restrictions' among their top two reasons (39%), while another third cited 'higher-paying non-farm-work elsewhere' and 'an inability to provide enough housing to meet federal standards' (33%).

Equally telling is the number of growers who rejected other possible reasons for the labor shortage. Ninety-six percent of the respondents rejected 'insufficient matching services' as a possible explanation. Seventy-eight percent rejected 'higher paying farm-work elsewhere'. Finally, 65% (including nearly 40% of the blueberry growers) rejected 'an inability to provide enough housing that meets federal standards' as an explanation for the labor shortage. This is surprising since a many blueberry growers do not supply

[23] This question was asked only of growers who reported a labor shortage during 1998-2000.

housing, which was hypothesized as being a significant factor in attracting migrant workers to a given farm.

Table 4.34: First or second place grower ranking (%) of reasons for why there is a migrant labor shortage, by subsector (Michigan, 2000)

Possible reason for farm labor shortage[ab]	Grower type			
	Apple (n = 16)	Asparagus (n = 8)	Blueberry (n = 18)	Pickle (n = 4)
Higher-paying non-farm-work elsewhere	68.8%	62.5%	33.3%	25.0%
Too few migrants coming to Michigan now	62.6%	25.0%	38.9%	25.0%
Tighter INS restrictions	37.6%	25.0%	38.9%	25.0%
Cannot provide enough housing to meet federal standards	6.3%	25.0%	33.4%	0.0%
Higher-paying farm-work elsewhere	0.0%	0.0%	11.1%	25.0%
Insufficient matching services	6.3%	0.0%	0.0%	0.0%

a - Growers were asked to rank the top three reasons for the labor shortage, assigning a 1 to the most likely reason, a 2 to the second most likely reason, and a 3 to the third most likely reason. Data in this table refer to the top two rankings per reason only.

b - Due to small sample size, no significance testing was performed.

Although the list of possible explanations for a labor shortage was fairly comprehensive, growers were given the opportunity to select 'other' as a reason for the labor shortage. Eighty-seven percent of the growers did not include this option in their ranking of the alternatives.

4.2.3.9 Changes Made by Growers to Accommodate Labor Shift

To reduce a labor shortage, growers can make changes in their operations to either reduce their labor needs or to attract more migrant labor. Many of the respondents who reported a labor shortage claimed to have made such changes in their farming operation to reduce labor needs during the last few years. This included 72% of the blueberry growers (n = 18), 63% of the apple growers (n = 16), and 50% of the asparagus growers (n = 8) (Table 4.35). Fifty percent of the four pickle growers also made changes in their farming operation.

The means by which growers reduced their labor requirements varied by subsector and from farm-to-farm[24]. A majority of blueberry growers (92%) reported switching to machine-harvesting to reduce their labor needs. Numerous asparagus (and pickle) growers reduced their crop acreage. While only two of the ten apple growers reduced their acreage, two others switched to smaller trees that are easier to harvest and one apple grower began planting more vegetables to extend the migrant employment season.

However, rather than attempting to reduce their need for labor, more respondents reported making changes in their farm operating procedure to attract more migrant labor to their farm (Table 4.35), including 86% of the asparagus growers, 75% of the apple growers, and 59% of the blueberry growers. Seventy-five percent of the pickle growers also made changes to attract labor.

[24] Growers provided so many different responses to this question that a table was considered not useful.

Table 4.35: Percentage of respondents citing labor shortage who made changes in their farm operating procedures to reduce labor need or attract more labor to their farms, by subsector (Michigan, 2000)

Recent changes in farming operation to:	Grower type[a]			
	Apple (16)	Asparagus (7-8)	Blueberry (17-18)	Pickle (4)
Reduce migrant labor need[b]	62.5%	50%	72.2%	50%
Attract more labor[b]	75%	85.7%	58.8%	75%

a - Number in parentheses refers to number of respondents.
b - Due to small sample size, no significance testing was performed.

To attract more migrants, 71% of the growers reported building or improving existing migrant housing and nearly 50% increased migrant worker pay levels. In addition, some growers added a new lunchroom or modern bathroom facilities, or provided an end-of-season bonus, hired a crewleader to help with migrant hires, planted smaller trees (apple growers), planted vegetables to provide continuous employment, or eliminated long-term workers who could not get along with new workers.

4.2.4 Anticipated Future Migrant Labor Needs

When asked if they expected to need more, less, or the same number of migrant workers in 2001, 66% reported that they anticipated needing the same number in 2001 while 25% anticipated needing more workers, and 9% reported that they would need fewer workers (Table 4.36.)

Among the subsectors, asparagus growers most frequently anticipated an increased demand for labor in 2001 (39%), followed by blueberry growers (34%) and apple growers (17%). Nine percent of pickle growers anticipated an increased demand for labor. In contrast, only 9% of apple growers anticipated a decreased need for labor,

followed by blueberry growers (6%) and asparagus growers (0%). Forty percent of the pickle growers expected to need fewer workers in 2001. However, these differences were not statistically significant among any of the pairings (Chi-square test).

Table 4.36: Growers' anticipated need for migrant workers in 2001 and 2005, by subsector (Michigan, 2000)

Future demand for migrant labor expected to		Grower type[a]				Total (124-126)
		Apple (52-53)	Asparagus (31)	Blueberry (31-32)	Pickle (10)	
Next year (2001)[b]	Rise	17.0%	38.7%	34.4%	0.0%	25.4%
	Drop	9.4%	0.0%	6.3%	40.0%	8.7%
	Same	73.6%	61.3%	59.3%	60.0%	65.8%
In 5 years (2005)[b]	Rise	28.8%	48.4%	41.9%	0.0%	34.7%
	Drop	25.0%	19.4%	25.8%	50.0%	25.8%
	Same	46.2%	32.2%	32.3%	50.0%	39.5%

a - Number in parentheses refers to number of respondents.
b - Chi-square conducted by combining "rise" and "drop" categories into "change" category – no statistically significant difference noted in any of the primary crop pairings.

With respect to growers' anticipated demand for migrant labor in 2005, across the four subsectors, 35% of growers expected to need more workers, 25% expected to need fewer, and 40% expected their demand to remain the same.

Growers' anticipated demand for migrants in 2005 varied by subsector. Fifty percent of asparagus growers, 40% of blueberry growers, and 30% of apple growers expected to need more laborers. In contrast, one-quarter or less of each group expected to need fewer workers. None of the pickle growers expected to need more labor in 2005 while half expected to need fewer workers.

An open-ended question in this survey asked growers to identify factors that will increase their future labor needs. Forty-nine percent of the apple growers, 43% of the asparagus growers, and 22% of the blueberry growers responding to this question cited 'an increase in acreage' (Table 4.37). One-third of the pickle growers gave the same response.

Citing 'increased production of other crops' as a factor that would increase their demand for labor were 24% of the apple growers, 19% of the asparagus growers, and 6% of the blueberry growers. None of the pickle growers cited this factor.

Citing 'increased production of the survey crop' were 39% of the blueberry growers and 0% of the apple and asparagus growers. Likewise, none of the pickle growers cited this factor.

Citing 'increased crop price/profitability' were 16% of the apple growers, 5% of the asparagus growers, and 0% of the blueberry growers. None of the pickle growers cited this factor.

Citing 'increased on-farm processing' were 16% of the apple growers and 5% of the asparagus growers. None of the blueberry (or pickle) growers cited this factor.

Regarding factors that might decrease their demand for labor, the most important finding from this question is that 13% of the growers that responded to this question said that they will have sold their businesses in the next five years – and thus cannot answer this question (Table 4.38.) Growers who expected to sell their farms included 18% of the asparagus growers (n = 17), 15% of the apple growers (n = 33), and 13% of the blueberry growers (n = 13). Seventeen percent of the pickle growers (n = 6) expected to have sold his or her farm by 2005.

Table 4.37: Factors that growers believe will increase their future labor need, by subsector (Michigan, 2000)

Factor[a]	Grower type (responses, (% of responses))			
	Apple (n = 37)	Asparagus (n = 21)	Blueberry (n = 18)	Pickle (n = 3)
-- ↑ acreage	18 (48.6%)	9 (42.8%)	4 (22.2%)	1 (33.3%)
-- ↑ production of other crops	9 (24.3%)	4 (19.0%)	1 (5.6%)	0 (0.0%)
-- ↑ production of survey crop	0 (0.0%)	0 (0.0%)	7 (38.9%)	0 (0.0%)
-- ↑ crop price/ ↑ profitability[b]	6 (16.3%)	1 (4.8%)	0 (0.0%)	0 (0.0%)
-- ↑ on-farm processing[c]	1 (2.7%)	6 (28.6%)	0 (0.0%)	0 (0.0%)
-- Less efficient workers	1 (2.7%)	1 (4.8%)	1 (5.6%)	1 (33.4%)
-- Product selling contracts	1 (2.7%)	0 (0.0%)	2 (11.1%)	1 (33.3%)
-- Hand-harvesting for quality fruit	1 (2.7%)	0 (0.0%)	1 (5.6%)	0 (0.0%)
-- Too stringent INS regulations	0 (0.0%)	0 (0.0%)	2 (11.1%)	0 (0.0%)
Total responses	37 (100%)	21 (100%)	18 (100%)	3 (100%)

a - Respondents could offer multiple factors.
b - As a crop price rises, the return to the grower increases, making it worthwhile to plant more of the same crop. More acreage planted to a crop requires additional labor to tend and harvest that crop.
c - On-farm processing requires labor in excess of that needed for harvesting.

Excluding those who planned to sell their farm, more asparagus (47%) than apple (25%) or blueberry growers (11%) cited 'less acreage' as the most compelling factor for why labor demand may drop among apple and asparagus growers (Table 4.38). Only one of the six pickle respondents cited this factor.

Table 4.38: Factors that growers believe will decrease their future labor needs by year 2005, by subsector (Michigan, 2000)

Factor[a]	Grower Type (responses, (% of responses))			
	Apple (n = 33)	Asparagus (n = 17)	Blueberry (n = 16)	Pickle (n = 6)
-- ↓ acreage	10 (25.0%)	8 (47.1%)	2 (10.5%)	1 (14.3%)
-- ↑ mechanization	4 (10.0%)	2 (11.8%)	10 (52.6%)	1 (14.3%)
-- ↓ crop price/ ↓ profitability	6 (15.0%)	2 (11.8%)	0 (0%)	3 (42.8%)
-- Will have sold farm	5 (12.5%)	3 (17.5%)	2 (10.5%)	1 (14.3%)
-- Shift from hourly to piece rate wage	4 (10.0%)	1 (5.9%)	1 (5.3%)	0 (0%)
-- Direct marketing[c]	5 (12.5%)	1 (5.9%)	0 (0%)	0 (0%)
-- Switch to smaller, shorter trees	4 (10.0%)	0 (0%)	0 (0%)	0 (0%)
-- More restrictive labor regulations	1 (2.5%)	0 (0%)	2 (10.5%)	0 (0%)
-- More u-pick activities	1 (2.5%)	0 (0%)	1 (5.3%)	1 (14.3%)
-- Cost/availability of labor	0 (0%)	0 (0%)	1 (5.3%)	0 (0%)
Total responses	40 (100%)	17 (100.0%)	19 (100%)	7 (100%)

a - Respondents could offer multiple factors.
b - As a crop price rises, the return to the grower increases, making it worthwhile to plant more of the same crop. More acreage planted to a crop requires additional labor to tend and harvest that crop.
c - No longer necessary to sell to only large buyers.

Citing 'increased mechanization' as a factor likely to decrease labor demand were 53% of the responses given by blueberry growers, but only 12% of the asparagus responses and 10% of the apple responses. Only one of the six pickle respondents cited 'increased mechanization' as a factor.

Six of the 33 apple respondents (15%), two of the 17 asparagus respondents (12%), and none of the 16 blueberry respondents pointed to 'lower crop price and decreased profitability' as a factor likely responsible for decreased labor demand by 2005. Three of the six pickle respondents gave this answer.

Among the other reasons cited for an anticipated decrease in labor demand were a 'conversion from an hourly to a piece rate wage', 'direct marketing activities', 'a shift to smaller, shorter trees' among apple growers, 'more restrictive labor regulations', and 'more u-pick activities.'

4.2.5 Anticipated Future Migrant Labor Availability

When asked about the anticipated future availability of migrants across the four target subsectors, 68% of the growers expected there to be fewer migrant workers available in five years (Table 4.39). However, 30% of the respondents (n = 122) expected no change in labor and 2% expected that more migrant workers would be available in the future. These percentages are similar across the subsectors.

A chi-square test (5% level) indicated no statistically significant differences among grower types, regarding their expectations.

Growers offered suggestions for increasing the future supply of migrant labor (Table 4.40). Multiple suggestions were allowed per grower. The most frequently cited recommendations were legal in nature (58% of the responses), primarily divided between the issuance of seasonal migrant permits at the federal or state level and relaxing government regulations to ensure sufficient farm labor in Michigan (25% of the responses each). Apple (30%) and asparagus growers (40%) favored seasonal permits.

Blueberry growers (60%) favored looser government regulations as they pertain to immigration and, hence, migrant availability. Four of the eight pickle growers also favored seasonal permits.

Table 4.39: Growers' expectations regarding the availability of migrant workers in five years, by subsector (Michigan, 2000)

Expected Availability[a]	Grower type (n, (%))				Total (n = 122)
	Apple (n = 51)	Asparagus (n = 30)	Blueberry (n = 32)	Pickle (n = 9)	
Higher	2 (3.9%)	0 (0.0%)	1 (3.1%)	0 (0.0%)	3 (2.5%)
Lower	34 (66.7%)	20 (66.7%)	23 (71.9%)	6 (66.7%)	83 (68.0%)
Same	15 (29.4%)	10 (33.3%)	8 (25.0%)	3 (33.3%)	36 (29.5%)

a - A chi-square test showed non-significant differences among primary crop pairs.

Some respondents also made economic suggestions (16% of the responses), primarily related to changing the tax structure for migrant workers (10%) and increasing crop prices so that wages and benefits could rise (6%). Twenty-three percent of the responses from asparagus growers were in favor of changing the tax structure, although no clear-cut economic preferences were noted for the other three subsectors.

Nineteen percent of the responses cited on-site changes, including continued assistance for building on-farm housing (12% of the responses) and growing crops that maximize a grower's ability to retain migrant workers on his or her farm during slow times (7%). More apple, asparagus, and blueberry growers were in favor of construction assistance (13-15%) as compared to those in favor of making crop changes (4-10%).

Table 4.40: Growers' suggestions for increasing the future supply of migrant workers, by subsector (Michigan, 2000)

Suggestions	Grower Type (responses, (% of responses))				Total (responses, (% of responses))
	Apple (n = 37)	Asparagus (n = 22)	Blue-berry (n = 25)	Pickle (n = 8)	
Legal:					
-Issue seasonal permits at Federal/State level	14 (29.2%)	10 (38.5%)	2 (5.7%)	4 (44.5%)	30 (25.4%)
-Relax government regulations to ensure sufficient migrants	7 (14.6%)	2 (7.7%)	20 (57.0%)	0 (0.0%)	29 (24.6%)
-5-year visas for ag. workers, followed by citizenship option	4 (8.2%)	0 (0.0%)	4 (11.4%)	1 (11.1%)	9 (7.7%)
Economic:					
-Rework migrant-related tax structure	4 (8.4%)	6 (23.1%)	0 (0.0%)	2 (22.2%)	12 (10.1%)
-↑ crop prices so that benefits/wages can ↑	6 (12.5%)	0 (0.0%)	1 (2.9%)	0 (0.0%)	7 (5.9%)
On-site:					
-Continue assistance in building on-farm housing	6 (12.5%)	4 (15.4%)	5 (14.3%)	0 (0.0%)	15 (12.7%)
-Use crop-growing pattern that maximizes migrants' ability to stay on one farm	5 (10.4%)	1 (3.8%)	1 (2.9%)	0 (0.0%)	7 (5.9%)
Other[b]:	2 (4.2%)	3 (11.5%)	2 (5.8%)	2 (22.2%)	9 (7.7%)
Total responses	48 (100%)	26 (100%)	35 (100%)	9 (100%)	118 (100%)

a - Due to n < 30 for three of the four crops, no significance testing was performed.

b- Other responses included 'programs to teach growers about regulations', 'the development of housing projects to supply migrant labor pools', 'better communication between growers and migrants', 'H2A program reforms', and 'monetary rewards for families who do good work'.

4.2.6 Non-Migrant and Year-Round Labor Statistics

To fully meet their labor needs, 61-66% of the growers hired some non-migrant labor during 1998-2000. The mean number of non-migrant hires per day was relatively constant over the three years (Table 4.41). Blueberry growers hired the greatest number--approximately nine per day, followed by apple growers (5) and asparagus growers (slightly more than one). On average, pickle growers hired less than one worker per day. Due to the small number of responses per category in a given year, the differences in the means were only statistically significant between apple and asparagus growers in all three years.

During the last three years, only about 20% of the growers said that they had any difficulty hiring sufficient year-round labor (Table 4.42). Nevertheless, this percentage increased from 18% in 1998 to 19% in 1999, and then to 22% in 2000.

Apple growers reported having the most trouble hiring year-round labor during 1998-2000. Depending on the year, 25-27% of apple growers reported this problem, followed by 14-20% of the blueberry growers and 10% of the asparagus growers.

However, these differences were only statistically significant between apple and asparagus growers in 1999 and 1998. Twenty to thirty percent of the pickle growers reported difficulty hiring year-round labor.

More than two-thirds of the respondents (n = 26) reported higher wages elsewhere and better non-farm opportunities as the reason they had trouble locating year-round laborers (Table 4.43)[25]. Blueberry growers (n = 12) gave numerous reasons not given by other growers for why they had difficulty recruiting year-round workers, including that

[25] Since this question was answered by only those respondents who had difficulty hiring year-round labor, the n is quite small.

there was so much other work available for pruning and tractor crews, farm work is backbreaking and unglamorous, potential workers lack the experience needed for year-round work, and too many workers are simply undependable. The first two of these explanations are directly related to there being better job opportunities in the local and national economies. The last two reasons can be argued as indirectly related to other economic options.

Table 4.41: Mean number of non-migrants growers hired per day per farm, by subsector (Michigan, 1998-2000)

Grower type[a]	Year			3-year mean
	2000	1999	1998	
Apple	4.08 [c] .00 (5.98, 52)	5.52 [d] .03 (13.89, 52)	5.38 [e] .03 (13.78, 52)	4.99
Asparagus	1.15 [c] .00 (1.86, 30)	1.17 [d] .03 (1.80, 30)	1.10 [e] .03 (1.79, 30)	1.14
Blueberry[b]	9.12 (17.14, 21)	9.33 (16.54, 21)	8.80 (18.38, 20)	9.09
Pickle	0.70 (0.95, 10)	0.67 (0.87, 9)	0.78 (1.09, 9)	0.72

a - Standard deviations and number of respondents are given in parentheses, respectively.
b - The number of blueberry respondents was too small for inclusion in a reliable t-test comparison.
c - e Means followed by the same letter (one above the other within a column) are significantly different according to a 2-tailed t-test, at significance level that appears beside letter.

Across the three years, apple growers (21%) reported the greatest difficulty hiring labor during other than the harvest periods, compared to only 12% of the blueberry

growers (Table 4.44)[26]. Twenty percent of the pickle growers also reported having difficulty hiring labor during times other than the harvest period.

Table 4.42: Percentage of growers citing they had trouble hiring year-round workers, by subsector (Michigan, 1998-2000)

Grower type	Year		
	2000	1999	1998
Apple (n = 51)	27.5%	25.5% $^{a}_{0.04}$	27.5% $^{b}_{0.03}$
Asparagus (n = 29-30)	10.3%	6.9% $^{a}_{0.04}$	6.9% $^{b}_{0.03}$
Blueberry (n = 29-30)	20.0%	16.7%	13.8%
Pickle (n = 10)	30.0%	30.0%	20.0%
Total (n = 119-120)	21.7%	19.2%	18.5%

a - b Percentages followed by the same letter (one above the other within a column) are significantly different according to a Pearson chi-square test, at significance level that appears beside letter.

Among growers who reported it difficult to hire labor during non-harvest peak periods (n = 24), 64% of the apple growers (n = 14) and 43% of the blueberry growers (n = 7) said that it is 'difficult to find workers with the necessary skills required for pruning or tractor-based activities' (Table 4.45). Two of the three pickle respondents also made this claim. Twenty-nine percent of the blueberry growers and 21% of the apple growers cited the 'existence of higher wages and benefits off-farm' (one of the three pickle growers cited this factor), while 29% of the blueberry growers and 14% of the apple growers said that the work is 'too monotonous and backbreaking' to attract workers in today's economy. No pickle growers cited this last factor.

[26] Asparagus growers were not asked this question as other peak time labor is not an issue for them.

Table 4.43: Grower reasons concerning why they had difficulty hiring year-round labor, by subsector (Michigan, 1998-2000)

Reasons[ab]	Grower type (n, (%))				Total (n, (%))
	Apple	Asparagus	Blueberry	Pickle	
Better non-farm opportunities available	3 (25.0%)	1 (50.0%)	6 (50.0%)	1 (50.0%)	11 (39.3%)
Higher wages elsewhere	6 (50.0%)	1 (50.0%)	0	1 (50.0%)	8 (28.6%)
Workers lack experience and dependability	0	0	4 (33.3%)	0	4 (14.3%)
Other	3 (25.0%)	0	0	0	3 (10.7%)
Farmwork is backbreaking	0	0	2 (16.7%)	0	2 (7.1%)
Total	12 (100%)	2 (100%)	12 (100%)	2 (100%)	28 (100%)

a - Only reasons given by more than one respondent are included in this table.
b - Due to the small n per category, no significance testing was performed.

Table 4.44: Percentage of growers reporting labor shortages during other peak times, by subsector (Michigan, 1998-2000)

Grower type[ab]	Year			Three-year mean
	2000	1999	1998	
Apple (n = 51)	21.6%	23.6%	17.6%	20.9
Blueberry (n = 28-29)	13.8%	10.3%	10.7%	11.6
Pickle (n = 10)	10.0%	30.0%	20.0%	20.0

a- Asparagus growers were not asked this question as other peak time labor is not an issue for them.
b- A chi-square test (5% level) indicated no statistically significant differences among grower types.

4.3 *REGRESSION ANALYSIS*

The aim of this section is to present the results of the logit multinomial regressions, identifying the factors associated with whether or not growers had sufficient migrant farm labor for the 2000 harvest season. Five logit models were estimated as part of this analysis but were found inconclusive and are therefore not presented here.

Table 4.45: Growers' reasons for having difficulty hiring laborers during non-harvest peak labor periods, by subsector (Michigan, 2000)

Reasons[abc]	Grower type (n, (%))		
	Apple	Blueberry	Pickle
Difficult finding workers skilled in pruning/tractor activities	9 (64.3%)	3 (42.8%)	2 (66.6%)
Higher wages/benefits in off-farm opportunities	3 (21.4%)	2 (28.6%)	1 (33.4%)
Work too monotonous to compete with other jobs	2 (14.3%)	2 (28.6%)	0
Total	14 (100%)	7 (100%)	3 (100%)

a- Only reasons given by more than one respondent were included in this table.
b- Asparagus growers were not asked this question as other peak time labor is not an issue for them.
c - The n was too small per subsector for reliable significance testing. Therefore, none was done.

It is likely that these results are non-significant for several reasons. First, the high level of data processing required to standardize several of the variables, such as the standardized and real wage rates, make it likely that some of the information was lost in the standardization process. Second, the social capital variables used in the regression series were not adequate proxies for the information sought by this study. Thus, relevant information that might have been captured by asking particular survey questions in a

more appropriate way was not captured. Third, several questions asked on the survey were open-ended, requiring more time by growers to answer. Hence, fewer responses were obtained, shrinking the data pool for use in the regression series. Each time data were missing for one respondent, the sample population automatically diminished, making it increasingly difficult to obtain conclusive results from the logit analyses[27]. Last, given the self-selection of the growers who responded to the grower and migrant pilot surveys, bias was introduced to the study, potentially influencing the nature of the results obtained in the logit analyses.

4.4 SUMMARY AND CONCLUSION

The data indicate that the respondents had many years of experience, particularly working with migrants. Across the four subsectors, they had worked on a farm for 30 years, had spent 27 years growing their target crops, and had actually managed a farm for 24 years.[28] Most importantly, they had hired migrant workers for 21 years. On average, growers managed large farms that averaged 430 acres, with a little less than one-third of their acreage planted to annual acres (127 acres). Asparagus growers had significantly more acres planted to annual crops (188 acres) than the other target growers[29]. Whereas a mean of 40% of growers' farm acreage was planted to the target crop, this ranged from 18% for asparagus growers to 56% for apple growers.

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[27] The data set available for inclusion in the logit analyses was small compared to the number of growers originally targeted by this study (79 versus 720, slightly more than 10%).

[28] These are all mean values, averaged across the four subsectors.

[29] Apple growers have a mean of only 63 acres planted to annual crops.

Although these data imply that asparagus growers are more diversified, increased diversification does not necessarily imply greater financial security from farm earnings. Nearly one-third of the asparagus growers worked off-farm, compared to only one-quarter of the growers across the four subsectors. Off-farm earnings are thus used to enhance overall financial security.

Apple growers attended more extension meetings each year than the three other target groups. Whereas the mean number of meetings attended each year by all growers was 4.2, apple growers attended 5.6 and blueberry growers attended only 2.2 meetings per year. Meeting attendance indicates the degree to which growers seek outside input in the management of their farms, possibly including information about sources of migrant farm labor.

Nearly one-half of all growers reported some ability to speak/comprehend Spanish. Nevertheless, these growers' mean ability (on a scale of 1 to 5) averaged only a 1.5, indicating a distinct disadvantage across all growers in communicating with their migrant employees.

Among growers responding to this survey, 83 (27%) did not hire migrant labor in 2000. Of the 33% of this group who hired migrant labor prior to 2000, more than 96% were blueberry growers. The vast majority of blueberry growers stopped hiring migrant labor because they switched to mechanical harvesting. Eighty-eight percent of these growers reported that their farm earnings had stayed the same or risen since they stopped hiring migrant labor.

While some growers reported that a labor shortage was indeed a problem, these data show that a majority of the growers in each of the four target subsectors are able to

hire sufficient migrant labor. For example, although roughly one-quarter of the growers in each subsector cited having insufficient labor during the 1998 through 2000 growing seasons, very few reported that this resulted in unharvested or late harvested acres. Thus, few growers have suffered substantial income losses due to a shortage of migrant labor.

Most of the growers avoided a labor shortage by anticipating their needs for future labor and planning accordingly. While most growers expect the decline in labor to continue, they are preparing to meet this challenge by changing their farm management practices (i.e., growing different crops, diversifying, giving up farming altogether, or increasing mechanization).

An interesting finding of this chapter is that state-funded services are an untapped source by growers for migrant recruitment purposes. Thus, one must ask how these services can be improved to better help growers threatened by a shortage of labor.

This chapter has covered much information pertaining to grower perceptions about migrant farm labor. The goal of the next chapter is to present a migrant viewpoint.

CHAPTER 5

MIGRANT FARM WORKER PILOT SURVEY AND FOCUS GROUP RESULTS, AND A COMPARISON OF GROWER AND MIGRANT DATA

5.1 INTRODUCTION

This chapter reports information provided by eighteen migrant workers--ten who formally responded to the pilot survey in Fall 2002 and eight who participated in a two-hour-long focus group in February 2003. Whereas Michigan State University student volunteers[1] interviewed the ten survey respondents in a farm setting, the focus group participants were drawn from among the undergraduate population at Michigan State University. These eight students grew up in migrant families and traveled yearly to work in Michigan fields. They are a sub-group of students recruited in recent years by Michigan State University to pursue Bachelor's degrees. All are in their first, second, or third year at the university and agreed to meet as a focus group for this project in February 2003. The purpose of the focus group was to supplement the results obtained from the small number of migrants who responded to the Fall 2002 survey.

[1] These students came from migrant backgrounds but were not the same individuals as those who participated in the focus group.

The information presented in this chapter is not intended to counter the grower results reported in Chapter 4. Rather, it is a starting point for better understanding differences in the perceptions of Michigan growers and migrant workers with regard to migrant farm labor issues. The results reported in this chapter are intended to aid in the development of future research objectives related to migrant farm labor issues in Michigan, and possibly the United States.

5.2 MIGRANT STUDY FINDINGS

This section explores the results of the Fall 2002 migrant pilot survey and February 2003 focus group.

5.2.1 Basic Demographics

Basic information was collected about both the pilot survey participants and focus group participants. Some of the types of information vary from group to group since the direction of conversation taken by the focus group was not always parallel in content to the survey completed by pilot survey participants.

5.2.1.1 Pilot Survey Participants

The pilot survey respondents worked in Michigan as migrant farm laborers for a mean of 23.3 years, spending from five to six months each year harvesting crops (Table 5.1). They reported being paid an hourly wage slightly above the mandated minimum wage of $5.15/hour or, in some instances, a piece rate wage. They travel north annually

with a mean of 3.2 adults and 2.5 children. On average, participants reported that 2.4 workers contribute to the family income through migrant labor activities.

Table 5.1: General information about the pilot survey participants (Michigan, 2002)

Migrant statistic	Mean value	Standard deviation	n[a]	Comment
Years worked in MI as migrant worker	23.3	14.5	9	
Months spent in MI doing farm work in:	2000: 5.7 2001: 5.0 2000: 5.7	2.8 2.1 1.1	10 10 10	
Mean hourly wages received (2000-02):	Apple 2002 $5.25 2001 $5.25 2000 $5.25	0.0 0.0	2 2 1	Piece rate (n = 2, 2001-02; n = 3, 2000)
	Aspar- 2002 $5.70 agus 2001 $5.55 2000 $5.38	0.6 0.4 0.4	5 5 5	No piece rate
	Blue- 2002 -- berry 2001 -- 2000 $5.25		-- -- 1	Piece rate for one case each year
	Pickle No data			Respondents did not work crop or provide info
# of adults that migrate with respondent (including self)	3.2	2.4	10	Refers to 2002 growing season
# of children th migrate with respondent	2.5	2.1	10	Refers to 2002 growing season
# people contributing to family income	2.4	1.4	9	Refers to 2002 growing season

n refers to the number of responses to a particular question.

All of the respondents were permanent residents of Texas and migrate to Michigan from Texas (Table 5.2). Nine of the ten preferred migrant work in Michigan to any other state. One respondent preferred comparable work in Texas, but could not find suitable employment.

Table 5.2: Migrant permanent residence, crop and state preferences, hc jobs are found, and opinions about difficulties in finding Michigan work, by pilot survey participants (Michigan, 2002)

Characteristic	Percent (n = 10)
Permanent residence	Texas – 100%
Preferred state in which to work	Michigan – 90% Texas – 10%
Preferred crop with which to work	Apples – 40% Asparagus – 10% Blueberries – 20% Pickles – 0% Other[a] – 20% No Pref – 10%
Considers it easy or hard to find work Michigan	Easy – 90% Hard[c] – 10%
Finds places to work by[b]:	Family/friends – 60% Asking around – 20% Always returning to same farm – 10% Driving around looking for farms – 10% No response – 10%

a - The 'other' category refers to 'greens', including different lettuce types.
b - Multiple responses possible due to open-ended nature of this question.
c - The reason cited for why it is hard to find work is that 'growers already have workers, making it hard to break in'.

5.2.1.2Focus Group Participants[2]

One-half of the focus group participants (n = 8) were male; the other half were female. Their mean age was 21 years. Seven of the eight were from Texas, and one was a resident of Florida. Three of the students were freshmen, four were sophomores, and one was a junior. The students and their families have been traveling to Michigan as migrant workers for a mean of more than 10 years, with two students' families coming to Michigan for 25 and 30 years. Individually, they have participated in the migrant farm labor force for a mean of nearly seven years, and almost all of them had worked as migrant laborers with their families before entering their teenage years. Two of the eight students have not yet specified a major field of study while the other six have selected majors that include social work, international relations, landscape architecture, and agribusiness management. All reported being well-informed about the financial activities of their families.

5.2.2 EASE OF FINDING EMPLOYMENT

5.2.2.1 Pilot Survey Participants

Ninety percent of the pilot survey respondents consider it easy to find employment in Michigan. By way of explanation, one respondent stated that returning to the same farm(s) year-after-year guarantees job security, as does a long history of

[2] Although unanimously reporting an aspiration to enter professions far removed from migrant farm labor, each focus group participant stated a desire for his or her children to spend a portion of their lives in the fields, gaining an appreciation for the hard work of their forebears and a clearer understanding of their heritage. All were proud of their families' role in American agriculture.

migrating to Michigan. Long-term familiarity with the state implies knowing where and when crops are ready for harvesting, and where to go for a good farm experience. In their own words, other respondents reported that it is generally easy to find work in Michigan because 'there are many places to go in general', 'a good word-of-mouth network exists', 'they come with a contract from Texas', and 'there are always opportunities since Caucasians will not do the work'.

Only one of the ten survey respondents reported returning to the same farm year-after-year. Sixty percent find new job opportunities through family and friends, in keeping with the social capital connections discussed in Chapter 2, while another 20% seek out word-of-mouth tips and 10% drive from farm-to-farm looking for work.

5.2.2.2 Focus Group Participants

The focus group participants were in agreement that it is not difficult to find migrant work in Michigan. Only one focus group participant reported returning to the same farm year-after-year. In this instance, the family has returned to the same farm for 25 years.

5.2.3 Crop Preferences

5.2.3.1 Pilot Survey Participants

The largest share of the respondents preferred harvesting apples (40%), followed by blueberries (20%), 'other' crops (20%), and asparagus (10%). Reasons stated for crop preference include 'more money' (n = 4), 'easier to pick/less tiring' (n = 3), 'can earn money faster' (n = 2), 'fair pay' (n = 1), and 'better weather conditions' (n = 1). Table

5.3 compares the migrants' preferences with the actual crops they harvested during the 2000 to 2002 harvest seasons. During this period, 60% to 70% of the respondents harvested apples, 60% harvested asparagus, 20-40% harvested blueberries, and 10% harvested pickles. Another 20% harvested 'other crops' (*e.g.*, radishes, greens, and onions). Although not representative of the migrant population at large (because of the small sample size), these findings provided some interesting points for discussion during the focus group's meeting.

Table 5.3: Percent of the migrant survey participants who harvested the crops relevant to this study (Michigan, 2000-02)

Subsector	Year	Percent (n = 10)
Apple	2002	60%
	2001	60%
	2000	70%
Asparagus	2002	60%
	2001	60%
	2000	60%
Blueberry	2002	20%
	2001	20%
	2000	40%
Pickle	2002	10%
	2001	10%
	2000	10%
Other[a] (radishes, gree onions)	2002	20%
	2001	20%
	2000	20%

a - 'Other' includes radishes, onions, and different types of lettuce.

5.2.3.2 Focus Group Participants

According to the focus group participants, their families preferred apples because they are easy to harvest and it is less demanding to fulfill the basket requirements upon which wages are based. Nevertheless, it was the focus group's general perception that apple work is difficult to find. Workers frequently return to the same orchard year- after-year, reducing the number of job openings available to word-of-mouth job seekers. Likewise, since the number of migrants seeking to fill any remaining harvesting slots is sufficiently high, apple-picking work is available to only a fraction of the migrants. Ultimately, the focus group discussion suggested that there is a surplus of migrant workers willing to work in Michigan's apple sub-sector.

The focus group participants portrayed Michigan's blueberry sub-sector quite differently. Although 20% of the survey respondents prefer harvesting blueberries to harvesting other Michigan crops, the focus group participants described working in the blueberry sub-sector as a last resort among migrant workers. They described blueberries as difficult and unpleasant to pick. While the wage value of a bucket of blueberries is on par with the bin or basket value of apples (or other piece wage crops), a bucket of blueberries takes significantly longer to gather. In addition, since picking blueberries is a clumsy activity, much of what is harvested is often dropped before the berries are put into the bucket. According to the focus group, it is much harder to earn a living picking blueberries than it is to earn a living picking other fruits or vegetables.

5.2.4 Wage Preferences[3]

Regarding wages, the focus group reported that Florida workers generally prefer a piece rate wage and Texas workers prefer a more precise hourly wage[4]. Further discussion revealed a likely reason for this. Word-of-mouth is a common means by which migrant laborers locate work opportunities. Using their Florida connections or Texas connections (also known as their social capital ties, as described in Chapter 2), Florida workers tend to follow the job leads provided by Florida workers and Texas workers, likewise, follow job leads provided by workers from Texas. Over time, a migration pattern has been established whereby more Florida workers are employed on farms where a piece rate wage is the normal method of payment and more workers from Texas gravitate towards farms that traditionally offer an hourly wage.

Having grown accustomed to one or the other of these payment methods, each focus group participant was adamant in his or her support of the payment method to which he or she has grown accustomed over time. For example, the Florida participant insisted that a piece rate wage is the only acceptable way to earn a living as a migrant worker. As long as the migrant is a fast picker, he or she will certainly earn more than someone working for minimum wage elsewhere in the economy. Yet the Texas natives were opposed to piece rate wages, claiming how easy it is for growers to underpay migrant workers by using intentionally doctored scales or other improper measuring equipment. When a grower's claim contradicts a migrant's, the Texas workers reported

[3] Wage preferences were discussed by the focus group only.

[4] Regardless of the payment method, the focus group participants reported that they choose to do migrant farm work for a host of reasons, including because they like the work, can stay with their families, or consider themselves unqualified to do anything else for language or educational reasons.

that the grower typically wins. For this reason, they overwhelmingly prefer being paid a less disputable hourly wage.

This suggests that two factors might be working together to influence the employment destinations of migrant workers: the anticipated social capital ties that lead workers towards certain farms and the workers' preference for how wages are calculated.

5.2.5 Individual and Family Income Levels[5]

Mean individual and family income levels for nine of the ten pilot survey respondents are presented in Table 5.4. Across the three income categories—respondent's family's income, respondent's overall income, and respondent's income from only Michigan farm work--mean earnings increased yearly from 2000 to 2002.

Mean respondent income from Michigan farm work rose by 9.1% between 2000 and 2001 but by only 2.0% from 2001 to 2002. During these same two intervals, overall respondent total yearly incomes rose by 16.2% and 21.0%. Considering that the mean respondent income from Michigan farm work comprised 75% of the respondent's mean overall income in 2000, dropping to 60% of the mean overall income by 2002, it appears that the survey respondents may have augmented their income through work other than migrant farm labor (Table 5.5). While it is impossible to know from this survey how respondents are enhancing their incomes, this information should be collected in a future survey to gain a better understanding of the alternative employment options that may be competing for a traditional migrant farm worker's time and energy.

[5] This information was collected from the pilot survey participants only.

Table 5.4: Mean individual and family income statistics among pilot survey participants (Michigan, 2000-02)

Income category[a]	Mean	Standard deviation	Number of responses
Total family income in:	2002: $15,778 2001: $13,000 2000: $12,000	6,760 5,657 5,723	9 9 9
Respondent's total income in:	2002: $10,111 2001: $8,389 2000: $7,222	5,255 4,137 3,962	9 9 9
Respondent's income from MI farm work in:	2002: $6,063 2001: $5,944 2000: $5,444	2,933 2,744 2,651	8 9 9
Mean % of family's annual income spent in MI:	59.4%	21.4	9

a - Migrant families generally pool their earnings such that the respondent's income is a fraction of the family's total income. Despite coming to Michigan as a migrant worker, each respondent generally worked for pay outside the Michigan agricultural sector during part of the year.

Table 5.5: Individual income from MI farm work as a percentage of overall individual income and overall individual income as a percentage of overall migrant family income (Michigan, 2000-02)

Income category	Year	Mean percent
Respondent's income from Michigan farm work, as a % of his/her overall income in:	2002 2001 2000	60% 71% 75%
Respondent's overall income, as a % of the respondent's family's overall income in:	2002 2001 2000	64% 65% 60%

During the last three years, collectively, the respondents' mean earnings comprised roughly two-thirds of their families' incomes. This percentage has remained fairly steady, implying that the other breadwinner(s) in the family are also continuing to seek additional work. Otherwise, the individual's income would be rising as a percent of the family's overall income.

5.3 ADDITIONAL MIGRANT FINDINGS

This section explores additional findings from the Fall 2002 pilot survey and the February 2003 focus group.

5.3.1 A Potential Explanation for the Shortage of Labor on Blueberry Farms

As described in Section 5.2.3.2, the physical nature of the task may account for why blueberry growers find it more difficult to attract workers than do apple, asparagus, or pickle growers. Although in concordance with Hypothesis 2 (*i.e.*, that blueberry growers have greater difficulty locating farm labor than the three other sub-sectors, primarily because of insufficient housing), the reason for Hypothesis 2 is probably incorrect. Rather, blueberry growers find it difficult to recruit labor because of the difficult manual labor associated with picking blueberries--not because of insufficient housing (as hypothesized).

If blueberry picking is more labor-intensive and it is difficult to earn a living picking this crop, the number of return laborers should be less than in the other sub-sectors. However, the data collected from growers do not bear this out. Rather, blueberry growers reported almost the same number of return workers from previous

years as other growers and had the highest percentage of employees returning after five years (Table 4.7). This discrepancy may be due to the possibility that migrants who work on blueberry farms came from a different part of the United States than those who responded to the Fall 2002 migrant survey. As shown previously, there is some evidence that Florida workers and Texas workers seek work at different types of farms because of the different kinds of wages offered on those farms (hourly wages versus piece rate wages). Therefore, the information reported by the Texas migrants may not fully explain the shortage of migrant workers on blueberry farms. Only an extensive survey of migrants from numerous origins can help determine whether or not this is true.

5.3.2 Migrant Incomes and the Poverty Line

A family of five earning less than $21,540 in the United States is considered to be living below the poverty line (Federal Register, 2003.) As noted previously, the mean number of migrant family members traveling together is 5.7. Rounding down for a conservative estimate, the family income of the average respondent to the Fall 2002 migrant survey is at least 27% (or $5,800) below the nation's poverty line[6].

5.3.3 Estimated Percentage of Migrant Farm Earnings Returned to the State of Michigan as Expenditures

Respondents to the Fall 2002 migrant survey estimated that 60% of their family's annual income is typically spent in Michigan (Table 5.4). Assuming that the ratio of the

[6] These figures do not take into account the income of non-traveling family members that may have stayed behind in Texas or Florida, or the value of perquisites (*e.g.*, housing).

family's migrant farm income to the family's overall income (*i.e.*, wages earned on-farm to those earned on- and off-farm) parallels the income ratio obtained for the individual respondent, their mean family income from Michigan farm work was roughly $9,000 in 2000, $9,200 in 2001, and $9,500 in 2002. Comparing these numbers to estimates of their mean in-state expenditures[7] ($7,100 in 2000, $7,700 in 2001, and $9,400 in 2003), it is probable that no more than $2,000 per family left the state in any of the three years.

This finding was corroborated during the focus group discussion when the participants unanimously stated that they have never seen their families depart with more than $2,000. Rather, their families spend almost all of their earnings in Michigan before heading home to Texas or Florida, the intention being to make all clothing and other purchases while money is still available.

A breakdown of migrant expenditures is presented in Table 5.6. All of the respondents purchased food--more than $90 worth each week, according to the six respondents who estimated their weekly food expenditures. Two-thirds purchased clothing, estimated at $55 per week.[8] More than one-half of the ten respondents paid rent where they lived.[9] One-third spent a weekly mean of $75 on daycare, while only one-fifth of the respondents reported weekly medical expenditures. Clearly, while

[7] This calculation was based on 60% of the overall mean family income for each of the three years (Table 5.5).

[8] The focus group participants stated that their families' clothing purchases for the year were made in Michigan during the harvest season. The small sample size was likely responsible for the seemingly high weekly cost of clothing. A future study, based on a larger sample size, would serve to correct this figure.

[9] Three respondents provided rental data. One paid $160/week, the second paid $280/week, and the third paid $300/week.

in-state, migrant workers spend a large share of their income supporting our local economies.

A surprising finding is that so many migrants pay rent while in Michigan. Although the sample size is small and may not be representative of Michigan's overall migrant population, this finding contrasts with the general perception that the low wages received by migrant workers are somewhat offset by free housing.

Table 5.6: Pilot survey participants' weekly expenditures, and the estimated mean weekly cost of these expenditures while living in Michigan (Michigan, 2002)

Type of Expenditure	Percent yes n = 10	If yes, mean weekly expenditure ($)	Standard deviation[a]
Rent	56%	$250	76 (3)
Food	100%	$90	57 (6)
Daycare	33%	$75	35(2)
Medicine	22%	$75	NA (1)
Clothing	67%	$55	33 (4)
Transportation	11%	NA	NA

a - The number in parentheses indicates the number of respondents who cited a value for inclusion in the expenditure mean.

5.3.4 Likes and Dislikes About Migrant Farm Work in Michigan

The migrant farm workers that participated in the pilot survey provided useful information concerning what they like and dislike about migrant farm work in Michigan. The respondents were asked open-ended questions regarding their top three likes and dislikes about Michigan farm work. The responses were compiled accordingly, maintaining the wording used by the migrants as much as possible.

When asked what they like best about working in Michigan, 70% of the pilot survey respondents (n = 10) ranked 'the availability of housing/living conditions' among their top three choices (Table 5.7)[10],[11]. Sixty percent ranked 'better pay and benefits' in the top three, followed by 'weather' (40%), 'family time together' (30%), 'many farms to choose from' (30%), a 'better work environment than in other places' (20%), and 'a change of scenery from Texas' (20%).

Table 5.7: Percentage of pilot survey respondents ranking following factor among their top three positive reasons for working as migrants in Michigan (Michigan, 2002)

Factor	Percentage of respondents ranking this factor among top three reasons (n = 10)
Housing/living conditions	70%
Better pay/benefits	60%
Weather	40%
Family time together	30%
Many farms to choose from	30%
Better work environment	20%
Change from Texas	20%

Despite its lead in the rankings above, none of the respondents cited 'housing/living conditions' as the top-ranked reason for seeking employment in Michigan. Rather, three of the ten respondents cited Michigan's 'weather' and two cited 'many farms to choose from' as their primary reason[12].

[10] Three of the ten respondents did not offer a third ranking.

[11] The focus group participants referred to Michigan migrant housing as not very nice – but better than in the past.

[12] If not noted in the text, the other factors received no more than one vote at the specified ranking. This holds true for the remainder of the data presented in this portion of the text.

Among the second-ranked reasons for choosing to work in Michigan, four of the ten respondents cited 'better pay/benefits' and three cited 'housing/living conditions'. Among the third-ranked reasons, three of the seven respondents cited 'housing/living conditions'.

When asked what they like least about working in Michigan, 66% of the pilot survey respondents (n = 9) ranked 'discrimination/mistreatment of workers' and 56% ranked 'housing/utility costs' among their top three choices (Table 5.8). Forty-four percent each ranked 'getting to Michigan hard/dangerous' and 'harsh work, low pay' among the top three reasons. Two of the nine respondents cited the 'weather'.

Table 5.8: Percentage of pilot survey respondents ranking following factor among their top three negative reasons for working as migrants in Michigan (Michigan, 2002)

Factor	Percentage of respondents ranking this factor among top three reasons (n = 9)
Discrimination/mistreatment of workers	66%
Housing/utility costs	55%
Getting to Michigan hard/dangerous	44%
Harsh work, low pay	44%
Weather	22%

To summarize, 'housing' and 'better pay/benefits' led the list of top three reasons why the pilot survey respondents seek employment in Michigan. These factors were not the primary positive factors reported by this group of migrants, yet each falls within the top three reasons cited by a majority of the respondents. 'Discrimination', 'housing/utility costs', and 'the difficulties of coming to Michigan' led the list of top three negatives associated with migrant farm labor in Michigan. Thus, economic factors were

responsible for the positives associated with Michigan migrant labor, while non-economic factors accounted for two of the three negatives.

5.3.5 What Migrants Look For When Seeking Employment

An open-ended question included in the Fall 2002 pilot survey asked the respondents to identify three primary considerations when seeking employment. As Table 5.9 shows, these answers are similar to the reasons why migrants like and dislike farm work in Michigan.

Table 5.9: Percentage of pilot survey respondents ranking following factors among their top three considerations when seeking farm work in Michigan (Michigan, 2002)

Factor	Percentage of respondents ranking this factor among top three reasons (n = 9)
Pay	100%
Housing	100%
Good employer relationship/ decent boss	44%
Amount of work	33%
Area around farm	11%

One hundred percent of the pilot survey respondents (n = 9) ranked 'pay' and 'housing' among their top three considerations when seeking employment[13]. Forty-four percent ranked 'amount of work' in the top three, followed by 'a good employer relationship/decent boss' (33%).

[13] One of the ten original respondents offered no rankings for this question, and one other offered no third ranking.

Six of the nine respondents cited 'pay' as the top-ranked reason for seeking employment in Michigan while three cited 'housing'. An additional five ranked housing second. Among the third-ranked reasons, three of the eight respondents cited 'amount of work', while two apiece cited 'pay' and 'good employer relationship/decent boss'.

In summary, economic factors are migrants' most important considerations when seeking farm employment. Apparently, migrant workers only take non-economic factors (*e.g.*, condition of housing, grower personality etc.) into consideration after the most basic economic needs of the family have been met. This implies that farms offering the same base level of pay and housing must compete with one another for workers with respect to housing maintenance[14], difficulty of the work, and treatment of workers by employers.

The focus group discussion corroborated these findings, with the words 'trust' and 'respect' coming up repeatedly. According to the focus group participants, growers who show respect for their workers will be able to recruit enough employees, as long as the workers' most basic economic needs are met. The focus group participants commented that migrant farm labor is very hard work for very low wages.

5.3.6 Perceived 'Good' and 'Bad' Farm Characteristics

Respondents to the Fall 2002 migrant survey were asked (in an open-ended format) to describe the characteristics by which they differentiate between 'good' and 'bad' farms. As shown in Table 5.10, one-half of the respondents described 'good' farms as ones where they are treated nicely and respectfully. Keeping in mind that more

[14] Housing maintenance was noted by two of the respondents.

than one response was possible, migrants characterized a 'good' farm as one where the grower pays them well (40%) and the housing is clean and safe for children (30%). Weekly pay, bonuses, and pay that are set in accordance with the success of the growing season are also characteristic of a 'good' farm (10% each).

The respondents described a 'bad' farm as one where the grower is perceived as unfair about rightful pay (30%), where the pay does not adequately compensate the worker for his or her effort (30%), or where too much work is required of the migrant worker (20%). Twenty percent of the respondents cited poor living conditions--including the availability of only outside utilities, no heat, and/or a very small living space--as indicative of a 'bad' farm, while 10% cited a grower with insufficient funds to cash checks, or who is inconsiderate towards migrant workers.

Table 5.10: Characteristics that migrant workers felt contribute to a 'good' and 'bad' work environment (Michigan, 2002)

Characteristic[a]	Description	Percent (n = 10)
Good	-- People treat us nicely - respectfully	50%
	-- Grower pays well	40%
	-- Housing clean, safe (especially for children)	30%
	-- Pay depends on season (if crop good, then pay less)	10%
	-- Pay is given weekly	10%
	-- A bonus is given	10%
	-- No response	20%
Bad	-- The grower tries to cheat us	30%
	-- Pay too little	30%
	-- Require too much work	20%
	-- Poor living conditions (i.e., outside utilities, no heat)	20%
	-- Farmer has insufficient money to cash checks	10%
	-- Farmer rude, selfish, and inconsiderate	10%
	-- No response	20%

a - More than one response was possible due to the open-ended nature of this question.

These findings are consistent with the information provided by the focus group participants, who cited the importance of decent treatment of, and respect for, migrant workers.

5.3.7 Migrants' Perceptions of the Farm Labor Situation and Plans for the Future

Table 5.11 describes both migrant opinions about the number of migrant farm workers presently migrating to Michigan and what the respondents expect to be doing one year and five years from now. Since these data were obtained from only ten respondents, these results are not statistically comparable to the growers' responses (Chapter 4).

Table 5.11: Migrant opinions about the number of workers coming to Michigan, and future plans (Michigan, 2002)

Opinion	Percent (n = 10)
Migrants coming to Michigan:	
More	20%
Fewer	70%
No response	10%
Plan to return to Michigan next year:	
Yes	90%
No	0%
No response	10%
Expect to come to MI in five years:	
Yes	50%
No	30%
Undecided	10%
No response	10%

Seventy percent of the respondents believe that *fewer* migrants are coming to Michigan now, compared to in the past. The reasons given are primarily economic in nature, including that a migrant worker's life is a hard life that few people choose to live

given other economic opportunities, that more people are staying home to find jobs, that insufficient government support is available for migrant families to continue as migrant laborers, that wages are not increasing as rapidly as migrants would like, that less work is available (making the trek to Michigan economically unfeasible), and that it is difficult to find adequate housing[15]. It is interesting, and a symptom of the perceived problem, that each respondent had a different explanation about why there may be less labor coming to Michigan at harvest time. In other words, many explanations may be responsible.

In contrast, only 20% believe there are now more migrants[16] coming to Michigan. One respondent said that he or she is continually running into more and more migrants from other parts of the United States and Mexico, while the other stated that the work expected of migrants is now less demanding, in turn attracting more migrants to Michigan.

At least 90% of the respondents plan to return to Michigan for the 2003 harvest, while only 50% expect to return in five years[17]. Most plan to return to Michigan because this is the only kind of work they know how to do, and for which lack of a formal education is not a detriment (n = 7). While they continue to work as migrant laborers, until they are no longer physically capable, they do not want their families to stay in the fields forever. Additional responses were more family-oriented (*e.g.*, spending time with their families by working alongside them in the fields (n = 1) and visiting family members that reside permanently in the state of Michigan (n = 1)).

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[15] For each reason cited, n = 1.

[16] In one case, no response was given.

[17] Since many of the respondents are getting older, they had difficulty making a five-year projection. Each year's work is more physically challenging than the last.

5.4 TWO MIGRANT PERSPECTIVES

The focus group discussion uncovered contrasting Michigan experiences for two of the participants--both males in their early 20s who have been coming to Michigan as migrant workers for many years[18].

Pedro has migrated to Michigan with his family every summer since he was an infant. His family has returned to the same apple orchard year-after-year, he knows the grower and his family well. Each year, Pedro's family stays in the same house. Michigan has become a second home, where the events of Pedro's family's life are strongly intertwined with those of the grower's family's.

Several years ago, when Pedro became a worker on the same farm as his parents, he already had the grower's trust. Years of knowing one another had resulted in social capital. Whereas the grower is obliged to check the harvest claims of other, newer migrants, he has never doubted Pedro's work. The respect, trust, and courtesy the grower shows to Pedro resulted in his determination to do a good job. Pedro is proud of his role in the orchard and has never felt the compulsion to cheat the grower, or to get even for a perceived slight.

This sense of mutual trust and respect has resulted in a pleasant work environment. Until he has completed his education at Michigan State University, Pedro will continue to work for this grower. In addition, the grower expects Pedro's family to return year-after-year. This arrangement provides the grower with trusted labor, Pedro's

[18] Their names have been changed to protect confidentiality.

family with a decent, respectful place to live and work, and both parties with a sense of mutual benefit and involvement.

Miguel's perspective is significantly different from Pedro's. Troubled by a difficult family life in Texas, Miguel left home in his early teens, traveling to Michigan as a migrant worker. He has worked on many kinds of farms, without the sense of permanence or loyalty experienced by Pedro. Like other new, not-yet-proven workers, he has spent much of his time under the close scrutiny of growers, acknowledging their distrust of him with his own distrust of them. In Miguel's mind, no grower is honest and must be watched carefully by the migrants who are in his or her employ.

Having no doubt that all growers are untrustworthy, Miguel is of the mindset that migrants should cheat growers whenever they can since it is inevitable that growers, likewise, will cheat migrants at the first opportunity. Miguel described adding soil to the boxes of produce he harvested--as a means for compensating himself for the obvious and intentional under-weighing of produce carried out by the grower. Unquestionably, this sense of distrust leads both parties towards even greater levels of deception and lost opportunities for a respectful and mutually beneficial work environment.

Pedro and Miguel are both articulate students. Yet they exhibit significant attitudinal differences about their roles as migrant farm laborers in Michigan. Pedro sympathizes with his employer, reckoning that earning a living as a grower is almost as difficult as earning a living as a migrant worker. Miguel, on the other hand, is undisguisedly distrustful of his employer, who he describes as earning money hand-over-fist by underpaying migrant workers.

Although nothing more is known about the two growers described by Pedro and Miguel above, it is likely that social capital (*e.g.*, how their relationship impacts their ability to work together) is at least partially responsible for these two individuals' attitudinal differences.

5.5 *A COMPARISON OF GROWER AND MIGRANT DATA, AND SOCIAL CAPITAL FINDINGS*

An important goal of this research is to identify areas of commonality and dissonance between Michigan growers and migrant farm workers. As a way to improve communication between the two groups, and the work environment experienced by both parties, this section explores the perceptual similarities and differences detected in the responses supplied by growers and migrants. It also presents the social capital findings that help to explain these perceptual differences.

5.5.1 A Comparison of Opinions Reported by Growers and Migrant Farm Workers in Michigan

The perceptual differences noted between growers and migrants can be categorized, by topic, as follows: job search and recruitment, migrant housing and perquisites, wages, reasons for (and solutions to) the perceived decline in migrant farm labor, and characteristics of a satisfactory work environment.

5.5.1.1 Job Search and Recruitment

During the 1998 through 2000 growing seasons, no significant differences were observed in the year-to-year migrant worker retention rates. Despite widespread complaints that labor was getting harder to recruit, growers retained the same percentage of workers as the previous year. In fact, 73% of the growers reported having verbal agreements with past workers, which implies that the traditional core of workers is not shrinking.

Ninety percent of the migrant respondents consider it easy to find work in Michigan. Since only one of the ten respondents returns to the same farm year-after-year, this suggests that migrants do not consider verbal agreements between growers and migrants a necessary precursor to employment. Migrants with long years of experience in Michigan know the 'good' farms at which to seek employment. In addition, word-of-mouth plays an important role in pointing workers towards worthwhile harvesting opportunities.

Growers and migrants share a similar unenthusiastic view of the matching services offered in Michigan. Established as a mechanism by which growers and migrant workers can be paired up for harvesting activities, survey results indicate that growers tend not to use these services while migrants have sufficient other connections through which to locate harvesting work[19].

[19] The State Monitor Advocate of Michigan stated in a recent conversation that the matching services provided by the state of Michigan are better used than indicated by this study. He stated that the expression 'matching services' may have been misunderstood by grower and migrant respondents. It is also possible that other subsectors, as yet to be identified, make better use of this state resource, accounting for the discrepancy.

5.5.1.2 Migrant Housing and Perquisites

It was initially thought that many migrants live off-farm because of a housing shortage, particularly in the blueberry subsector. Yet more than 80% of the grower respondents supplied housing to their farm workers. In fact, the mean number of migrants for whom housing was available on any given farm greatly exceeded the mean number of workers employed or needed. This phenomenon may be explained by housing that is in poor condition and therefore uninhabited.

Migrants reported that they prefer to choose their own accomodations whenever possible, which is consistent with the statement by a majority of them that they pay rent while doing harvesting work. This is also consistent with the finding that 50% of the growers had migrants that live off-farm, despite underutilized housing available on their farms. Although uninhabited, growers could still claim that housing is available for migrants who work on the farm.

In terms of perquisites, it is interesting to note that apple and pickle growers reported providing more perquisites to migrants than blueberry or asparagus growers. Yet, based on the migrant survey and focus group interviews, migrant workers seldom consider in-kind provisions (such as laundry facilities or end-of-season fiestas) as perquisites to supplement their harvest earnings.

5.5.1.3 Wages

Growers and migrants reveal a contrasting description of wages paid. The grower data suggest real wage payments exceed the state-mandated minimum wage by 46% and standardized wages exceed the minimum wage by 24%. In contrast, the migrant workers

were adamant that they typically do not receive a wage as high as the minimum wage. Furthermore, the focus group participants stated that growers regularly cite regulations that enable them to reduce migrants' earnings[20].

One possible explanation for this is a lack of understanding on the part of the migrants regarding the federal mandate that growers with farms of a certain size must withhold taxes, social security, and Medicare from migrants' paychecks. Likewise, agriculture is exempted from paying one and a half times the minimum wage for overtime and growers can legally deduct rent from paychecks, if workers sign a consent form. These are rules that migrants may not be aware of, thus contributing to their belief that growers are treating them unfairly.

5.5.1.4 Reasons For (and Solutions To) the Decline in Migrant Farm Labor

Both growers (68% of respondents) and migrants[21] anticipate a decline in the availability of migrant labor over the next few years, primarily because of increasing opportunities available to unskilled workers elsewhere in the economy. In fact, ten percent of the growers reported anticipating going out of business in the near future, in part because of the projected costs associated with the cost of labor when demand exceeds supply.

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[20] For example, the focus group participants argued that growers frequently tell migrant workers that by providing them with housing and utilities, they are exempted from having to pay overtime wages, and thus do not—although migrants are expected to work overtime.

[21] Three of the ten pilot survey respondents do not plan to be here in five years while seven out of ten reported fewer migrants coming to Michigan now than in the past.

One of the more remarkable finding of this research concerns the recommendations put forth by growers about how to correct for the anticipated worker shortfall. Every recommendation looked past the farm gate for a solution. Growers recommended interventions such as the use of seasonal permits for foreign workers, federally guaranteed minimum crop prices, and the relaxation of government regulations.

In sharp contrast, the migrant respondents and focus group participants emphasized the importance of higher wages, satisfactory housing, working on a farm where they feel valued and respected, and where the grower displays honesty and integrity. The migrants reported that they do not mind the hard work associated with farm labor but do mind a work environment where they feel degraded or treated unfairly. Thus, finding ways to increase wages, improve housing, and treat migrant workers in a fair and courteous manner may enable growers to more easily attract migrant workers. A future study of migrants will be useful towards verifying these initial findings.

5.5.1.5 Characteristics of a Satisfactory Work Environment

The above finding leads directly into the characteristics of a satisfactory work environment, as described by the migrant students who participated in the February 2003 focus group. Both the respondents to the pilot survey and the focus group participants reported that economic and non-economic factors contribute to a positive farm experience. Although migrants often seek farm work as a lifestyle choice, it is frequently because they have few other opportunities.

Although migrants primarily consider economic criteria (such as wages) when seeking farm work, they consider non-economic criteria as soon as the most basic

economic needs of the family have been met. Such criteria include the physical condition of the house in which they are expected to live, the difficulty of the work they are expected to do, and the grower's reputation as a fair and respectful employer.

5.5.2 Social Capital Implications of this Research

The secondary criteria (after housing and wages) that migrants consider when seeking employment (Section 6.2.1) are consistent with social capital theory, as described in Chapter 2. For example, if wage rates are equal, a migrant worker prefers to work on a farm where the employer recognizes his or her worth, and the migrant feels trusted and respected[22]. As such, the non-economic environment of a farm is strongly influenced by the quality of personal interaction between growers and migrant farm workers. A more comfortable and, hence, more 'attractive' environment exists on farms where grower-migrant relations are enhanced by significant amounts of bridging social capital[23].

Despite the small sample size, the information gathered through the migrant pilot survey and focus group is consistent with social capital theory. For example, the inherited kernels of commonality described in Chapter 2 help to explain the divergent migration paths followed by a majority of migrant workers from Texas and Florida. Texans, through experience and exposure, have taught other Texans to prefer work on farms where hourly wages are paid. Floridians, on the other hand, lead newcomers from

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[22] Recalling Section 5.5, Pedro enjoys his work on a specific Michigan farm because of the decades-long social capital his family has shared with the grower's family. Encouraged by this relationship, Pedro returns year-after-year to the same farm, which enhances the economic well being of both the grower and the migrant family.

[23] Bridging social capital encompasses employer-employee relations, in which two parties from potentially different backgrounds develop a sense of caring for one another through a positive working relationship.

Florida towards farms where piece rate wages are paid. Social capital theory provides an explanation for these migration patterns that economic theory cannot.

5.6 CONCLUSION

Because the information provided in this chapter is based on the responses of only 18 migrants, a large-scale survey of migrant farm workers in Michigan is recommended, utilizing similar questions as those described in this chapter. The purpose of the survey would be to confirm or reject the migrant findings reported in this dissertation.

CHAPTER 6

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 INTRODUCTION

The main findings of this research are two-fold. First, three-quarters of the respondents to the grower survey reported having sufficient labor in 2000. Of the 25% reporting insufficient labor, half could not harvest a portion of their crop while 75% harvested some of their acres late. Second, the pilot study and focus group results suggest that although migrants consider pay a primary factor in choosing a place of employment, the work environment is also a strong consideration.

Thus, the conclusions and policy recommendations that follow are relevant for sustaining the long-term availability of labor and improving grower-migrant relations that impact farm success and productivity, even on farms not presently experiencing labor recruitment problems. They are immediately relevant to growers presently experiencing labor recruitment problems.

6.2 *SUMMARY OF THE MAIN RESEARCH FINDINGS*

This section summarizes the research findings in the context of the hypotheses put forth in Chapter 1. A separate summary is provided for each hypothesis.

Hypothesis 1: Growers who provide housing will be able to more easily recruit and retain migrant farm labor.

The results were mixed regarding this hypothesis. First, housing and ease of recruiting were not significantly correlated for any of the three years. Thus, the provision of housing by a grower was not a strong indicator of the ease with which he or she was able to locate sufficient labor. Second, although none of the pilot survey or focus group respondents chose housing as what they like best about working in Michigan, 70% of the pilot survey respondents consider it among their top three considerations when seeking farm work in Michigan.

These findings suggest that housing provision may not be the key factor responsible for whether or not growers can find sufficient labor. Nevertheless, it is an important factor.

Hypothesis 2: Apple, asparagus, and pickle growers have an easier time recruiting migrant farm labor than blueberry growers.

The results supported this hypothesis[1]. First, during 1998 through 2000, a statistically significant greater percentage of blueberry growers reported having difficulty hiring sufficient labor compared to other growers. Second, compared to other growers, a smaller percentage of blueberry growers provided migrant housing in 2000. This difference was statistically significant between apple and blueberry growers.

However, the focus group participants raised an interesting point related to this issue. When asked if the shortage of migrant farm workers on blueberry farms was

[1] The premise for this hypothesis was that blueberry growers were thought to provide less housing opportunities than growers in the other three subsectors.

related to a shortage of housing, they said no. Rather, they unanimously stated that blueberries are a very hard, financially unrewarding crop to pick (Section 5.2.3). They would rather pick any crop other than blueberries, and would only work on blueberry farms as a last resort. This may explain why the availability of migrant housing was found to be unrelated to sufficient labor.

Hypothesis 3: Large farms (wherein farm size is defined in terms of total farm acreage, crop earnings, and estimated total farm earnings) have an easier time recruiting and retaining migrant farm labor than small farms.

The data did not support this hypothesis. No statistically significant association was noted between farm size and whether or not a grower had sufficient farm labor in 1998-2000. This was true for all definitions of farm size: total farm acreage, crop earnings, and estimated total farm earnings. Thus, these results indicate that farm size is not a likely influence on a grower's ability to attract sufficient labor to his or her farm.

Hypothesis 4: Higher real wages lead to easier recruitment and retention of workers.

The results of this study were inconclusive regarding Hypothesis 4. The grower analysis did not support this hypothesis while the migrant analysis did. Based on the data obtained from growers, real wage levels were not found to have a statistically significant correlation with the ability of growers to recruit sufficient migrant labor at harvest time in 2000. Nor did real wage levels have a statistically significant correlation with the percentage of migrants who had worked previously on the same farm or who had worked

on a particular farm for five or more years (Pearson correlation). Thus, the grower results do not support the hypothesis that growers who pay higher real wages can more easily recruit and retain workers.

In contrast, the migrant results indicate that higher wages are among the top three incentives for migrants to seek work in Michigan. Although discussed as wages rather than estimated real wages (as calculated in Chapter 4), this finding suggests that wages influence where migrants seek employment and, by association, must impact the worker retention rates on farms. Although additional data collected from migrants will clarify the implications of this finding, the results from growers and migrants are presently mixed.

Hypothesis 5: By taking into account migrant housing and other perquisites, real migrant wages are ultimately higher than the minimum wage, service sector wages received by workers elsewhere in the economy.

As discussed in Chapter 4, standardized and real migrant wages are well above the $5.15/hour state-mandated minimum wage rate in Michigan[2]. Eighty-eight percent of the apple growers paid two to three dollars above Michigan's minimum wage of $5.15 per hour while two-thirds of the asparagus and blueberry growers paid from one to two dollars above minimum wage. The mean standardized hourly wage paid by pickle

[2] Nevertheless, the migrant students who participated in the focus group consistently remarked that they have seldom, if ever, received minimum wage for their harvesting activities, which suggests that this issue needs further study. This has been particularly true during the last five growing seasons, which the migrants described as weather-compromised, difficult seasons during which wages were lower than usual.

growers was $5.94/hour, with four of the five pickle growers paying less than a dollar above minimum wage.

Hypothesis 6: Spanish-speaking growers have an easier time recruiting and retaining labor than growers who lack this ability.

Generally speaking, the analysis did not support this hypothesis. Less than one-half of the growers reported any ability to speak Spanish and, among those who do, their mean proficiency level was only 1.5 (on a scale of 1 to 5, with 5 being a fluent speaker). Although a weak statistically significant relationship was noted between a grower's ability to speak or understand some Spanish (regardless of fluency level) and having a sufficient number of migrants in 2000 (chi-square = 3.1, sig = .078), non-significant results were obtained for 1999 and 1998. Likewise, non-significant associations were obtained between levels of fluency and having a sufficient number of migrants in any of the three years.

These findings may be attributable to the finding that Spanish fluency was generally low across growers[3]. Since the analyses were based on only minor fluency differences, and the fluency levels were of a rudimentary nature, the correlation between Spanish ability and recruitment/retention rates were non-significant. Furthermore, the survey did not explore the availability of Spanish-speaking supervisors or translators to migrants on farms.

[3] The migrant farm workers who took part in this survey corroborated this finding, stating that since they have met so few Spanish-speaking growers, Spanish fluency is not a useful criterion for them when seeking farm employment.

Hypothesis 7: Growers whose workers return year-after-year are better able to recruit and retain migrant farm labor.

The Pearson correlation between sufficient labor and the percent of migrants returning to the same farm for five or more years is significant, although sufficient labor is not significantly correlated with the more general category of percentage of workers who have worked on the farm in previous years. Thus, the analysis supports the hypothesis that growers with a high percentage of long-term return employees are better able to access sufficient quantities of migrant farm labor.

Hypothesis 8: Growers whose migrants return year-after-year have lower transaction costs associated with locating and retaining farm labor.

It was not possible to directly test this hypothesis using the data from the grower survey, although anecdotal evidence obtained from the migrant workers supports this hypothesis. As noted in the perspective comparison of Section 5.5, in which one migrant family has returned to the same Michigan farm for dozens of years, a long, trusting relationship has developed between a migrant's family and a Michigan grower's family. Although not explicitly stated, the grower has no search costs associated with continually attracting this family to his farm, nor does he or she find it necessary to expend extra time or money monitoring the harvesting activities of this group of workers.

Hypothesis 9: Perceptions of growers and migrants differ regarding what influences recruitment and retention.

The analysis supported this hypothesis. Whereas growers describe wages, housing, and perks as tools for attracting migrant farm workers to their farms, migrants describe housing, wages, grower honesty, and respectful treatment of workers as key factors they seek in a satisfactory work environment. In other words, growers may undervalue demonstrably fair and respectful treatment of workers as a factor that influences the work environment in ways likely to attract sufficient numbers of workers.

Hypothesis 10: A significant percent of migrant earnings are returned to the state of Michigan through local purchases.

The analysis supported this hypothesis. As shown in Table 5.5, migrants reported spending at least 60% of farm earnings in Michigan, purchasing such items as food, clothing, and medicine. The focus group participants suggested that this figure is probably low, because it may not take into account non-traditional spending venues like yard sales where migrants reported that significant spending takes place. Generally speaking, the focus group participants reported that their families return to Texas with no more than $2,000. Thus, most of their earnings remain in the state of Michigan.

6.3 *RECOMMENDATIONS*

Several findings highlight the direction of the recommendations that follow. First, only a small percentage of growers reported finding it difficult to hire sufficient farm labor at harvest time (25%), while even fewer reported being at risk of losing their

farms in the near future because of insufficient labor. Second, 68% of the growers reported believing that it will be increasingly difficult to find sufficient farm labor in the future. Third, most growers reported that they cannot significantly raise migrant wages because of low crop prices and the high costs associated with farming. Fourth, even if wages could be increased, this may not solve the problem of attracting workers for growers presently experiencing a labor shortage. This is because migrants reported fair, respectful treatment by employers as one of their criteria when seeking employment and follow word-of-mouth advice about avoiding employment on farms where their definition of fair treatment is not met. Whether justified or not, a grower who has been labeled unfair by migrants will carry this label well into the future.

Three recommendations are offered in response to these findings. The first recommendation is that the state of Michigan should fund additional research into migrant farm labor issues in Michigan, which focuses on both the migrant population that chooses to work in Michigan and the Michigan growers who rely on migrant labor. First, a study should be conducted to expand on and verify/negate the findings of the migrant pilot study presented in this dissertation. The purpose of this research would be to gather statistically comparable baseline data against which future migrant data could be contrasted. This study should incorporate questions similar to those asked in the present study, but state questions more clearly. Such a study would help to reconcile the contradictions between the information reported by growers and migrants, as reported in this dissertation. Second, Michigan growers should be surveyed periodically, preferably every two to three years, covering a broader spectrum of subsectors that hire migrants than the present research analyzed. The findings presented in this dissertation would

serve as a benchmark against which future data could be compared and the periodic collection of similar data would provide policymakers with an accurate assessment of migrant farm labor market trends.

The second recommendation is that a new line of migrant-related research should be initiated, which focuses more specifically on the finding that wages are the primary driving force behind migrants' decisions about where to work. Given that migrant wages are low, relative to most jobs within the United States economy, this study should explore the potential for marketing crops harvested by Michigan migrant labor as fair wage crops (*i.e.*, fair wage blueberries, fair wage apples, fair wage asparagus, etc.), similar to the fair wage coffee niche industry that has boosted the wages of coffee harvesters employed by participating growers in Central America in recent years.

The third recommendation proposes that the state of Michigan proceed with its aborted plan to establish a task force geared towards improving communication between Michigan growers, migrant farm workers, and consumers. These recommendations are discussed below.

6.3.1 Additional Research into Migrant Farm Labor Issues in Michigan

The following sections explore the three recommendations in greater detail. The two parts of the first recommendation are presented in separate sections.

6.3.1.1 Extension of the Migrant Pilot Survey to a Statistically Comparable Number of Migrants

Periodically, the state of Michigan, in collaboration with other states, conducts information sessions to attract migrant workers to northern U.S. agricultural regions. A short written survey (similar to the pilot migrant survey) should be administered to migrant workers attending these sessions. The purpose of this survey should be to collect data from the migrants, which could be compared to the data collected from the growers.

Michigan's Employment Services Agency projects that 600-1,000 surveys could be completed and returned over the course of three days. Although this total includes migrants who choose to work in states other than Michigan, the number of migrants who traditionally seek Michigan employment would be sufficiently high to conduct the analysis required to compare migrants' responses to the results obtained from the growers surveyed for this dissertation.

6.3.1.2 Periodic Collection of Migrant-Related Data from Michigan Growers

Given that the grower data collected for this dissertation represents baseline data that can serve well into the future, it is recommended that similar data be collected every two to three years in the state of Michigan. The Michigan Agricultural Statistics Service (MASS) would be the ideal agency for conducting such a survey because MASS regularly conducts agricultural surveys throughout Michigan. Nevertheless, given the nature of MASS's survey work (that consists exclusively of close-ended questions), a

shortened, modified survey would need to be developed[4]. This survey could be conducted in conjunction with MASS's annual grower household surveys, which covers all subsectors rather than just the four subsectors studied in this dissertation.

These data would provide the information required to monitor migrant labor market trends over time and across subsectors. As in this dissertation, the questions would focus on recruitment and retention of migrant farm workers, numbers of migrant hires per farm and subsector, whether or not growers are experiencing a labor shortage, how severe the shortage is in a given year, the role of wages and perquisites in attracting migrants to farms, the characteristics of farms experiencing a labor shortage, and numbers of return workers by farm and subsector. Given the expectation of 68% of the grower survey respondents that migrant labor will continue to decline into the future, this information would be useful to growers, migrants, extension agents, researchers, and policy-makers.

6.3.1.3 Research into the Possibility of Offering Fair Wage Crops in Michigan

Implementation of a study to explore the fair wage concept in the context of migrant farm worker wages in the United States would be valuable. Given the recent establishment of fair wage coffee imported from Central America, fair wage crops in Michigan niche markets may have the capacity to improve the economic welfare of the

[4] All open-ended questions would have to be deleted or rephrased into close-ended questions, as the survey implementation process and data entry mechanism followed by MASS would prohibit their inclusion.

Michigan migrant workers that harvest those crops[5]. Migrants reported wages as an important factor in their decision about where to work, thus lending credence to the need to conduct a study that explores this issue in greater depth.

One can argue that the current marginal cost to the grower is not synchronous with the marginal benefit to society for having a crop provided for consumption (Pindyck and Rubinfeld, 1989). By paying higher wages to migrants employed by participating growers, and by using niche market marketing practices to advertise that higher wages are paid for particular crop brands, higher consumer prices are legitimized and the product becomes attractive to consumers, even at its higher price. In theory, the higher consumer price would help to close the gap between the crop's marginal cost and benefit to society.

The fair wage pilot study should explore both demand and supply-related issues. First, both consumer and grower attitude surveys should be conducted to explore the potential interest in fair wage crops. Second, the study should identify a group of producers willing and able to risk entering into a fair wage agreement with other growers, all of who would have to agree to pay higher wages based on the good-faith assumption that consumers would respond positively to the reasoning behind higher niche market prices. Third, the study should identify several stores, in key up-scale consumer areas, that would also be willing to participate in the pilot study. Fourth, the study should establish a partnership with a marketing firm whose role would be the development of a successful advertising campaign on behalf of the fair wage commodity.

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[5] The fair trade coffee concept is based on a fair price for the crop, which results in a higher income for the producers who own the crops. In Michigan, a key difference would be to offer higher wages to migrants in response to the implementation of higher, fairer prices.

6.3.2 Steps to Improve Communication Between Michigan Growers and Migrant Farm Workers

Finally, it is recommended that the state of Michigan reinstate its aborted plans to establish a task force whose purpose would be to improve communication between growers, migrants, and consumers. To accomplish this, Michigan's Employment Services Agency should be encouraged to play a leading role in the guidance of this task force. The task force should be comprised of state officials (including representatives from the Jobs Commission and the Michigan Department of Agriculture), Migrant Counsel representatives, migrant workers, growers, extension agents from around the state, and relevant scholars whose expertise would provide valuable insights to such a commission.

Communication enhancements could include semi-annual newsletters, which would be made available to both growers and migrants, as a means for learning more about the economic and cultural problems faced by each other. Sponsoring seminars or training programs, geared towards both growers and migrants that address cultural awareness issues and ways for improving communication between growers and migrants, would also be useful. To avoid interfering with important work times, the farmworker seminars and training programs should be conducted in Florida and Texas during the off-season by states that send recruitment teams to these two areas. Likewise, grower seminars addressing cultural and communication issues should be conducted during the winter months at subsectoral extension meetings.

The task force should also organize a series of annual seminars for growers and migrants. The purpose of these seminars would be to encourage increased interaction between the two groups in a non-farm setting. Social capital theory shows that increased interaction can lead to increased trust and respect over time, a primary goal of the proposed task force.

Last, the task force should consider developing an educational curriculum geared towards informing young Michigan residents about the essential role of the migrant farm worker in our economy. School age children would be the ideal target audience for this campaign. Just as our communities have gained strength through tolerance by having Michigan children learn more and earlier about the benefits of diversity, our communities would be strengthened by introducing migrant-oriented curricula to early elementary education programs. Such curricula should include a history of migrant farm workers in Michigan, where the migrants come from, how migrant lifestyles are similar to and different from those of permanent residents, the kind of work that migrants do, and how migrant efforts enrich the lives of Michigan residents. A secondary benefit to this curriculum addition would be an easier acceptance of migrant children (by other children) as they move into and out of Michigan classrooms. The lessons learned by introducing this curriculum could last a lifetime for permanent and transitory students alike, in turn encouraging the long-term return of migrant families to our state.

6.4 CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The main limitation of this study was the small number of migrant workers recruited to participate in the survey and focus groups. Although much useful information was obtained from these respondents, it is not directly comparable to the grower data.

A second limitation was the inability to interview growers and migrants from the same farms. Interviewing growers and migrants who had worked together would have generated valuable insights about the grower-migrant relationship, as well as the economic and social capital underpinnings of the farm environment. Unfortunately, growers are not always amenable to having their workers distracted from their work in the field to answer questions, and migrants are frequently reluctant to be interviewed.

A third limitation was that the migrant and grower data were not collected in the same year. Given that labor availability evolves from year-to-year, in the future these data should be collected from both migrants and growers in the same year in order to better reflect their shared experiences.

A fourth limitation is that insufficient wage information was collected for three of the four subsectors. Whereas wage data were gathered from blueberry growers for three years, only one year of wage data were gathered from the three other subsectors. Thus, it was not possible to determine if wages increased from year-to-year across any or all subsectors, a finding that would have provided stronger evidence of a labor shortage.

A fifth limitation concerns the difficulty of collecting reliable social capital data. Initially, it seemed possible to gather these data from growers and migrants by asking questions about their interactions with each other. However, since the sample size shifted

to include hundreds of growers but less than two-dozen migrant farm workers from different farms, it was not possible to rigorously evaluate the role of social capital. Furthermore, even if the size of the migrant and grower samples had been comparable, it is apparent that social capital variables are difficult to identify and measure.

Because of these limitations, future research should focus on collecting data from growers and migrants who work together on the same farm. It would be especially helpful if these data could be collected every second or third year from similar sample populations in order to better document trends in migrant farm labor availability. The task force described above could facilitate collection of these data.

Future research should also focus on developing improved social capital proxies that could be incorporated in a regression model. Given that both economic and non-economic criteria contribute to migrant decision-making about where to seek employment, it would be helpful to better delineate the precise impact of each factor under *ceteris paribus* conditions.

Finally, similar studies in different subsectors and regions around the country should be carried out to generate information required to improve the grower-migrant experience throughout the nation.

APPENDICES

APPENDIX A

ORIGINAL SURVEY INSTRUMENT
(same basic format for all grower types)

Ms. Pamela Riley Miklavcic
202 Agriculture Hall
Michigan State University
East Lansing, MI 48823

Fall 2000

Dear Apple Grower,

My name is Pam Miklavcic. I am conducting a study of recent migrant farm labor experiences in the apple, blueberry, pickle, and asparagus subsectors of Michigan. The purpose of this study is to analyze Michigan's migrant farm labor situation, from the perspective of the grower. This study is important to the Michigan plant industries for two reasons. First, the state extensively relies on migrant workers to harvest its numerous labor-intensive crops. An increasing shortage of workers, for example, may imply an inability to harvest crops on time, incurring potentially heavy financial and quality losses for unharvested fruits and vegetables. Second, Congress intermittently considers legislative changes that could significantly influence the farm labor supply. I expect this study to better inform this debate.

The information I collect from other growers and you will be used to complete my Ph.D dissertation in the Department of Agricultural Economics at Michigan State University. This study is a collaboration between the Department of Agricultural Economics and the Michigan Agricultural Experiment Station.

Your participation in this study is strictly VOLUNTARY. The survey will take approximately 30 minutes to complete. You are free to NOT ANSWER any of the questions in the survey. Nevertheless, I hope that you will agree to answer all my questions since your full participation will best enable me to properly analyze the migrant farm labor situation in Michigan.

All of the information that you provide will be kept CONFIDENTIAL. This means that your answers to my questions will not be shown to anyone else. No one will know your answers but me and your identity will be protected in any report based on the data. Your privacy will be protected to the maximum extent allowable by law.

If you have any questions about this study, you can contact me, Pam Miklavcic, at (517) 351-0735 or by e-mail at rileypam@msu.edu. You can also contact my adviser, Professor Richard Bernsten, Department of Agricultural Economics, Michigan State University, 211E Agriculture Hall, East Lansing, MI or phone Professor Bernsten at (517) 355-3449. If you have any questions regarding your rights and role as a human subject of research, please contact Dr. David Wright, Michigan State University, 248 Administration Building, East Lansing, MI or phone Dr. Wright at (517) 355-2180.

You indicate your voluntary agreement to participate by completing and returning this questionnaire.

Sincerely,

Pamela Riley Miklavcic

A Survey of Apple Growers about Their Migrant Farm Labor Experiences in Michigan

Fall 2000

You indicate your voluntary agreement to participate by completing and returning this questionnaire.

Please return your completed questionnaire
in the enclosed envelope to:

Pamela Riley Miklavcic
Phone: (517) 351-0735

The Department of Agricultural Economics
202 Agriculture Hall
Michigan State University • East Lansing, MI 48824-1039

In collaboration with
The Michigan Agricultural Experiment Station

ID #

I. OPENING QUESTIONS

The purpose of this survey is to learn more about your migrant farm labor needs and your experiences with migrant farm labor. All questions pertain only to APPLES during the 2000 harvest season unless stated otherwise. First, we have some screening and opening questions for you.

Q1 **In 2000**, did you grow apples? ***(Please check one.)***

☐YES **IF YES, GO ON TO Q2.**
☐NO **IF NO, PLEASE RETURN THE SURVEY IN THE ENVELOPE PROVIDED. THANK YOU FOR YOUR TIME.**

Q2 **In 2000**, in what county was most of your apple acreage? _____

Q3 Did you hire **migrant labor** to help with your 2000 apple harvest? (***A migrant laborer is defined as someone who works 150 days or less for you and maintains a permanent residence in a distant county, state or country.***) ***(Please check one.)***

☐YES **IF YES, GO ON TO Q4.**
☐NO **IF NO, PLEASE SKIP TO QUESTION 58 ON PAGE 16.**

Q4 About what percent of your 2000 apples were harvested by migrant laborers? _____ %

Of your total 2000 migrant labor force:

Q5 About what percent worked previously on your farm? _____ %

Q6 About what percent have worked five or more years for you? _____ %

ID #

Of your total 2000 migrant labor force (continued):

Q7How did you go about recruiting migrant laborers to work on your farm? ***(Check all that apply, and indicate about what percent of your 2000 apple labor force was found that way.)***

CHECK ALL THAT APPLY:	% APPLE LABOR (2000):
I HAD A VERBAL AGREEMENT WITH PAST WORKERS	%
I USED STATE MATCHING SERVICES	%
I HIRED WORKERS THROUGH A CREWLEADER	%
I USED THE H2A PROGRAM	%
I HIRED WORKERS WHO SOUGHT WORK AT THE FARM	%
OTHER *(Please explain.)*	%

Q8When did you **begin** your search for migrant laborers for the **2000 apple harvest**? **(month/year)**

Q9From which state or foreign country do the bulk of your migrant workers come?

II. YOUR 1998, 1999, AND 2000 APPLE HARVEST SEASONS

We now have some questions for you about each of your past three apple harvest seasons.

Q10How many ***migrant workers per day*** (on average) did you hire for your apple harvest?

2000 /day

1999 /day

1998 /day

ID #

Q11 For the **apple harvest**, were you able to hire as many migrant workers as you *needed*? (*Please check each year with a "yes" or "no".*)

2000 ☐ **YES** or ☐ **NO** → **IF YES FOR ALL YEARS, SKIP TO Q24 AT THE TOP OF PAGE 7.**

1999 ☐ **YES** or ☐ **NO**

1998 ☐ **YES** or ☐ **NO** → **IF NO FOR ANY YEAR, GO ON TO Q12.**

IF NO FOR ANY YEAR:

Q12 **If you experienced a labor shortage during harvest time**, *how many more* migrant workers (on average) did you need per day?

2000	**/day**
1999	**/day**
1998	**/day**

Q13 Did this labor shortage result in any unharvested apples? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q14.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q16.**

IF YES:

Q14 Roughly how many **acres of apples** were left **unharvested** due to this labor shortage?

2000	**acres**
1999	**acres**
1998	**acres**

Q15 This represented an approximate **loss** of how much money **per acre**?

2000	**$/acre**
1999	**$/acre**
1998	**$/acre**

ID #

Q16Did this labor shortage result in any apples being **harvested later than the optimal time**?

☐ YES → IF YES, GO ON TO Q17.
☐ NO → IF NO, PLEASE SKIP TO Q19.

IF YES:

Q17Roughly how many acres were harvested late?

2000 _____ acres
1999 _____ acres
1998 _____ acres

Q18This represented a loss of about how much money **per acre** (for example, due to reduced apple quality?)

2000 $_____
1999 $_____
1998 $_____

Q19During the **last three years**, what were the **three most important reasons** why you have experienced a migrant labor shortage on your farm? ***(Please rank by placing a 1, 2, or 3 next to the boxes representing your top three reasons, 1 being most important.)***

RANK TOP THREE ONLY:

☐ TOO FEW MIGRANTS ARE COMING TO MICHIGAN NOW.
☐ THE MATCHING SERVICES IN MICHIGAN (FOR INTRODUCING EMPLOYERS TO EMPLOYEES) ARE INSUFFICIENT.
☐ I CANNOT PROVIDE ENOUGH HOUSING THAT MEETS FEDERAL STANDARDS.
☐ TIGHTER RESTRICTIONS ARE NOW IN EFFECT DUE TO RECENT CHANGES IN *IMMIGRATION AND NATURALIZATION SERVICE* REGULATIONS.
☐ HIGHER-PAYING FARMWORK CAN BE FOUND ELSEWHERE.
☐ HIGHER-PAYING NON-FARMWORK CAN BE FOUND ELSEWHERE.
☐ OTHER. ***(Please explain.)***

_____
_____
_____

ID #

Q20During the last three years, **to REDUCE your labor needs**, have you made any specific changes in your farming operation? ***(Please check one box.)***

☐ **YES** → **IF YES, GO ON TO Q21.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q22.**

IF YES:

Q21 Please describe what you have done.

Q22 **During the last three years, to ATTRACT more migrant labor**, have you made any specific changes in your farming operation? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q23.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q24.**

IF YES:

Q23 Please describe what you have done.

ID # _____

Q24How many **non-migrant farmworkers per day** (on average) worked in your apple orchards? ***(Please include family members.)***

2000 _____

1999 _____

1998 _____

III. PRE-HARVEST SEASON

Although seasonal harvest labor is the focus of this research, we have a few questions about your labor needs during the rest of the growing season.

Q25For each of the past three years, have you had any trouble hiring **year-round labor** (for example, tractor drivers?) ***(Please check "yes" or "no" for each year.)***

2000 ☐ **YES or** ☐ **NO** → **IF YES FOR ANY YEAR, GO ON TO Q26.**

1999 ☐ **YES or** ☐ **NO** → **IF NO FOR ALL YEARS, SKIP TO Q27.**

1998 ☐ **YES or** ☐ **NO**

IF YES FOR ANY YEAR:

Q26Explain your trouble hiring year-round labor and why it occurred. ***(Please write in the space provided.)***

_____

_____

_____

_____

ID #

Q27Have you had trouble hiring labor during **other peak apple periods** (for example, during non-harvest activities like pruning or thinning?) ***(Please mark "yes" or "no".)***

2000 ☐ YES or ☐ NO → IF YES FOR ANY YEAR, GO ON TO Q28.

1999 ☐ YES or ☐ NO → IF NO FOR ALL YEARS, SKIP TO Q29.

1998 ☐ YES or ☐ NO

IF YES FOR ANY YEAR:

Q28Explain your trouble hiring this ***"other (i.e., non-harvest) peak period labor"*** and why it occurred. ***(Please write in the space provided.)***

_____

_____

_____

V. MIGRANT PERKS

The following questions will be used to determine the total compensation for migrant workers in Michigan. These include actual wages and additional benefits that employers provide such as housing, rent, and utilities. (Individual reports will remain confidential.)

In 2000, during the apple harvest season:

Q29What was the **most common wage rate** you paid to migrant workers?

$ _____ per _____
(either by hour, basket, piece?)

Q30Did you provide any migrant housing on your farm? ***(Check one.)***

☐ YES → IF YES, GO ON TO Q31.
☐ NO → IF NO, PLEASE SKIP TO Q42.

ID #

IF YES:

Q31 How many **single migrant workers** could you house? _____

Q32 How many **migrant families** (including extended families) could you house? _____

Q33 How many workers (on average) were in the typical family that you employed on your farm? _____ **/family**

Q34 Did any of these migrant workers pay rent while living on your farm?

☐ **YES** → **IF YES, GO ON TO Q35.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q38.**

IF YES:

Q35 Under what condition did migrant workers pay rent?
(Check the one most important reason that applies to your farm.)

CHECK ONE:

☐ **IN ALL CASES**
☐ **ONLY WHEN TRAVELING WITH A LARGE NUMBER OF NON-WORKING FAMILY MEMBERS**
☐ **ONLY WHILE WORKING ON ANOTHER FARM**
☐ **OTHER *(Please explain.)***

_____
_____
_____
_____
_____

Q36 How much rent did **single migrant workers** pay?

$ _____ per
(either by day, week, month?)

_____
ID #

In 2000, during the apple harvest season (continued):

Q37How much rent did **migrant families** pay?

$_____per
(either by day, week, month?)

Q38Did any of these migrant workers pay utilities while working on your farm?

☐ **YES** → **IF YES, GO ON TO Q39.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q42.**

IF YES:

Q39Under what condition did migrant workers pay utilities?
(Check the one most important reason that applies to your farm.)

CHECK ONE:

☐ **IN ALL CASES**
☐ **ONLY WHEN TRAVELING WITH A LARGE NUMBER OF NON-WORKING FAMILY MEMBERS**
☐ **ONLY WHILE WORKING ON ANOTHER FARM**
☐ **OTHER *(Please explain.)***

_____
_____
_____
_____
_____

Q40How much did **single migrant workers** pay for utilities?

$____per____
(either by day, week, month?)

Q41How much did **migrant families** pay for utilities?

$____per____
(either by day, week, month?)

_____
ID #

In 2000, during the apple harvest season (continued):

Q42Did any of your migrant workers live **off-farm**?

☐ **YES** → **IF YES, GO ON TO Q43.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q46.**

IF YES:

Q43How many migrant workers lived off-farm? _____

Q44Where did they live? ***(Please check the most frequently-encountered housing situation.)***

CHECK ONE:

☐ **IN MIGRANT HOUSING ON A NEIGHBORING FARM**
☐ **IN QUARTERS THEY SECURED THEMSELVES**
☐ **OTHER *(Please explain.)***

_____
_____
_____
_____
_____

Q45How many miles did non-housed migrants travel daily to work on your farm (on average, **one way**?)

_____ **miles**

Q46Did you provide any other "perks" - besides housing, rent, and/or utilities - to migrant workers on your farm?

☐ **YES** → **IF YES, GO ON TO Q47.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q48.**

ID #

In 2000, during the apple harvest season (continued):

IF YES:

Q47What additional "perks" did you provide? For example, did you provide day care for kids, transportation for shopping or health needs, end-of-harvest fiestas, telephone access, laundry facilities, end-of season bonus etc? ***(Please list and estimate value per worker per day.)***

PERK	VALUE/WORKER PER HARVEST SEASON (ROUGH ESTIMATE)
_____	$/season
_____	$/season
_____	$/season
_____	$/season
_____	$/season
_____	$/season

ID #

In 2000, during the apple harvest season (continued):

Q48What services were available to your migrant workers, roughly how far **(one way, in miles)** were these services from where the majority of your workers lived, and which services were available on-farm? ***(Please place a check next to the services provided and include the miles for off-farm services.)***

SERVICES OFF-FARM		**ON-FARM**	
RELIGIOUS SERVICES	☐	_____ miles	☐
SCHOOLS FOR KIDS	☐	_____ miles	☐
MEDICAL CARE	☐	_____ miles	☐
A GROCERY STORE	☐	_____ miles	☐
A CLOTHING/ALL-PURPOSE STORE	☐	_____ miles	☐
MIGRANT SERVICES FOR SEEKING JOBS	☐	_____ miles	☐
OTHER(S) *(Please explain on following lines.)*	☐	_____ miles	☐

_____

_____

_____

_____

_____

ID #

VI. PAYROLL QUESTIONS

Now we have some migrant payroll questions for you, as they relate to the operations of your farm.

For each of the past three years:

Q49What were your earnings from apple sales? (Please check one.)

- ☐ $0 - $9,999
- ☐ $10,000 - $19,999
- ☐ $20,000 - $29,999
- ☐ $30,000 - $39,999
- ☐ $40,000 - $49,999
- ☐ $50,000 - $74,999
- ☐ $75,000 - $99,999
- ☐ $100,000 - $149,999
- ☐ $150,000 +

Q50Your **migrant worker payroll** was about what **percent** of your **total farm operating expenses**?

2000 _____ **%**

1999 _____ **%**

1998 _____ **%**

Q51About what **percent of total farm earnings** were **from apple sales**?

2000 _____ **%**

1999 _____ **%**

1998 _____ **%**

Q52If migrant labor was not available, how much would you have to pay **per worker per day** (roughly)?

_____ **$ worker/day**

ID #

VII. THE FUTURE

Now, a few questions about the future.

Q53**In 2001**, do you expect to need more, less, or the same number of migrant workers? ***(Please check one.)***

- ☐ **MORE**
- ☐ **LESS**
- ☐ **THE SAME**

Q54**In five years**, do you expect to need more, less, or the same amount of migrant labor? ***(Please check one.)***

- ☐ **MORE**
- ☐ **LESS**
- ☐ **THE SAME**

Q55**In five years**, what factors will increase/decrease your **future need for farm labor**? ***(Please explain on the lines below.)***

Increase:

_____
_____
_____
_____
_____

Decrease:

_____
_____
_____
_____
_____

ID #

Q56**In five years**, do you expect the **future availability of migrant workers** to be higher, lower, or the same? ***(Please check one.)***

- ☐ **HIGHER**
- ☐ **LOWER**
- ☐ **THE SAME**

Q57What could be done to increase the future supply of migrant labor (ex.,by you, state/federal government, local agencies?) ***(Please respond on the lines below.)***

VIII.EXPERIENCE

We would now like to ask some questions about your farming and non-farming experiences.

Since high school, how many years have you:

Q58 Worked on a farm? _____ **years**

Q59 Grown **apples** on a farm? _____ **years**

Q60 Been responsible for running a farm (for example, as a farm operator?) _____ **years**

Q61 Hired migrant labor? _____ **years**

ID #

In 2000:

Q62 How many acres was your farm _____ acres

Q63 How many acres did you plant to annual crops? _____ acres

Q64 How many acres of apples did you grow? _____ acres

In a typical year:

Q65 **How many days long** is your **apple harvest**?

Q65 How many days long is your apple harvest? _____ days

Q66 Do you also work off-farm? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q67.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q68.**

IF YES:

Q67 On average, how many hours per week do you work off-farm?
hours/week _____

Q68 About how many extension meetings do you attend each year? _____

Q69 Do you speak or understand Spanish? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q70.**
☐ **NO** → **IF NO, PLEASE READ THE TEXT FOLLOWING Q70.**

ID #

Q70<u>On a scale of one to five,</u> how fluent are you in Spanish?

1 2 3 4 5

BASIC VOCABULARY **FLUENT**

IF YOU HIRED MIGRANT LABOR IN 2000, YOU HAVE COMPLETED THE SURVEY. THANK YOU FOR YOUR TIME.

IF YOU DID *<u>NOT</u>* HIRE MIGRANTS IN 2000, PLEASE GO ON TO Q71.

ID #

IF YOU DID NOT HIRE MIGRANT LABOR IN 2000:

Q71 Have you ever hired migrants for your apple harvest? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q72.**
☐ **NO** → **IF NO, SKIP TO Q77.**

IF YES:

Q72 For how many years did you hire migrant labor to help with your apple harvest? _____

Q73 In what year did you stop using migrant labor for your apple harvest? _____

Q74 Why did you stop using migrant labor? ***(Please explain on the lines below or on the back.)***

_____
_____
_____

Q75 Are your net earnings from apples higher, lower, or the same since you stopped hiring migrant labor?

☐ **HIGHER**
☐ **LOWER**
☐ **THE SAME**

Q76 Please explain why your net earnings from apples have changed - or stayed the same - since you stopped hiring migrant labor to help with your apple harvest. ***(Explain on the lines below - or on the back.)***

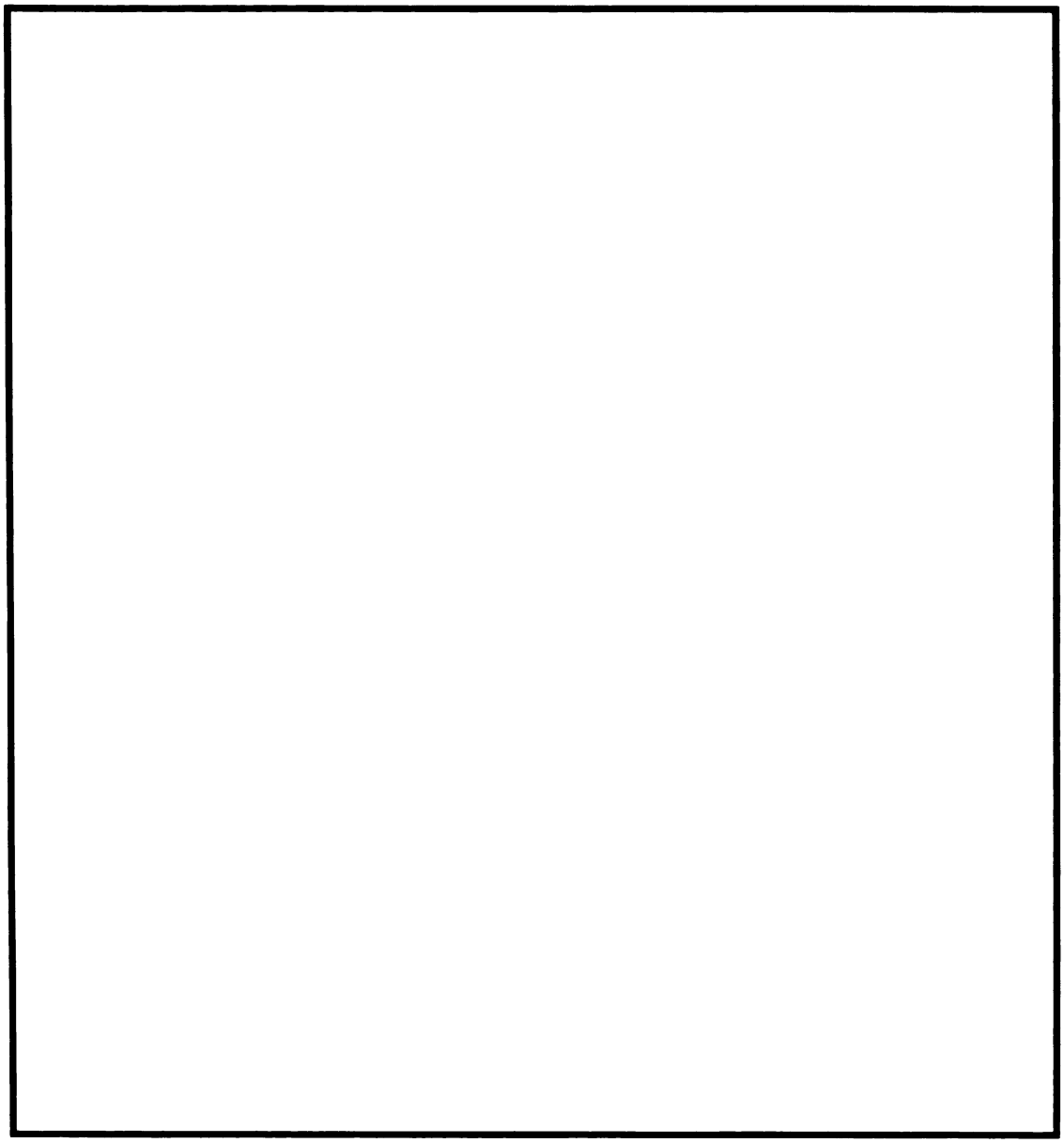
_____
_____
_____

Q77 On average, during the 2000 apple harvest, how many non-migrant farm-workers per day worked in your apple orchards? _____

Q78 In 2000, how many year-round laborers did you employ? _____

YOU HAVE COMPLETED THE SURVEY. PLEASE RETURN IT IN THE ENCLOSED ENVELOPE. THANK YOU FOR YOUR TIME.

Your comments will be appreciated, either here or in a separate envelope.



Thank you for your help.

Please return your completed questionnaire in the enclosed envelope to:
THE DEPARTMENT OF AGRICULTURAL ECONOMICS
202 Agriculture Hall
Michigan State University
East Lansing, MI 48824-1039

APPENDIX B – SUPPLEMENTAL SURVEY FOR BLUEBERRY GROWERS

ID# _____

A Short Survey of Michigan Blueberry Growers Who Did Not Hire Migrant Farm Labor in 2000

****

You indicate your voluntary agreement to participate by completing and returning this questionnaire.

Please return your completed questionnaire
in the enclosed envelope to:

Pamela Riley Miklavcic
Phone: (517) 351-0735

The Department of Agricultural Economics
Lindon Robison • 303B Agriculture Hall
Michigan State University • East Lansing, MI 48824-1039

In collaboration with
The Michigan Agricultural Experiment Station

****

The purpose of this second survey is to learn about your past experiences hiring migrant farm labor for your blueberry harvest.

Q1 Have you ever hired migrants for your blueberry harvest? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q2.**
☐ **NO** → **IF NO, SKIP TO Q7.**

IF YES:

Q2 For how many years did you hire migrant labor to help with your blueberry harvest? _____

Q3 In what year did you stop using migrant labor for your blueberry harvest? _____

ID #

Q4Why did you stop using migrant labor? ***(Please explain on the lines below - or on the back.)***

Q5Are your net earnings from blueberries higher, lower, or the same since you stopped hiring migrant labor?

- ☐ HIGHER
- ☐ LOWER
- ☐ THE SAME

Q6 Please explain why your net earnings from blueberries have changed - or stayed the same - since you stopped hiring migrant labor to help with your blueberry harvest. ***(Explain on the lines below - or on the back.)***

Q7 On average, during the 2000 blueberry harvest, how many non-migrant farmworkers per day worked in your blueberry fields? _____

Q8 In a typical year, your blueberry harvest lasts how many days? _____

Q9 In 2000, how many year-round laborers did you employ? _____

We would now like to ask some questions about your farming and non-farming experiences.

Since high school, how many years have you:

Q10	Worked on a farm?	_____ years
Q11	Grown blueberries on a farm?	_____ years
Q12	Been responsible for running a farm (i.e., as a farm operator)?	_____ years
Q13	Hired migrant labor?	_____ years

ID #

In 2000:

Q14 How many acres was your farm? _____ acres

Q15 How many acres did you plant to annual crops? _____ acres

Q16 How many acres of blueberries did you grow? _____ acres

In a typical year:

Q17 Do you also work off-farm? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON TO Q18.**
☐ **NO** → **IF NO, PLEASE SKIP TO Q19.**

IF YES:

Q18 On average, how many hours per week

hours/week _____

Q19 About how many extension meetings do you attend each year? _____

Q20Do you speak or understand Spanish? ***(Please check one.)***

☐ **YES** → **IF YES, GO ON**
☐ **NO**→ **IF NO, YOU HAVE COMPLETED THE**

THANK YOU FOR YOUR TIME.

IF YES:

Q21**On a scale of one to five,** how fluent are you in Spanish?

1 2 3 4 5
BASIC FLUENT
VOCABULARY

YOU HAVE COMPLETED THE SURVEY. PLEASE RETURN IT IN THE ENCLOSED ENVELOPE. THANK YOU FOR YOUR TIME.

APPENDIX C
MIGRANT FARM WORKER SURVEY

Ms. Pamela Riley Miklavcic
202 Agriculture Hall
Michigan State University
East Lansing, MI 48823

September 2002

Estimado Trabajador Agrícola Migrante de Michigan,

Mi nombre es Pam Miklavcic. Estoy conduciendo un estudio de las experiencias migratorias recientes del trabajo agrícola en la manzana, el espárrago, moros azules (blueberry), y pepinos prickling en los subsectores de Michigan. El propósito de este estudio es analizar la situación migratoria del trabajo agrícola de Michigan, desde la perspectiva de ambos trabajadores migratorios y rancheros/cultivadores agrícolas. Un estudio extensivo fue conducido de los cultivadores/rancheros en el invierno del 2000. Esta encuesta de trabajadores migrantes servirá como complemento a la encuesta de los cultivadores/rancheros.

Mi meta es mejorar el ambiente laboral en los campos de Michigan haciendo lo siguiente: 1) entender mejor los factores que influyen en la decisión de ambos los migrantes que buscan trabajo en campos particulares y los rancheros que siguen ciertas prácticas particulares para empleo y retención, 2) localización de áreas problemáticas de comunicación, y 3) diseminación de esta información en círculos donde puede ser utilizada para mejorar relaciones entre el empleado y el patrón.

La información que coleccionaré con esta encuesta será utilizada para completar mi tesis para mi Ph.D o Doctorado en el Departamento de Economía Agrícola en Michigan State University. Este estudio es en colaboración con la Estación de Experimentos Agrícolas de Michigan.

Su participación en este estudio es estrictamente VOLUNTARIO. Esta encuesta durará aproximadamente treinta minutos. Si no desea participar, o si prefiere no responder a cualquiera de mis preguntas, no habrán penalidades ni pérdida de beneficios. Es libre de NO CONTESTAR cualquiera de las preguntas en la encuesta. Aunque esto sea así, espero que este de acuerdo en responder todas las preguntas. Su participación completa me permitirá analizar apropiadamente la situación migratoria del trabajo agrícola en Michigan lo mejor posible.

Toda la información que usted provee es CONFIDENCIAL. Esto significa que nadie sabre sus respuestas mas que yo, y su identidad será protegida en cualquier reporte basado en la información. Su privacidad será protegida al grado máximo de la ley.

Si tiene algunas preguntas sobre este estudio, usted puede comunicarse conmigo, Pam Miklavcic, al teléfono 517-351-0735 o por correo electrónico a ripleypam@msu.edu. También puede comunicarse con mi consejero, el Profesor Richard Bersten, del Departamento de Economía Agrícola en Michigan State University, 211 E. Agricultural Hall, East Lansing, MI o puede llamarle al 517-355-3449. Si tiene alguna pregunta relacionada con sus derechos y con su papel como un sujeto de investigación humano, favor de comunicarse con el Dr. Ashir Kumar, Michgian State University, 248 Administration Building, East Lansing, MI o puede llamarle al 517-355-2180.

Usted indica su acuerdo voluntario para participar al firmar abajo y al contestar las preguntas siguientes.

Sinceramente,
Pamela Riley Miklavcic

_____

Firma del Trabajador Agrícola Migrante

Encuesta de Trabajador Migrante Sobre las Experiencias de Trabajo Agrícola en Michigan

Verano del 2002

Lea al trabajador agrícola migrante antes de empezar la entrevista:

Usted indica su acuerdo voluntario de participar respondiendo verbalmente a las siguientes preguntas. La entrevista puede ser terminada a cualquier hora, y puede rehusar contestar cualquier pregunta con la cual no se sienta cómodo. El contenido de esta encuesta será guardada completamente anónimo.

Esta encuesta esta conducida por:

Pamela Riley Miklavcic, Cadidata Doctoral
Teléfono: (517) 351-0735
Correo electrónico: rileypam@msu.edu
1207 Chartwell CWS, East Lansing, MI 48823

El Departamento de Economía Agrícola
The Department of Agricultural Economics
202 Agriculture Hall
Michigan State University • East Lansing, MI 48824-1039

En colaboración con
Estación de Experimentos Agrícolas de Michigan.

The Michigan Agricultural Experiment Station

1) ¿Cuantos años ha trabajado usted como trabajador agrícola migrante en Michigan?
_____

2) ¿En un ano, cuantos meses pasa usted en Michigan? _____

3) ¿Cuando esta en Michigan, trabaja usted con cualesquiera de las cosechas siguientes manzanas, espárrago, moros azules o blueberry, pepinos prickling?

4) ¿Donde esta su residencia permanente? _____

5) ¿Con cuantos adultos (incluyéndose usted mismo) viaja con usted? _____

6) ¿Con cuantos niños o niñas viaja usted? _____

7) ¿Cual es el patrón típico de trabajo durante el ano? (continué al dorso si es necesario)

ESTADO	COSECHA	FECHA DE COMIENZO	FECHA QUE FINALIZÓ
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

8) ¿En que estado prefiere trabajar usted? _____
¿Por que?
_____
_____
_____
_____

9) ¿Con que cosecha prefiere trabajar usted? _____
¿Por que?
_____
_____
_____
_____

10) ¿Es fácil o difícil encontrar trabajo en Michigan? FÁCIL DIFÍCIL

11) ¿Nombre tres aspectos positivos relacionados con el trabajo en Michigan?

1. _____
2. _____
3. _____

12) ¿Nombre tres aspectos negativos relacionados sobre el trabajo en Michigan?

1. _____
2. _____
3. _____

13) ¿Cuales son las tres cosas mas importantes que busca usted cuando busca trabajo agrícola?

1. _____
2. _____
3. _____

14) ¿Como encuentra usted lugares en donde trabajar?

_____
_____
_____
_____
_____

15) ¿Describa un "buen" rancho o campo en Michigan en el cual usted ha trabajado?

_____
_____
_____
_____
_____

16) ¿Describa un campo o rancho "malo" en Michigan en el cual usted ha trabajado?

_____
_____
_____
_____
_____

17) ¿Que salarios recibe usted de las cosechas mencionadas en la pregunta #2 arriba?

_____

18) ¿Pago usted por el alquiler de su ultimo lugar de empleo en Michigan por la cosecha antedicha?

SI NO

19) ¿Que gratificaciones recibió en su ultimo lugar de empleo por la cosecha mencionada anteriormente (alquiler, utilidades, disposición de guardería, comidas, asistencia medica, transporte)? (continué al dorso si es necesario)

GRATIFICACIÓN

1. _____
2. _____
3. _____

20) Sus ingresos individuales durante un ano típico son: $_____

21) Su ingreso de una temporada típica en Michigan es: $_____

22) Los ingresos de su familia durante un año típico en Michigan son:
$_____

23) Los ingresos de la familia fueron más altos o más bajos que el año pasado? S H
L

24) ¿Los mismos ingresos se mantuvieron igual, fueron más altos, o más bajos que hace dos años?
I A B

25) ¿Aproximadamente que porcentaje de los ingresos anuales de su familia fueron gastados durante su estancia en Michigan?
_____%

26) ¿Nombre las cinco cosas más significativas en las cuales usted gasta su dinero mientras esta en Michigan (alimentos, ropa, alquiler, guardería, otros servicios, etc.)?

1. _____
2. _____
3. _____
4. _____
5. _____

27) ¿En sus recorridos o viajes, usted tiene la impresión de que vienen trabajadores a buscar trabajo a Michigan como en el pasado? SI NO
¿Por que sí o por que no?

_____
_____
_____
_____
_____

28) ¿Planea regresar a Michigan el año próximo? SÍ NO

29) ¿Espera regresar a Michigan dentro de cinco años? SÍ NO

30) ¿Hay algo que usted quisiera decirme sobre ser un trabajador agrícola migrante que no le haya preguntado pero que debo saber para mi encuesta? (continúe al dorso si es necesario)

_____
_____
_____
_____
_____

APPENDIX D

CORRELATIONS OF CONTINUOUS VARIALBES USED IN CHAPTER 4 REGRESSIONS

Variable Name	extmeets	pctopp00	pctfive	md00ta	yrshirem	services	perks	smwage	md00crpa	acresann	hrsoff	miles	spanlev	rmwages	pctbefor	migsoff	tfeta	yrsrun
extmeets	1.000	-.050	.155	-.190	-.258	-.232	.070	-.079	.077	-.365	-.140	.014	.092	-.142	-.115	.220	.214	.296
pctopp00		1.000	-.075	.251	-.223	.047	.098	-.225	.063	-.020	-.243	-.114	-.346	-.027	-.032	-.085	-.286	.193
pctfive			1.000	-.127	-.141	-.143	.035	-.035	.052	-.169	-.103	.237	-.043	-.036	-.687	-.070	.033	.081
md00ta				1.000	-.033	.371	-.199	.116	.107	-.050	-.028	-.325	.081	-.246	.057	-.151	-.700	-.088
yrshirem					1.000	.217	-.142	-.088	-.177	.391	.473	-.089	-.146	.180	.269	-.064	.098	-.866
services						1.000	-.187	-.007	-.009	.028	.345	-.185	-.118	.088	.134	-.064	-.320	-.279
perks							1.000	.052	-.066	.185	.148	.155	-.026	-.187	.033	-.057	.220	.126
smwage								1.000	.210	.067	-.018	.058	.234	-.505	.072	.084	-.034	.142
md00crpa									1.000	-.213	-.246	.138	-.311	-.297	-.095	.056	-.372	.148
acresann										1.000	.371	.053	-.051	.114	.161	-.106	.190	-.439
hrsoff											1.000	.031	.015	.196	.190	-.250	.180	-.414
miles												1.000	-.344	.106	-.157	-.534	.189	.068
spanlev													1.000	-.178	.046	.310	.076	.170
rmwages														1.000	-.048	-.240	.010	-.127
pctbefor															1.000	.201	-.011	-.320
migsoff																1.000	.070	.065
tfeta																	1.000	.050
yrsrun																		1.000

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