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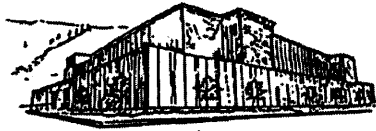
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**Migration and Socioeconomic Change  
in Montana: 1995 to 2000**

by

**Nicholas Hill**

B.S. The University of Wisconsin-La Crosse, USA, 1999

presented in partial fulfillment of the requirements

**for the degree of**

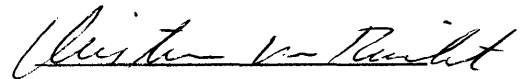
**Master of Arts**

The Department of Geography

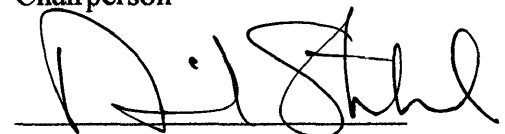
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Migration and Socioeconomic Change in Montana: 1995 to 2000

Director: Dr. Christiane von Reichert 

Internal migration has a considerable impact on both the size and structure of populations. Since most studies of internal migration focus on changes in population size, the effect of migration on the socioeconomic structure of populations is often overlooked. It is important to consider socioeconomic changes brought on by migration, however, because these changes may have an even greater impact on local areas than changes in population size.

This research examines socioeconomic changes that occurred in the state of Montana as a result of migration during the 1995-2000 interval. Data from the 2000 Public Use Microdata Sample was used to determine the ages, education levels, occupations, and incomes of non-migrants, immigrants, and outmigrants at the state and sub-state levels. Descriptive statistics and chi-square tests revealed that the ages, education levels, and occupations of non-migrants were significantly different from those of both immigrants and outmigrants at the state level. In accord with general patterns of migrant selectivity, the proportions of young adults, the highly educated, and managers and professionals were greater among migrant populations. Non-migrant incomes were slightly higher than those of immigrants and slightly lower than those of outmigrants. Results of a linear regression model showed that income differences between non-migrants and immigrants were not significant when other influential factors were controlled for. Income differences between non-migrants and outmigrants were significant when controlling for other influential factors. Disaggregation of migration flows by socioeconomic attributes revealed that Montana witnessed net outmigration of young adults, the highly educated, managers and professionals, and those in the middle-income categories.

Socioeconomic differences between migrants and non-migrants at the sub-state level were similar to those found in the analysis of state-level data. However, differing locational attributes contributed to substantial regional variation in the socioeconomic compositions of non-migrants, immigrants, and outmigrants. The net effects of migration on the socioeconomic compositions of local populations were also shown to vary widely throughout the state.

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## CHAPTER 1

### INTRODUCTION

Internal migration is the primary means through which the population of the United States is redistributed. Birthrates and death rates do not vary a great deal from one location to another, and therefore patterns of migration largely determine variable rates of population growth and decline throughout the nation. Since migration flows are often selective of particular socioeconomic characteristics, the process of migration affects not only the size but also the structure of a population (Bogue 1969, 752-753). Established patterns of migrant selectivity suggest that the socioeconomic composition of an area experiencing net immigration will likely evolve in a manner different from that of an area witnessing net outmigration. Furthermore, the combination of physical, social, and economic attributes present at a location tends to appeal to certain segments of the population, while deterring other segments. As a result of both general and location-specific selectivity, the socioeconomic changes brought on by migration are variable across space.

An understanding of regional population change therefore requires examination of not only the sheer numbers of immigrants and outmigrants but also their socioeconomic attributes. In addition, it is important to consider how the attributes of immigrants and outmigrants compare to those of non-migrants residing in a given area. The ages, education levels, occupations, incomes and other characteristics of both migrants and

non-migrants determine socioeconomic changes that can occur independent of overall growth or decline in an area (Shumway and Otterstrom 2002, 91).

Population change resulting from migration can have far-reaching consequences for a local area. Economic and labor force structures, commercial activity, tax base, and housing are all impacted by changes in population. Such changes also affect infrastructure and the provision of both public and private services. Social and political institutions, land use, and social relations are among the other aspects of a community influenced by population change (Deavers and Brown 1980, 52). Because population change assumes such a significant role in determining the nature and viability of a local area, the effects of migration on both the size and structure of populations are of great interest to researchers and policy-makers. Although it is the effect of migration on population size that is typically afforded the most attention, changes in the socioeconomic composition of a population have at least as great of an impact on local areas.

An excellent location for examining spatial variation in these socioeconomic changes is the state of Montana. Montana is typically considered to be part of two larger, separate regions of the nation: the Mountain West and the Great Plains. During the 1990s, these two regions were subject to very different patterns of internal migration. Much of the Mountain West experienced considerable growth due to immigration. A significant proportion of this growth occurred in nonmetropolitan areas, as migrants were drawn by natural amenities and quality of life factors. Conversely, much of the Great Plains experienced net outmigration. This trend was particularly evident in the region's

nonmetropolitan counties, which are generally lacking in the natural amenities found in the Mountain West.

These divergent migration trends have altered both the distribution and structure of Montana's population. Because rates of gross migration (the total number of immigrants and outmigrants) and net migration (the numerical difference between immigrants and outmigrants) varied from one location to another, changes in the socioeconomic composition of the population have likely been variable throughout the state. Differing locational attributes may have further influenced patterns of migrant selectivity and contributed to regional variation in socioeconomic change.

The objective of this research is to gain insight regarding the effect of internal migration during the 1995-2000 interval on the socioeconomic composition of Montana's population. The following research questions are considered: *How did the socioeconomic composition of established residents of Montana compare to the socioeconomic compositions of internal immigrants and outmigrants at the time of the 2000 census? How did the compositions of these populations vary from one region to another within the state? What was the net effect of 1995-2000 internal migration on the socioeconomic composition of Montana at the state and sub-state levels?*

These questions are addressed by using data from the 2000 census to identify the ages, education levels, occupations, and incomes of non-migrants, immigrants, and outmigrants at both the state and sub-state levels.<sup>1</sup> The attributes of non-migrants are

---

<sup>1</sup> The U.S. census does not include information regarding emigrants who left the United States for another country. Therefore, this analysis is based solely on internal U.S. migration, which includes both interstate and intrastate moves across census-defined boundaries. Because international migration flows to and from Montana are not substantial, the vast majority of population change is due to internal migration.

compared to those of immigrants and outmigrants, and regional variations in the compositions of these populations are examined. In order to assess the net effect of migration, attribute-specific net migration rates are calculated for the state and its regions.

## CHAPTER 2

### BACKGROUND

This chapter provides a review of pertinent literature and serves as a foundation for the research being conducted. The literature review is structured around the following topics: natural amenities and growth in the Mountain West, population loss in the Great Plains, 1995-2000 migration in Montana, and migration and socioeconomic change. The topic of migration and socioeconomic change includes a review of migration literature pertaining to the socioeconomic attributes considered in this study: age, educational attainment, occupation, and income. The final section of this chapter provides a summary of research questions and hypotheses.

#### **Natural Amenities and Growth in the Mountain West**

During the 1995-2000 interval, the Mountain census division<sup>1</sup> witnessed the nation's highest rate of gross interdivisional migration. At 23.5 per 100 of the 1995 population, the rate of gross migration in this division was considerably higher than in any of the eight other divisions. Six of the eight states with the highest rates of gross internal migration in the U.S. during the 1995-2000 period are located in the Mountain division. The rate of net internal migration in the Mountain census division, 4.65 per 100 of the 1995 population, was also notably higher than in any other division. Of the eight

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<sup>1</sup> The Mountain census division includes Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

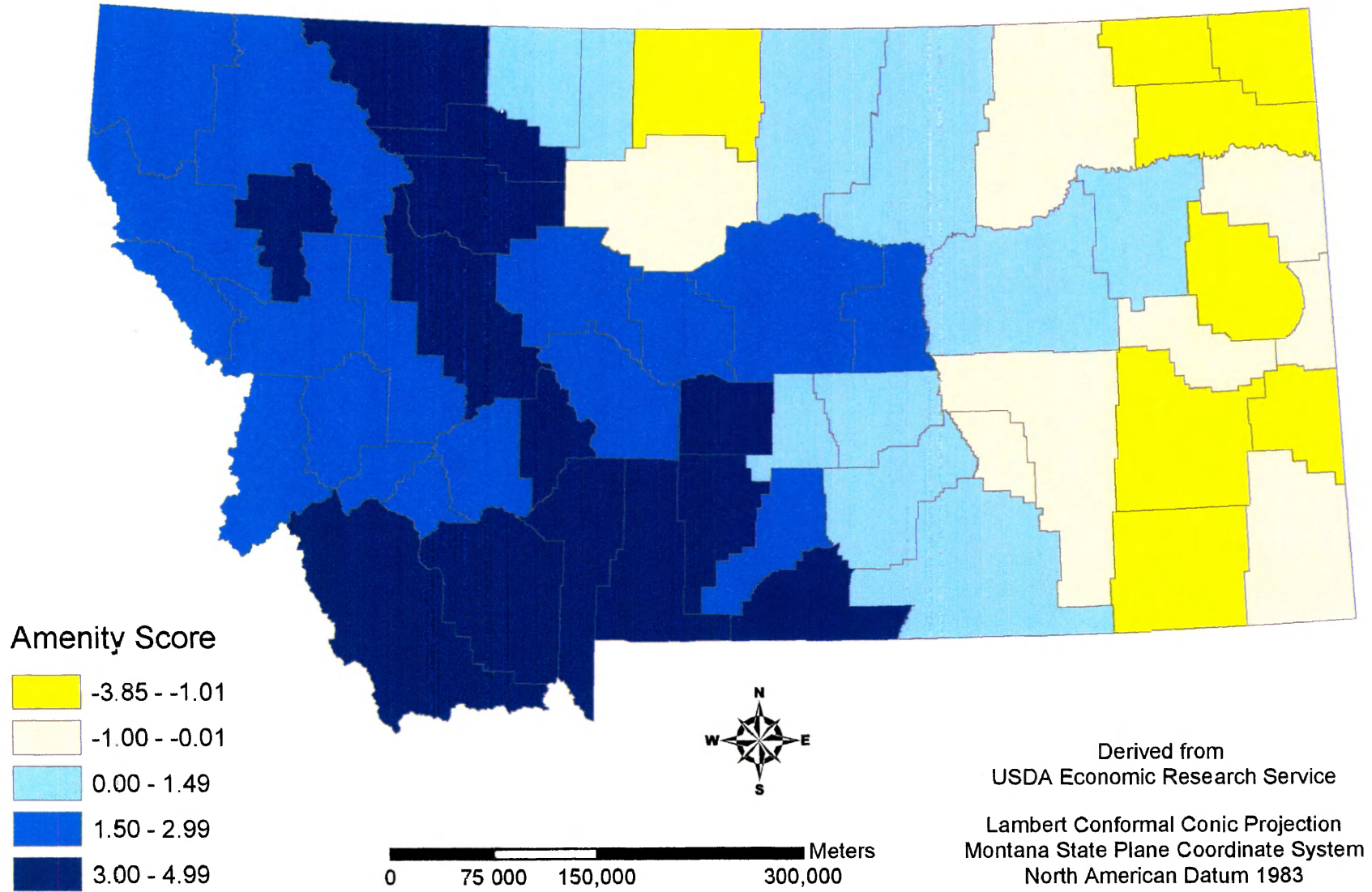


states with the nation's highest rates of 1995-2000 net internal migration, four are located in the Mountain census division (U.S. Census Bureau 2003b, 3). In the past, migration in the Mountain West was closely tied to the urban hierarchy and to fluctuations in farming and mining. Throughout the 1990s, however, migration patterns were largely influenced by natural amenities (Cromartie and Wardwell 1999, 4-6).

Natural resources have long been an impetus for migration in the western United States. Traditionally, migrants have been drawn to parts of the West seeking to extract wealth from the natural environment in the form of earnings from timber, minerals, or agricultural products. In recent years, however, the importance of extractive industries in the American West has declined (Power and Barrett 2001, 52-62). The significance of the region's natural resources has come to rest more upon their value as natural amenities, as opposed to their potential for extracted wealth (McGranahan 1999, 1). Research indicates that natural amenities such as scenery, environmental quality, outdoor recreational opportunities, and favorable climatic conditions have emerged as important factors influencing migration to the West (Rudzitis 1999, 9-11).

In order to assess the level of natural amenities present at a given location, researchers at the USDA's Economic Research Service (ERS) evaluated the appeal of every county in the United States in terms of its climate, topography, and water area. Each county was then assigned a composite score based on the aggregate amenity value of these measures (McGranahan 1999, 2-11). At the national level, composite scores range from -6.40 to 11.17. Figure 2.1 shows a map of composite natural amenity scores for each of Montana's 56 counties.

Figure 2.1: Natural Amenity Scores



The map of natural amenity scores shows significant variation in amenity levels across the state. All of the counties in western Montana have positive amenity scores, some of which are quite high. A group of high-scoring counties is found in the southwestern part of the state, from Beaverhead County to Sweet Grass County. Counties located along the Front Range also have rather high amenity scores. High amenity levels are primarily due to significant topographic variation in these counties. Most other counties in western Montana also score high on the scale, particularly Lake County, which includes Flathead Lake. A number of the eastern counties have negative amenity scores. This is largely due to the lack of topographic variation and cold winters in the eastern portion of the state. Summers are also less temperate than in western Montana.

Research conducted by McGranahan (1999, 9-10) showed that a natural amenity scale based on composite ERS natural amenity scores was a significant predictor of population growth in nonmetropolitan counties of the U.S. between 1970 and 1996. Counties with very low scores often lost population, while some of the highest-scoring counties doubled their populations. Over half of the increase in nonmetro population between 1970 and 1996 occurred in counties in the top quarter of the natural amenity scale.

Studies based on survey data substantiate the relationship between natural amenities and migration. Using survey data from a sample of migrants to fifteen high-amenity counties, von Reichert and Rudzitis (1992, 27-32) found that natural amenities such as scenery, environmental quality, outdoor recreational opportunities, and other

quality of life factors played a much greater role in the migration decision-making process than economic factors such as employment opportunities and cost of living. Nearly half of all labor force migrants in their survey incurred income losses after moving. The fact that the vast majority of migrants expressed satisfaction with their current residence suggests that some migrants are willing to accept income losses if they are compensated with high levels of natural amenities.

Early work by Ullman (1954, 124-127) pointed to a number of economic factors associated with the growth of amenity migration. Among these was an increase in the number of persons with early, paid retirements seeking residence in more favorable climates. Growth in the tourist industry and an increase in the number of footloose workers employed in industries not restricted to particular locations also contributed to the rise in amenity migration. Ullman noted that businesses with locational flexibility had begun to seek out pleasant conditions for living and working, in part because of the attraction such locations have for a potential labor force.

These same factors have been influential in the patterns of migration and economic restructuring that have taken place in the Mountain West. Natural amenities have drawn a large number of migrants to the region, expanding the pool of available labor. As advancements in transportation and communications have made it increasingly possible for many businesses, particularly service industries, to operate in any location, the combination of natural amenities and available labor has attracted new business to the region. Thus, the immigration of persons seeking environmental amenities has driven

employment growth in the Mountain West (Power 1996, 39-41; Vias 1999, 14), and many areas have witnessed considerable expansion in the tertiary sector of the economy.

Since the late 1970s, much of the Mountain West has experienced significant job losses in natural resource industries such as agriculture, mining, and lumber and wood products, industries that had long been viewed as the backbone of the regional economy. In accord with national trends, the relative importance of goods-producing industries (agriculture, mining, manufacturing, etc.) declined in the Mountain West as employment and economic activity shifted toward service sectors. Between 1969 and 1998, the total number of jobs in service industries in the region increased fivefold, while the total number of jobs in goods-producing industries increased only twofold. The share of total Mountain West jobs in service industries increased from 20 percent to 33 percent during this period.<sup>2</sup> This shift from goods production to the provision of services was evident in both metropolitan and nonmetropolitan areas in the region (Power and Barrett 2001, 52-62).

Locations in the Mountain West with particularly high amenity values have witnessed some of the greatest growth in service employment. In their study of the location decisions of businesses in the Greater Yellowstone Ecosystem, Johnson and Rasker (1995, 407-409) found that 96 percent of new jobs and 90 percent of all increases in labor income in the region between 1969 and 1992 occurred in economic sectors other than agriculture, mining, and manufacturing. Most employment and income gains in the region were the result of growth in service-related sectors.

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<sup>2</sup> These figures are based on data for the Mountain census division.

An increasing number of these services are being sold interregionally or internationally. Such sales bring in earnings from outside the region and contribute to the economic base of the communities in which the businesses are located. In a survey of producer services<sup>3</sup> in rural areas, Beyers and Lindahl (1996, 2-6) discovered that 43 percent of firms obtained at least 40 percent of their revenues from outside the local market area.

Another significant economic change affecting the Mountain West (as well as the rest of the nation) has been the growth of nonemployment income—income from investments and government support payments, including retirement income. Between 1978 and 1998, the Mountain census division witnessed a 63 percent real increase in per capita nonemployment income. By the latter 1990s, nonemployment sources had come to account for approximately one-third of all income in the region (Power and Barrett 2001, 29, 61). Since recipients of nonemployment income do not have to live near its source, retirees and others with considerable nonemployment income are afforded increased opportunities to live where they wish (Kendall and Pigozzi 1994, 55; Nelson 1997, 428). These footloose sources of income have contributed to the growth of amenity migration in the Mountain West.

### **Population Loss in the Great Plains**

Although much of the nonmetropolitan United States experienced population gains during the 1990s, over one in four nonmetro counties lost population during the

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<sup>3</sup> Producer services are those sold primarily to businesses and government.

decade. In many cases, these losses exceeded five percent (McGranahan and Beale 2002, 2). In their analysis of rural population loss, McGranahan and Beale (2002, 2) identified three locational attributes associated with declining county population during the 1990s: remoteness from a metropolitan area, low population density, and a lack of natural amenities. These characteristics typify much of eastern Montana. The lack of natural amenities in this part of the state was pointed out previously and illustrated in Figure 2.1. The remoteness from a metropolitan area and low population density of many counties in eastern Montana can be seen in Figures 2.2 and 2.3.

Figure 2.2 on the following page shows rural-urban continuum codes for each of Montana's counties. Rural-urban continuum codes, developed by the Economic Research Service, "form a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area or areas" (Economic Research Service 2003b). The distribution of rural-urban typologies reveals that many counties in eastern Montana are rural (lacking a town with at least 2,500 inhabitants) and few are adjacent to a metropolitan area.<sup>4</sup> These counties are also distant from any urban settlements of at least 20,000 people. Most counties in western Montana have an urban settlement of at least 2,500 people, and there is generally not as much distance between larger population centers.

The map of 1995 population density shown in Figure 2.3 illustrates the sparsely populated nature of much of eastern Montana. Many of the eastern counties have a

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<sup>4</sup> There are only three metropolitan areas in the state of Montana: Billings MSA (Yellowstone and Carbon counties), Great Falls MSA (Cascade County), and Missoula MSA (Missoula County).

Figure 2.2: Rural-Urban Continuum Codes

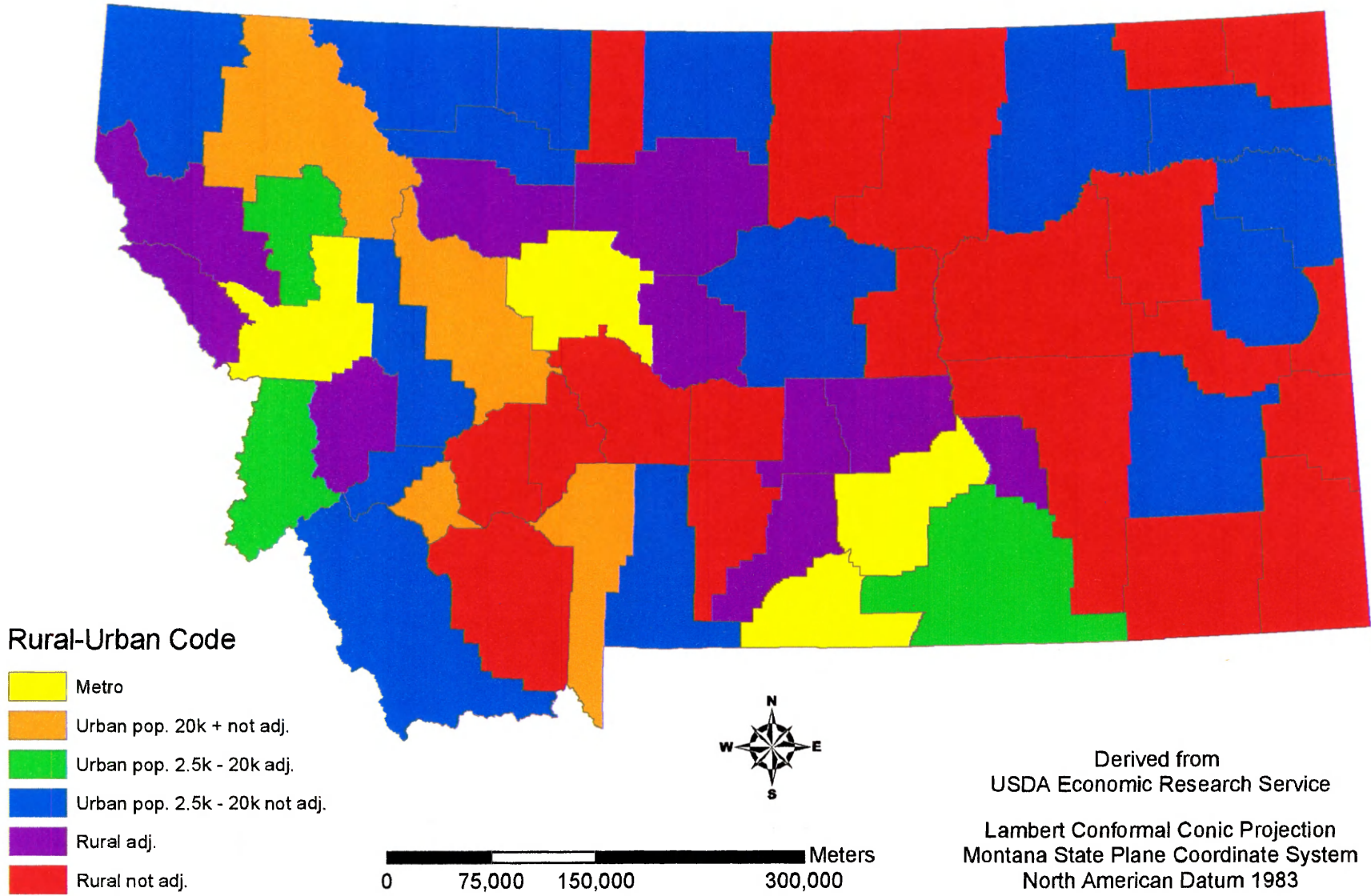
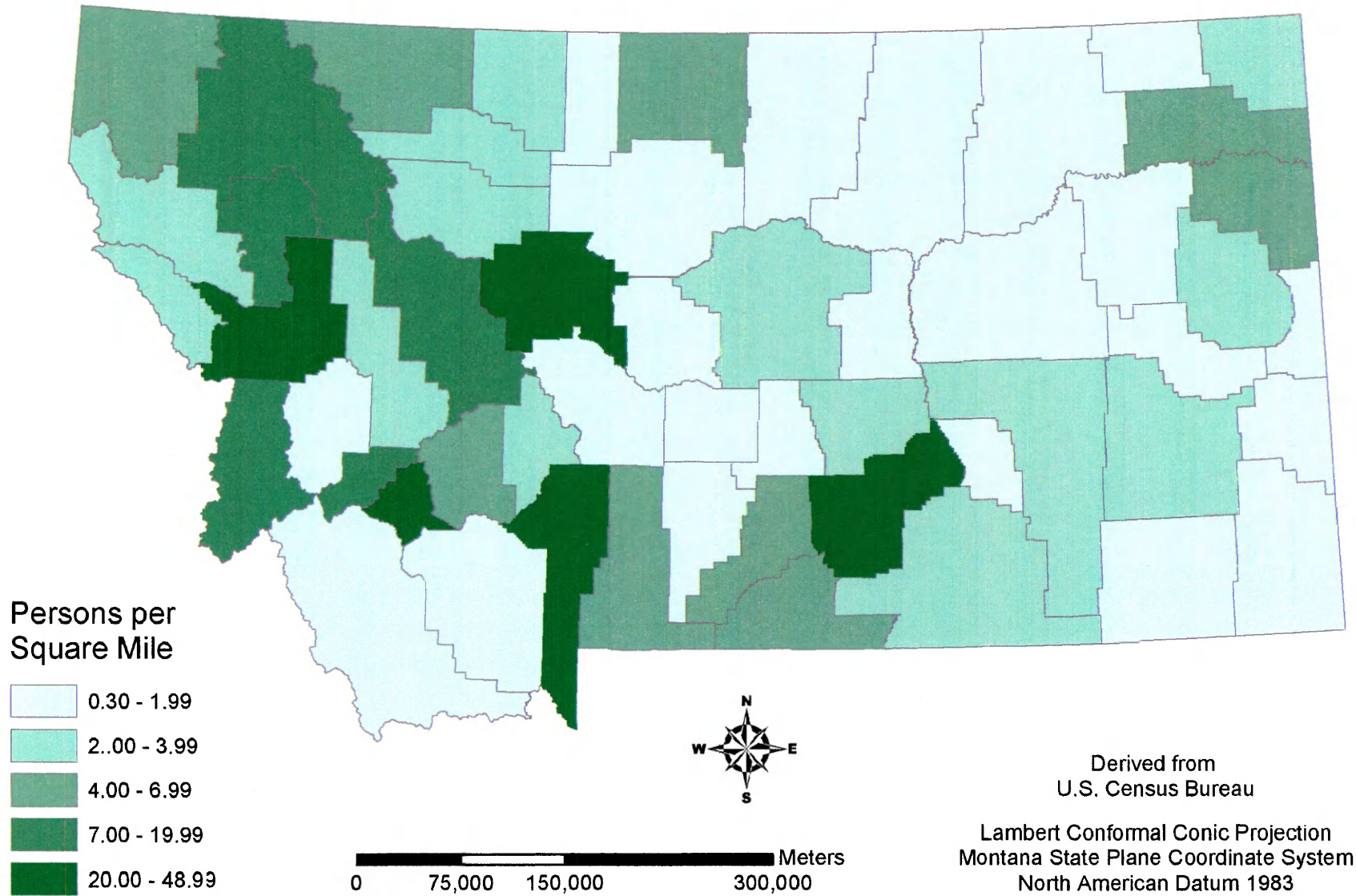




Figure 2.3: 1995 Population Densities



density of less than two persons per square mile. Very few counties have a population density that exceeds four persons per square mile. Although population density in the west is also very low by national standards (U.S. population density is approximately 83 persons/mi<sup>2</sup>), counties in this part of the state are more densely settled than in the east.

Remoteness from a metropolitan area, low population density, and a lack of natural amenities are characteristic of many other counties throughout the Great Plains, a region that has lagged behind population advances in other parts of the U.S. for more than a half-century. Research conducted by Rathge and Highman (1998, 19-20) showed that over two-thirds of all counties in the Great Plains declined in population between 1950 and 1996. Although the population of metropolitan areas in the region increased nearly 4 million between 1950 and 1996, the nonmetropolitan population declined by 5 percent. Rural nonmetro counties witnessed the greatest losses during this period. These counties, which make up over half of all counties in the Great Plains, lost over one-third of their population between 1950 and 1996.

Population loss in the Great Plains is often attributed to the region's dependence on agriculture. Farming provides a significant source of income for most nonmetro counties in the Great Plains. Over the years, commodity-price cycles and technological changes have contributed to economic instability and decline in many areas specializing in agricultural production (Power 1996, 12). As a result of technological advancements that have increased production and efficiency, there has been a dramatic increase in average farm size and a concurrent decrease in the demand for agricultural labor. The lack of employment opportunities in agriculture has been a major impetus for

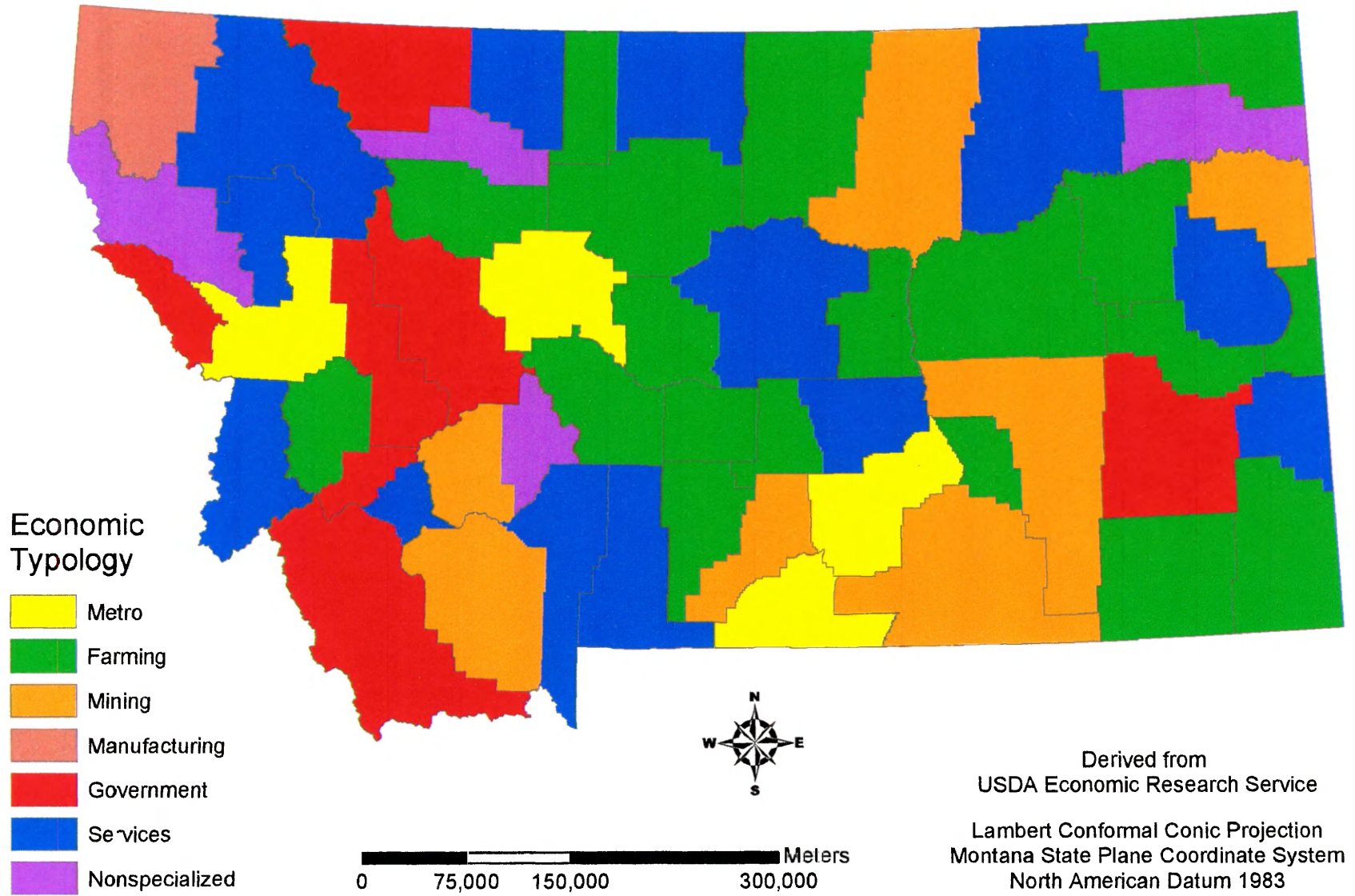
outmigration from farm-dependent counties (Rathge and Highman 1998, 20; Cromartie 1998, 31). As farm population has declined, so has the demand for services provided in nearby communities. The result has been further employment loss and outmigration (Rathge and Highman 1998, 20).

In some parts of the Great Plains, mining provides an alternative industry to agriculture. However, jobs in mining have been decreasing since the early 1980s (Cromartie 1998, 28). Consequently, counties heavily dependent on mining also lost population during the 1990s (McGranahan and Beale 2002, 6).

Figure 2.4 on the following page shows the Economic Research Service typology codes for each of Montana's counties. This classification system identifies the primary economic activity in nonmetropolitan counties. The ERS assigns one of six economic typologies to all nonmetro counties based on sources of labor and proprietors' income: farming (20 percent or more), mining (15 percent or more), manufacturing (30 percent or more), government (25 percent or more), services (50 percent or more), or nonspecialized (Economic Research Service 2003a). As shown in the map on the following page, most of the counties in eastern Montana are classified as either farming-dependent or mining-dependent. The state's western region exhibits a more diverse economic structure. Granite County is the only county west of the Rocky Mountain front that is classified as farming-dependent.

As jobs in agriculture and mining have been lost, viable employment opportunities have been scarce in many parts of the Great Plains, particularly for those who are highly skilled and educated. Employers in need of specialized labor are unlikely

Figure 2.4: Economic Typology Codes



to locate in these locations because the pool of skilled labor is small. Therefore, job opportunities for skilled workers in remote, sparsely settled locations are very limited (McGranahan and Beale 2002, 4). As workers continue to migrate out of these areas, the pool of skilled labor becomes even smaller, and the downward economic and demographic trends are intensified.

Not all parts of the Great Plains experienced population decline or stagnation during the 1990s. Many of the region's metropolitan areas witnessed growth, indicating a regional trend counter to the deconcentration found in other parts of the U.S. Some nonmetro counties adjacent to growing metropolitan areas also experienced population increases during the 1990s, as suburban territory expanded and long-distance commuting increased. In addition to growth associated with urbanization, a small number of counties experienced population increases driven by natural amenities. Although natural amenities are scarce in most of the Great Plains, some counties near the Rocky Mountain front and in southern regions witnessed amenity-related growth (Cromartie 1998, 29-32).

### **1995-2000 Migration in Montana**

Similar to other states in the Mountain census division, migration to and from the state of Montana during the 1995-2000 interval was quite substantial. Montana's gross migration rate<sup>5</sup> of 27 per 100 of the 1995 base population was the eighth highest in the nation. A gross migration rate of this magnitude is indicative of significant population change in a state. However, because the approximated number of immigrants (111,530) to Montana was nearly equal to the approximated number of outmigrants (116,696), the

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<sup>5</sup> Gross migration rate is the total number of immigrants and outmigrants per 100 of the approximated 1995 population.

numerical effect of migration on the state's population was rather small. The 1995-2000 net internal migration rate<sup>6</sup> for the state of Montana was  $-.61$  per 100 of the 1995 base population (U.S. Census Bureau 2003b, 3).

Figure 2.5 shows Montana's county-level gross internal migration rates for the 1995-2000 interval calculated from U.S. Census Bureau (2002; 2003d) data. County gross migration rates for the 1995-2000 interval ranged from a low of 29.13 in Glacier County to a high of 65.31 in Gallatin County. The map reveals that gross migration rates were higher in western and southwestern Montana than in the eastern and northern portions of the state. Most of the counties in the west and southwest had gross migration rates above 50 per 100 of their estimated 1995 base populations. These data indicate significant potential for migration-induced changes in most of Montana's counties, particularly those in the mountainous west and southwest.

Net migration rates calculated from U.S. Census Bureau (2002; 2003d) data are displayed in Figure 2.6. Only 15 of Montana's 56 counties had positive rates of net migration for the 1995-2000 interval. Nearly all of the counties in the eastern and northern portions of the state incurred net losses of migrants. Among these was Prairie County, which had the state's highest rate of net outmigration ( $-24.49$ ). Counties that witnessed net immigration are concentrated in the west and southwest. Ravalli County, with a net migration rate of 12.13, had the highest rate of net immigration in Montana.

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<sup>6</sup> Net migration rate is the difference between the number of immigrants and the number of outmigrants per 100 of the approximated 1995 population.

Figure 2.5: 1995-2000 Gross Migration Rates

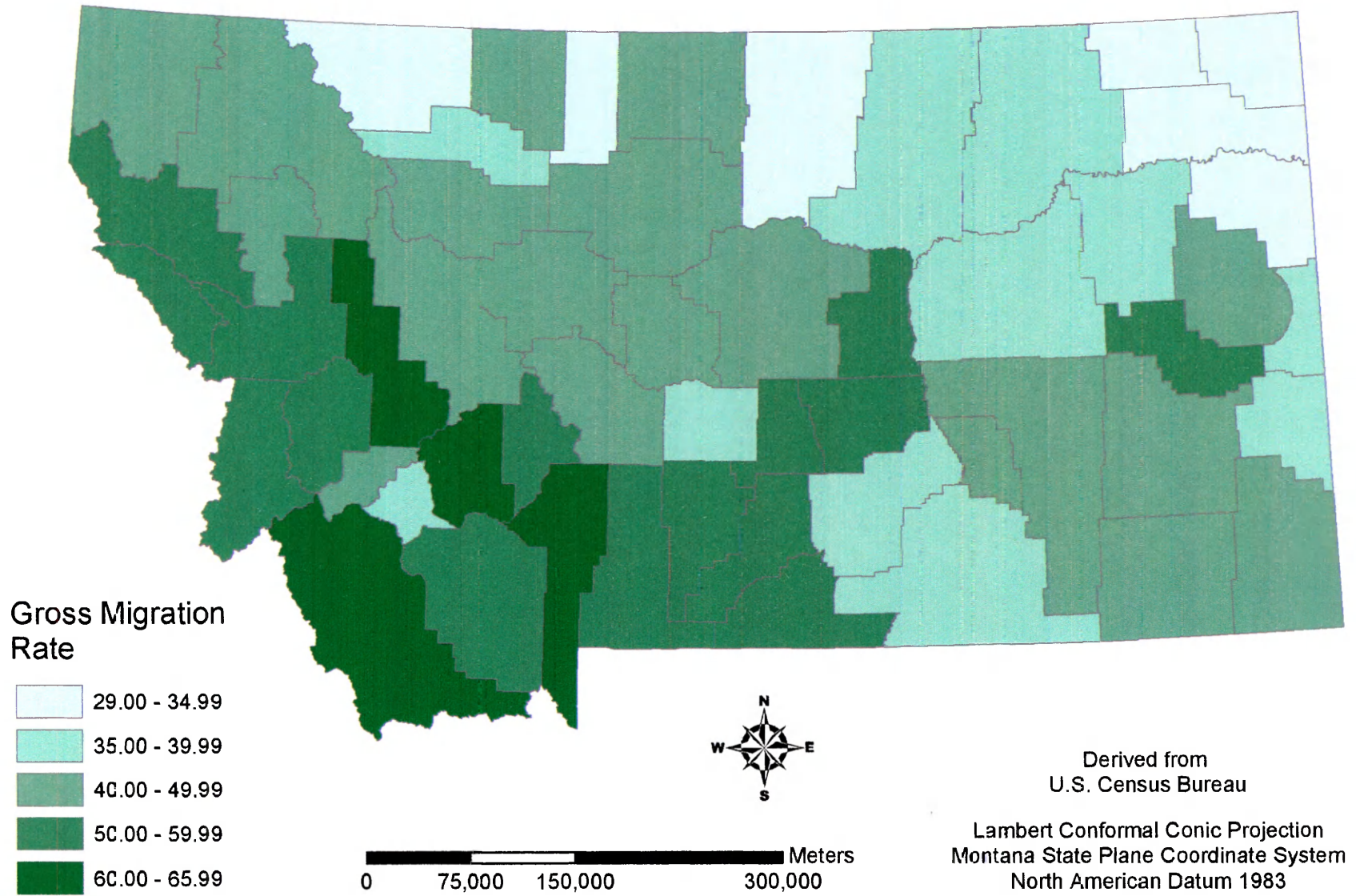
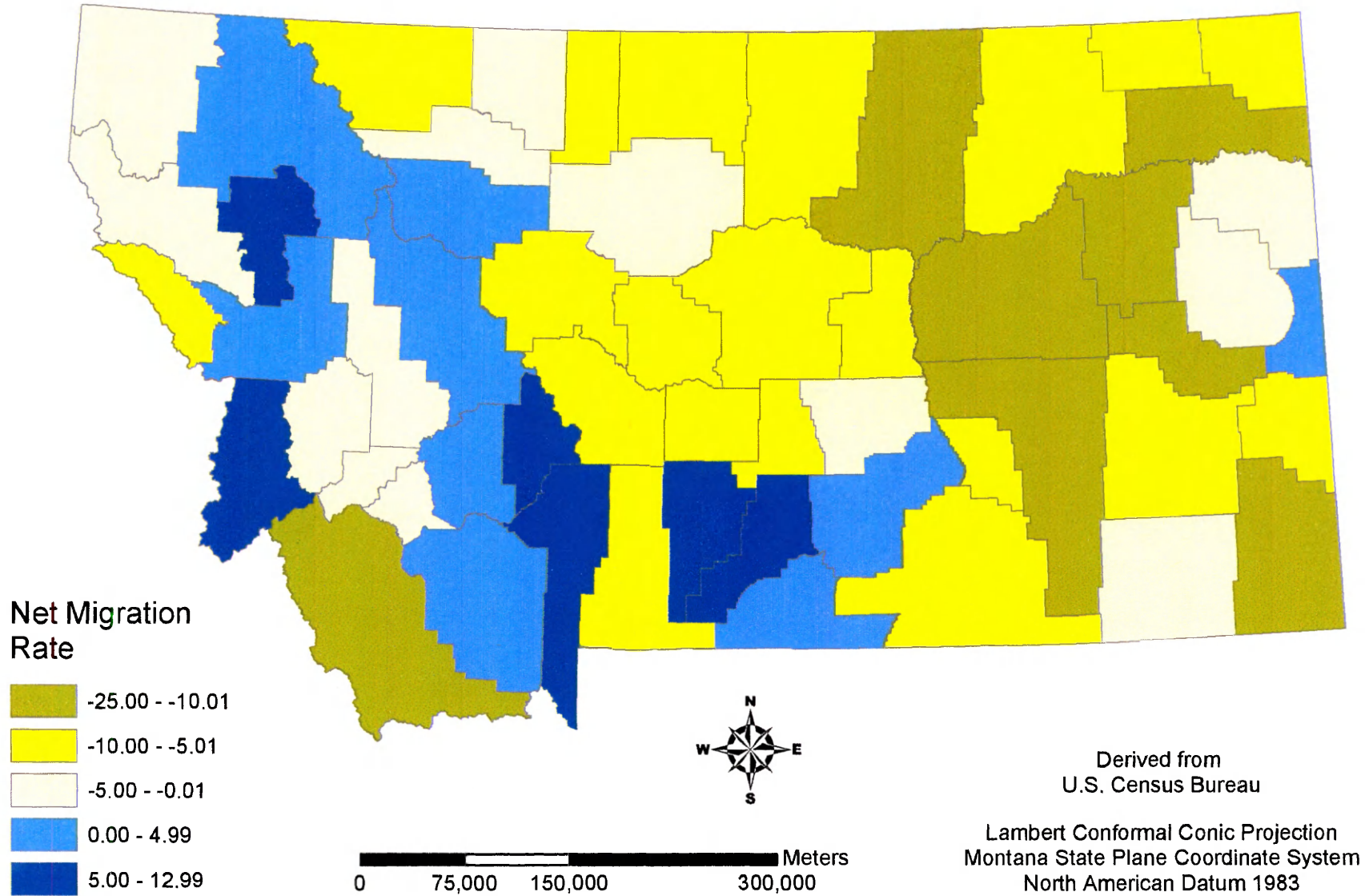


Figure 2.6: 1995-2000 Net Migration Rates





### **Migration and Socioeconomic Change**

When examining migration patterns, it is important to note that the process of migration is generally selective, and therefore certain segments of the population are more mobile than others. Based on these general patterns of migrant selectivity, areas experiencing net immigration should logically expect an influx of persons who possess attributes associated with high mobility. Areas of net outmigration, conversely, should expect a loss of such persons. However, the type and degree of selectivity affecting migration streams can vary considerably from one location to another (Bogue 1969, 795). These location-specific patterns of selectivity are influenced by the combination of physical, social, and economic attributes present in a given area.

As discussed above, state and county gross migration figures for Montana are indicative of significant population movements during the 1995-2000 interval. Although the numerical effects of migration on the population of the state and a number of counties was not great, high rates of gross migration suggest the potential for noteworthy changes in the socioeconomic structure of these populations. Any assessment of migration-induced socioeconomic change therefore requires an analysis that goes beyond the examination of sheer numbers of migrants; the attributes of non-migrants, immigrants, and outmigrants must also be considered. The socioeconomic compositions of these groups may play a greater role in determining change in a local area than the sheer number of individuals moving to or from the area (Cromartie and Nord 1997, 41).

The relationship between migration and socioeconomic change has often been examined in the context of human capital, which may be broadly defined as the

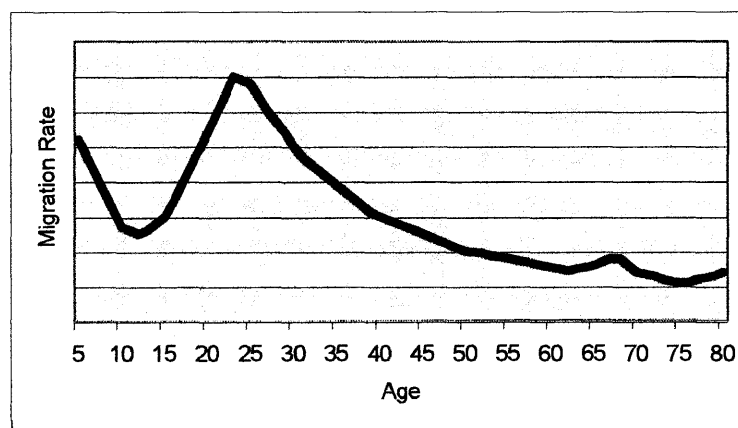
productive capacity of an individual. Consideration of the human capital of both migrants and non-migrants is important because of its role in determining incomes, tax revenues, and the overall economic well being of an area. The flow of human capital may be more or less than the number of individuals present in a given migration stream, and therefore the net flow of human capital may be greater or less than the net flow of migrants. Such flows may even be in opposite directions (Krieg 1991, 69, 75; Laber 1973, 224; Sjaastad 1962, 80-81).

Consideration of the socioeconomic characteristics of migrants and non-migrants is also significant in the context of community cohesion. Diversification resulting from an influx of persons with different socioeconomic and cultural characteristics can invigorate a community. However, migrants with different socioeconomic or cultural attributes may not experience a smooth assimilation. Heterogeneity in interests, values, and lifestyles resulting from differences between immigrants and established residents can potentially contribute to conflicts in a community and inhibit social integration (Stinner and Toney 1980, 314, 328-329).

The following sub-sections provide an overview of migrant selectivity as it pertains to the four socioeconomic attributes considered in this research: age, educational attainment, occupation, and income. For each of these characteristics, general patterns of migrant selectivity are first addressed. Studies of migration and socioeconomic change are then detailed in the contexts of both general and location-specific selectivity.

### *Migration and Age*

Of the personal attributes associated with migration propensity, the most significant is age. A generalized age schedule of migration is illustrated in Figure 2.7. This figure shows a clear peak in migration rates among persons in their early to mid-twenties. Migration propensity begins to decline in the late twenties and early thirties. This decline continues throughout the middle and later adult years, with a small peak in mobility at retirement age. Among those under the age of 18, young children are more likely to migrate than teenagers because they generally have younger, more mobile parents. This pattern of age migration differentials has been well established in the literature (Lansing and Mueller 1967, 39-42; Long 1988, 37-40; Pandit 1997, 439; Plane 1992, 68-69; Rogers, Raquillet, and Castro 1978, 475-502; Thomas 1958, 314-322).



**Figure 2.7: Generalized Age Schedule of Migration**

High mobility among the young adult population is typically attributed to moves associated with attending college, establishing a career, and forming a family (Long

1988, 38). Another reason young adults are more mobile may be because they are at an earlier stage in the family life cycle and are less likely than older adults to have a spouse or children. The costs (both monetary and non-monetary) associated with moving are greater for a married couple than a single adult. These costs are greater yet for a family with children and likely increase as the children establish their own ties to the community, especially at school. This explains why parents with young children are more mobile than those with older children (Lansing and Mueller 1967, 43).

Those who take a human capital approach to migration provide an additional explanation for increased mobility among young adults. Migration is one means by which an individual can invest in his or her stock of human capital in order to increase earnings. Younger persons, who have more working years ahead of them than older adults, can anticipate a higher return on such an investment. In an economic sense, then, migration may be considered more advantageous for young adults (Schultz 1961, 4; Sjaastad 1962, 83-90).

The age composition of migration streams can have a significant impact on the social and economic viability of an area. Net immigration logically entails increased needs for housing, roads, sidewalks, water, sewer, utilities, and other services. However, the age composition of immigrant populations is also of importance because of the specific needs and impacts associated with a given age group. An influx of young adults may require economic expansion to provide employment for an increased number of working age persons. Immigration of young children will increase needs for educational resources, day care, and pediatric medical care. Net outmigration of young adults and

young children will result in decreased needs for new housing, new jobs, and educational services in an area. As such communities become increasingly aged, demands for health care and public transportation are likely to grow. Existing housing may become inappropriate as smaller households predominate. In addition, it may be necessary to train local workers or recruit outside workers to offset a labor deficit (Deavers and Brown 1980, 53-55).

In accord with the general pattern of age selectivity, many studies of migration and socioeconomic change have shown immigrants to be younger than established residents living in the destination area. Research by Stinner and Toney (1980, 324-326) revealed that recent migrants to eight rapidly growing Utah communities were generally younger and in earlier stages of the family life cycle than established residents. In a study of population change in the nonmetro Northwest, Nelson (1997, 423-428) found that newcomers of metropolitan origin were an average of four years younger than residents of nonmetro origin. Leistritz et al. (2001, 280-283) discovered that immigrants to North Dakota and Nebraska during the mid-1990s were notably younger than the general populations of these states. The percentage of immigrants under the age of 40 was far greater than the percentage of established residents below this age, while persons 60 and older were found in much greater shares among prior residents. Similarly, longitudinal studies of migration to Montana's Gallatin Valley revealed that immigrants were primarily young and early middle-aged adults (Jobes 2000, 105-106).

Because residential preferences may be influenced by age (Zuiches 1980, 176-178), locational attributes play an important role in determining spatial patterns of age

selectivity in migration flows. Specialized patterns of age-specific migration may develop in certain areas, such as retirement communities. Other areas with high levels of residential amenities are also likely to attract older migrants. Locations with institutes of higher education typically experience significant influxes of persons in their late teens and early twenties, many of whom relocate to other areas once their studies are complete. Metropolitan areas with diverse job opportunities often attract large numbers of young adults entering the labor force (Muessser, White, and Tierney 1988, 58-60).

An analysis of the effect of migration on nonmetro population age structures conducted by Fuguitt and Heaton (1995, 217-222) revealed that in each decade between 1960 and 1990, there was a net immigration of young adults to metropolitan areas and a corresponding net outmigration from nonmetro areas. Even during the 1970s, when nonmetropolitan counties witnessed net immigration among most age cohorts, there was a net loss of young adults to metro areas. Salant, Dillman, and Carley (1997, 6-11) substantiated the positive association between migrant age and nonmetro destination in a study of migration to Washington State in the mid-1990s. Their results showed that migrants to nonmetropolitan areas were, on average, about three years older than those moving to metro areas.

Due to a smaller population base, age selective migration can have a particularly significant impact on the structure of nonmetropolitan counties. Fuguitt and Heaton (1995, 217-222) found that patterns of age selectivity in migration flows increased both

youth and elderly dependency ratios<sup>7</sup> in nonmetro areas for each of the ten-year periods between 1960 and 1990. Metropolitan counties, conversely, witnessed slight decreases in dependency ratios as a result of migration. Disaggregation of nonmetro counties by typology showed, quite expectedly, that nonmetro college counties experienced significant net gains among persons in their late teens and early twenties, but had a fairly high rate of net outmigration among those in their late twenties and early thirties. Persons aged 60 and over were predominant in migration streams to counties with considerable natural amenities and other quality of life factors sought by retirees (designated by the ERS as retirement destinations). As a result, there was a relative decline in the concentration of young adults in these counties. Throughout the 1960-1990 period, the net outmigration of young adults from agricultural counties was considerably more pronounced than for nonmetropolitan counties as a whole. These counties witnessed the most marked increases in dependency ratios as a result of migration.

Outmigration of young adults in their late teens and twenties and the attendant loss of human capital is a phenomenon that has affected many counties in the Great Plains, particularly those classified as farming-dependent. As young adults leave these counties, the median age of the non-migrant population increases. Nearly half of all counties in the Great Plains that experienced continuous population decline between 1950 and 1996 had a median age over 35 years. This pattern of outmigration is detrimental to the economic viability of these areas and has led to natural decrease in some counties (Rathge and Highman 1998, 21-25).

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<sup>7</sup> The youth dependency ratio is the number of persons under the age of 15 divided by the population 15-64 times 100. The elderly dependency ratio is the number of persons 65 and over divided by the population 15-64 times 100.

### ***Migration and Educational Attainment***

Educational attainment is another socioeconomic attribute linked to differential migration propensities. There is a positive association between education and migration, and therefore highly educated persons are more likely to migrate than those with less education. This relationship becomes more pronounced as the distance of a move increases (Bogue 1969, 769-770; Lansing and Mueller 1967, 43-44; Long 1973, 244-254; Long 1988, 42-45; Schwartz 1973, 1165).

A number of factors likely contribute to increased migration propensity among persons with higher levels of education. By itself, college attendance often induces migration. Once in a college setting, students are typically exposed to new people, places, and ideas (Long 1988, 41). Such exposure increases the amount of information about potential destinations available to those pursuing a post-secondary education. In addition, an education contributes to a person's ability to access and analyze information, which is a significant aspect of the migration decision-making process (Schwartz 1973, 1160).

Another explanation for the association between education and migration may lie in the fact that education increases a person's human capital and improves competitive advantage. Those with higher levels of educational attainment typically have opportunities for employment in a variety of geographical areas (Long 1988, 41). Furthermore, segments of the population with higher levels of education typically operate in labor markets with greater geographical breadth and are more likely to migrate across labor market boundaries in order to obtain employment (Lansing and Mueller 1967, 44).



A major reason that educational attainment is of concern in migration studies is because it is an important component of human capital. Educated migrants may bring intellectual and other resources to an area, providing opportunities for economic growth (U.S. Census Bureau 2003c). Therefore, the education levels of immigrants and outmigrants can significantly impact a given area.

In the Utah communities examined by Stinner and Toney (1980, 324-326), recent immigrants had higher levels of educational attainment than established residents. While over 62 percent of recent immigrants had at least some post-secondary education, only 46 percent of earlier migrants and 42 percent of native-born persons had attained this level of education. Leistriz et al. (2001, 280-283) found that college graduates comprised about 47 percent of immigrants aged 25 and older to North Dakota and 44 percent of those who moved to Nebraska. Only 28 percent of North Dakotans and 24 percent of Nebraskans aged 25 and over had a college degree at the time of the 1990 census. The results of a study by von Reichert (2002, 138-140) showed that over 35 percent of migrants to Montana surveyed during the mid-1990s were college graduates, and an additional 31 percent had some post-secondary education. Comparatively high levels of educational attainment were also found among immigrants in Jobes' (2000, 105-107) studies of migration to the Gallatin Valley. His research revealed that over 75 percent of immigrants to this region had some post-secondary education; most of these persons held a bachelor's degree.

Prior research on location-specific selectivity indicates that migrants to metropolitan areas generally have higher levels of educational attainment than those

moving to nonmetro areas. Tucker (1981, 33-35) found that although there was a net immigration of approximately 120,000 persons aged 25 and over to nonmetro areas during the 1965-1970 interval, these gains were confined to those without a college degree. Nonmetro areas witnessed a net loss of about 93,000 college graduates during this period, most of whom were younger adults aged 25-34. During the 1970-1975 interval, nonmetropolitan areas experienced a net immigration of approximately 23,000 persons with a college degree, yet continued to lose college graduates in the 25-34 cohort. Due to more significant gains among persons with less education, migration between 1970 and 1975 actually resulted in a decreased concentration of college graduates in nonmetropolitan areas.

Frey (1979, 229-235) examined the effect of migration on the educational composition of selected metropolitan populations during the 1955-1960 and 1965-1970 intervals. He discovered that both growing and declining metropolitan areas typically experienced net immigration of college graduates in their exchanges with nonmetro areas. However, overall net gains of college graduates were much greater in the growing sunbelt metropolitan areas. Much of the net immigration of college graduates in these metro areas was the result of intermetropolitan migration. Declining metropolitan areas in the North did not fare nearly as well in their exchanges with other metro areas. Although many of these areas witnessed net losses of college graduates in intermetropolitan streams, these losses were generally offset by gains from nonmetro areas.

Salant, Dillman, and Carley (1997, 6-11) provided further evidence that highly educated migrants are more likely to gravitate toward metropolitan areas. Approximately

43 percent of metropolitan migrants in their Washington State study had graduated from college. However, only about one-third of those moving to nonmetro areas had a college degree. Immigrants to metro areas in the survey conducted by Leistriz et al. (2001, 280-283) were also shown to have higher levels of educational attainment than their nonmetro counterparts.

In an analysis of regional differences in the education selectivity of migrants aged 25-34, Long (1988, 173-186) discovered a widespread positive association between years of school completed and the propensity to migrate to another census division. Still, however, the education levels of interdivisional migrants reflected those of the population in their division of origin. Consequently, some migrant streams (typically those from New England and the East North Central) had higher levels of educational attainment than others (typically those from the East South Central and West South Central). Taken individually, migration in each of the five-year periods examined by Long had a rather small impact on the education levels of the population in any given division. As he noted, however, such changes can accumulate and have significant effects over time.

### ***Migration and Occupation***

Prior research has also established a relationship between occupation and mobility. Skilled workers, particularly professionals, have greater migration propensity than those employed in less skilled professions. In addition, professionals and other white-collar workers are generally more likely to undertake a long-distance move than persons employed in blue-collar occupations (Barff, and Renard 1993, 173-175; Ladinsky 1967a, 479-482; Long 1973, 255-256). However, increased mobility among professional

workers applies only to those who are salaried. Due to capital investments and established clienteles, self-employed professionals and proprietors of businesses generally have low migration rates (Ladinsky 1967a, 486-490; Ladinsky 1967b, 255-258; Long 1973, 248-251).

Increased migration propensity among those employed in professional and kindred occupations is typically attributed to labor markets of greater geographic extent for such workers. While unskilled labor typically operates in a local market, job openings for those in specialized occupations are more likely to be spatially dispersed (Kleiner 1982, 43). For those employed in organizations with flat hierarchies, a change in organization and attendant migration may be a necessity of career advancement (Ladinsky 1967a, 486-487; Ladinsky 1967b, 255-258). Highly skilled professionals employed by large firms can often advance their career within the organization. Yet, this may require a transfer from one location to another (Ellis, Barff, and Renard 1993, 169). In either case, the skilled nature of professional occupations contributes to increased mobility among these workers, as well as a greater tendency to engage in long-distance migration.

Because migration is selective of professional workers, immigrant populations often have higher rates of employment in these occupations than established residents. Nelson (1997, 423-428) discovered that metro-origin migrants to the nonmetro Northwest had comparatively high rates of employment in professional services. Residents of nonmetro origin, conversely, were more likely to be employed in agriculture and manufacturing occupations. Similarly, Jobs (2000, 106-107) found a relatively high rate

of employment in skilled occupations among migrants to the Gallatin Valley who participated in his studies.

In his analysis of migration flows affecting selected metropolitan areas during the 1955-1960 and 1965-1970 intervals, Frey (1979, 229-235) also examined location-specific selectivity with regard to occupation. His results demonstrated that metro-nonmetro migration exchanges generally resulted in net gains of professionals in both growing and declining metropolitan areas. Similar to his findings regarding education, Frey observed that overall net gains of professionals were much greater in growing sunbelt metro areas. This was due to considerable influxes of professionals from other metropolitan areas. Declining metro areas in the North, many of which lost professionals in intermetropolitan streams, typically had these losses offset in their exchanges with nonmetro areas.

A recent study of occupational migration showed that employment opportunities for highly skilled workers have become increasingly clustered in certain labor market areas, particularly those with larger labor forces (Reisinger 2003, 389-393). Such clustering has had a notable influence on the migration patterns of persons employed in these occupations. During the 1985-1990 interval, over 62 percent of migrants employed in executive, administrative, and managerial occupations relocated to one of the nation's fifty largest labor market areas (out of 382 total LMAs). The percentage of other white-collar migrants who moved to these labor market areas was also quite high. Migrants in blue-collar occupations were not nearly as likely to relocate to these areas. For example, less than 45 percent of migrants employed as machine operators, assemblers, and

inspectors relocated to one of the fifty largest labor market areas. The spatial clustering of employment opportunities had less influence on the migration of these and other blue-collar workers.

### ***Migration and Income***

While age, education, and occupation have been established as significant predictors of mobility, no clear association between income and migration behavior has been ascertained. Due to the strong association between age and mobility, migrants tend to be younger and less established in their careers than non-migrants. Therefore, the income levels of migrants are often lower than those of non-migrants (Shumway and Otterstrom 2002, 85).

It has been observed that persons in chronic poverty have low migration rates because they are unable to finance a move. However, many of those in the highest income brackets also have low mobility rates. Location-specific capital, such as a business or professional practice, may tie such persons to their current residence (Long 1988, 41).

Analysis of survey data by Lansing and Morgan (1967, 453, 460) showed that the earnings of migrants were no higher than non-migrants. Their results suggested that, if anything, there was a negative association between mobility and income. Bogue (1969, 771) found that income differentials between migrants and non-migrants were less consistent than education and occupation differentials. The average income of migrant household heads in his study was significantly higher than that of non-migrant household heads, yet those in the highest income category exhibited below average mobility.

Whether migrants have higher or lower incomes than non-migrants, the impact of migration on local income can be quite significant. Aggregate and per capita income levels are affected not only by the number of people moving into and out of an area, but also by the differential incomes of immigrants, outmigrants, and non-migrants. Furthermore, migration can change the relative incomes among areas through both the number of persons, as well as the per capita income of those in various streams and counterstreams (Shumway and Otterstrom 2002, 85, 91).

Manson and Groop (1999, 68-72) examined the relationship between county-level migration and income flows using IRS data for the 1992-1993 interval. As expected, their analysis of counties in the 48 contiguous states revealed a high correlation between migration effectiveness and income effectiveness.<sup>8</sup> Therefore, only minor differences emerged between these two measures in most counties. In a number of counties, however, there were considerable discrepancies between migration effectiveness and income effectiveness. Central counties of large metropolitan areas generally experienced the greatest migration-induced income losses. These losses were even more substantial than losses of migrants from such counties. The greatest income gains due to migration occurred in fringe counties of large metro areas, which gained income at an even greater rate than migrants. Many high-amenity, nonmetropolitan counties also witnessed income gains far greater than migrant gains. Nonmetro counties in the Great Plains generally lost both people and income as a result of migration.

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<sup>8</sup> Migration effectiveness is used as a measure of actual population change resulting from migration into and out of a region; i.e., the efficiency of migration streams in producing a change in population. Similarly, income effectiveness is used as a measure of actual income change resulting from migration into and out of a region.

Cromartie and Nord (1997, 40-42) conducted a similar study of migration and income flows. They examined the effect of migration during the 1992-1995 period on per capita income in nonmetropolitan counties. In accord with the results of Manson and Groop, this study showed that many nonmetro counties with significant migration-induced gains in per capita income were located on the fringes of expanding metropolitan areas. Many high-amenity counties also witnessed increases in per capita income as a result of migration. Some of the greatest gains were concentrated in the intermountain West. Nonmetro counties in which migration resulted in declining per capita income were predominant in the Great Plains, the Corn Belt, and western Appalachia.

Inmigrants to counties experiencing high rates of net immigration generally had higher incomes than outmigrants who left these areas. In counties experiencing net outmigration, immigrants typically had lower incomes than outmigrants. Per capita income in counties designated as farming-dependent or mining-dependent generally declined or increased minimally as a result of migration. Service-dependent counties, conversely, witnessed significant migration-induced gains in per capita income. Such income gains were most notable in counties designated as retirement destinations, as well as those with a concentration of federal lands<sup>9</sup> (Cromartie and Nord 1997, 43-45).

In an analysis of differential population and income flows in the Great Plains during the 1995-1998 interval, Vias and Collins (2003, 237-239) found that most counties in the region incurred losses of both people and income as a result of migration. For many counties, the per capita income levels of outmigrants were higher than the per

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<sup>9</sup> Retirement-destination counties and federal lands counties are policy types designated by the ERS. Such policy types overlap and are separate from the six economic types.



capita income levels of immigrants. As a result, numerous counties experiencing outmigration lost income at an even greater rate than people. A significant number of counties that witnessed net immigration gained income at a lesser rate than people.

Nonmetro Great Plains counties both adjacent and nonadjacent to metro areas experienced losses of income greater than people. However, the disparity between these two figures was notably greater in nonadjacent counties. Disaggregation by economic typology showed that only in counties dominated by government employment were income losses of a lesser magnitude than migrant losses. Mining-dependent and farming-dependent counties fared the worst (Vias and Collins 2003, 241-248).

These results indicate that the economic impacts of migration for many counties in the Great Plains are even worse than an analysis focused solely on population flows would suggest. For much of the region, the negative effects of outmigration are exacerbated by even greater losses of income associated with these migration flows. The shrinking tax base resulting from such a situation could make it difficult for some communities to provide necessary services for the local population. In addition, a decreasing demand for local goods and services will have negative repercussions in the business community (Vias and Collins 2003, 243-249).

The movement of persons with nonemployment income is of distinct significance in the study of migration and income flows. When recipients of nonemployment income migrate, the funds generally move with them, affording recipients greater freedom to relocate. The growing significance of nonemployment income in the United States has been cited among the economic factors contributing to metro-nonmetro migration. Given

the economic freedom to do so, many people with substantial nonemployment incomes have chosen to relocate to high amenity nonmetro areas in the West. Nelson's (1997, 423-428) study of community change in the nonmetro Northwest showed that metro-origin immigrants received a greater proportion of their income from nonemployment sources than did residents of nonmetro origin, indicating the significance of these sources of income for recent migrants.

An influx of nonemployment income can be an important factor in stimulating economic growth in a region. In many rural areas, increases in nonemployment income have contributed to the development of service economies and helped to revitalize markets (Hirschl and Summers 1985, 128-130). Such economic growth can induce further immigration, as demonstrated in a Nelson and Beyers (1998, 313) study of income in the rural West. Their research revealed a significant positive association between nonemployment income and county net migration rates in the early 1990s.

Retirement income constitutes a significant proportion of all nonemployment income. The migration behavior of retirees is therefore of particular importance in an analysis of nonemployment income flows. Because retirees are more likely than others to spend their income locally, the economic impact of retirement migration may be even more pronounced than that of the general population (Sastry 1992, 63, 75).

### **Research Questions and Hypotheses**

Literature summarized in this chapter has illustrated differences between the Mountain West and the Great Plains with regard to natural amenities, economic structures, patterns of settlement, and migration trends. These regional disparities can be

seen within the state of Montana, as its western portion is located in the Mountain West and its eastern portion is located in the Great Plains. Census data revealed that these regions of the state experienced different patterns of gross and net migration during the 1995-2000 interval, which is the time period of concern in this study of migration and socioeconomic change.

High rates of 1995-2000 gross migration for the state of Montana and many of its counties indicate the potential for substantial socioeconomic changes at the state and sub-state levels. The nature and degree of these changes are dependent upon patterns of socioeconomic selectivity affecting migration streams and counterstreams, as well as the socioeconomic compositions of non-migrant populations. Literature pertinent to migration and socioeconomic change provides insight regarding both general and location-specific patterns of selectivity that may have affected migration flows to and from Montana and various regions of the state.

Literature addressing general patterns of migrant selectivity provides the basis for hypotheses regarding the first research question considered in this study: *How did the socioeconomic composition of established residents of Montana compare to the socioeconomic compositions of internal immigrants and outmigrants at the time of the 2000 census?* It is hypothesized that there were greater proportions of young adults and young children among immigrants and outmigrants than among non-migrants. Greater shares of older adults and older children/adolescents are expected among non-migrants. Higher levels of education and higher rates of management and professional employment

are anticipated among immigrants and outmigrants, while non-migrants are presumed to have had higher rates of blue-collar employment.

The second research question considered in this study is: *How did the compositions of these populations vary from one region to another within the state?*

Hypotheses regarding this question are based on literature on location-specific patterns of migrant selectivity. Due to the lack of natural amenities, rural nature, and economic structure of the Great Plains region of Montana, it is anticipated that both non-migrants and immigrants in this part of the state had comparatively high percentages of older adults, persons with lower levels of education, blue-collar workers, and those with low incomes. A substantial concentration of young adults is expected among outmigrants who left this region of the state. Natural amenities in the Rocky Mountain region are presumed to be a pull factor for retirees and persons with high incomes, resulting in notable segments of these populations among immigrants to parts of western Montana. As metropolitan areas were shown to attract young adults, the highly educated, and white-collar workers, greater proportions of these persons are expected among non-migrants and immigrants who resided in Montana's metro areas. It is also anticipated that non-migrants and immigrants in metro areas had higher incomes than those living in nonmetro areas. The presence of a major university is presumed to be influential in shaping patterns of selectivity that affected migration flows to and from Missoula and Gallatin counties.

The third research question considered is: *What was the net effect of 1995-2000 internal migration on the socioeconomic composition of Montana at the state and sub-*

*state levels?* Hypotheses regarding this question draw upon literature addressing both general and location-specific patterns of migrant selectivity. General patterns of migrant selectivity suggest that regions experiencing net outmigration can expect a loss of young adults and young children, the highly educated, and those employed in management and professional occupations. Since Montana experienced net outmigration during the 1995-2000 interval, a loss of these persons is anticipated at the state level. Due to general patterns of selectivity and other location-specific attributes, it is hypothesized that the Great Plains region of Montana incurred net outmigration of young adults and young children, the highly educated, managers and professionals, and those with higher incomes. Areas with net immigration are presumed to have had a net gain of these persons. Net immigration of retirees and high-income migrants is expected in areas with abundant natural amenities. A net influx of young adults, those with high levels of education, and white-collar workers is anticipated in metropolitan areas. It is presumed that the net effect of migration on the socioeconomic compositions of Missoula and Gallatin counties was greatly influenced by the movement of university students and recent graduates.

## CHAPTER 3

### METHODOLOGY

This chapter details the methodology employed to address the research questions. A description of the data is provided, followed by an examination of the geographic units used in the study. The procedures used to carry out the data analyses are then described.

#### **Data**

The data used in this study were derived from 5-percent files of the 2000 Public Use Microdata Sample (PUMS), compiled by the U.S. Census Bureau. These files include 5 percent samples of occupied and vacant housing units in the United States, as well as all persons in the occupied units (U.S. Census Bureau 2003a, 1.1). PUMS files were created by subsampling the full sample of housing units that received long form questionnaires in the 2000 census.<sup>1</sup> Records for over 14 million people and over 5 million housing units are included in the 5-percent files for the United States (U.S. Census Bureau 2003a, 2.2).

Microdata files, available in ASCII format, consist of housing unit records and person records structured in a hierarchical manner. Each 314-character housing unit record, which contains housing and geographic information, is followed by a variable

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<sup>1</sup> Approximately 15.8 percent of all housing units received long form questionnaires in 2000.

number of 314-character person records with information for each person in the household. A unique serial number is used to link each person in the sample to the appropriate housing unit record. A housing unit weight is included in each housing record, and a person weight is included in each person record. Applying these weights allows users to estimate population totals from the sample counts (U.S. Census Bureau 2003a, 3.1).

The PUMS data set is an excellent tool for socioeconomic and demographic studies of the U.S. population. The wealth of variables included in the data set provides users with the opportunity to analyze a variety of personal and housing characteristics. Data regarding age, sex, race, education, migration, occupation, income, and other individual attributes are included in the person records. Housing records contain information about the unit's value, rooms and facilities, heating and electricity costs, rent, mortgage payments, taxes, geographic location, and many other characteristics.

PUMS files contain a level of detail typically only found in user-designed surveys, but with a much larger sample size than is usually available in surveys. Since microdata files contain both socioeconomic and migration data for each person in the sample, they provide a means for comparing the attributes of migrants and non-migrants. Geographic information included in the files allows for examination of regional differences and the net effects of migration upon a given region.

As with any sample, the PUMS is subject to sampling error, which may be defined as "the deviation of a sample estimate from the average of all possible samples" (U.S. Census Bureau 2003a, 4.2). Such error arises whenever figures are derived from a

sample, rather than an entire population. As a result of sampling error, statistics produced using the PUMS differ somewhat from figures that would have resulted from the entire population of housing units and persons, or if a different sample of housing units and persons had been used.

Nonsampling error, which may occur during data collection and processing, affects both sample and 100-percent data compiled during Census 2000. One of the primary sources of nonsampling error is nonresponse, resulting in missing data for particular questions or entire housing units. Nonsampling error also results when respondents misunderstand a question or provide an answer that cannot be correctly interpreted. Other sources of nonsampling error include incorrect data collection or recording by enumerators, as well as processing error. Although such errors introduce bias, imputation and editing procedures were conducted by the Census Bureau to improve data accuracy. As a result, the PUMS files contain no missing data. Allocation flags in the data set indicate changes that have been made during the editing process (U.S. Census Bureau 2003a, 4.15-4.18).

### **PUMS Geography**

The 5-percent PUMS files are compiled at the state level. The Census Bureau further divides each state into geographic units known as Public Use Microdata Areas (PUMAs). These census-defined regions allow users to conduct analyses at a geographic scale finer than that of the state. In order to maintain confidentiality, PUMAs have a minimum population threshold of 100,000. A PUMA may consist of parts of counties in



highly populated areas. In sparsely populated areas, a PUMA may include a group of counties. A 5-digit number is used to identify PUMAs within each state. Each housing record in the 5-percent PUMS file contains a PUMA designation for residence at the time of the 2000 census. For those who moved during the 1995-2000 interval, a migration PUMA of origin is included in the person record (U.S. Census Bureau 2003a, 2.3-2.4).

The state of Montana is partitioned into seven different PUMAs, numbered 00100 through 00700. A map of the state's PUMAs is shown in Figure 3.1. PUMA 00100 comprises the four northwestern counties of Lincoln, Sanders, Flathead, and Lake. Ten counties in the north-central region make up PUMA 00200. PUMA 00300 includes most of eastern Montana, except Yellowstone County, which is designated as PUMA 00400. The southwestern portion of the state, from Beaverhead to Meagher counties, constitutes PUMA 00500. PUMA 00600 encompasses a seven-county area in mid-west Montana. The west-central counties of Mineral, Missoula, and Ravalli compose PUMA 00700. These seven PUMAs will be referred to as the Northwest, North-Central, East, Yellowstone, Southwest, Midwest, and West-Central regions of Montana.

Figures 3.2 and 3.3 show reproductions of the six county-level attribute maps from the previous chapter (natural amenity scores, rural-urban continuum codes, 1995 population densities, economic typology codes, 1995-2000 gross migration rates, and 1995-2000 net migration rates) with the state's PUMA boundaries displayed. The maps show that the North-Central (200), East (300), and Yellowstone (400) PUMAs correspond approximately with the portion of the state considered to be part of the Great

Figure 3.1: Public Use Microdata Areas of Montana

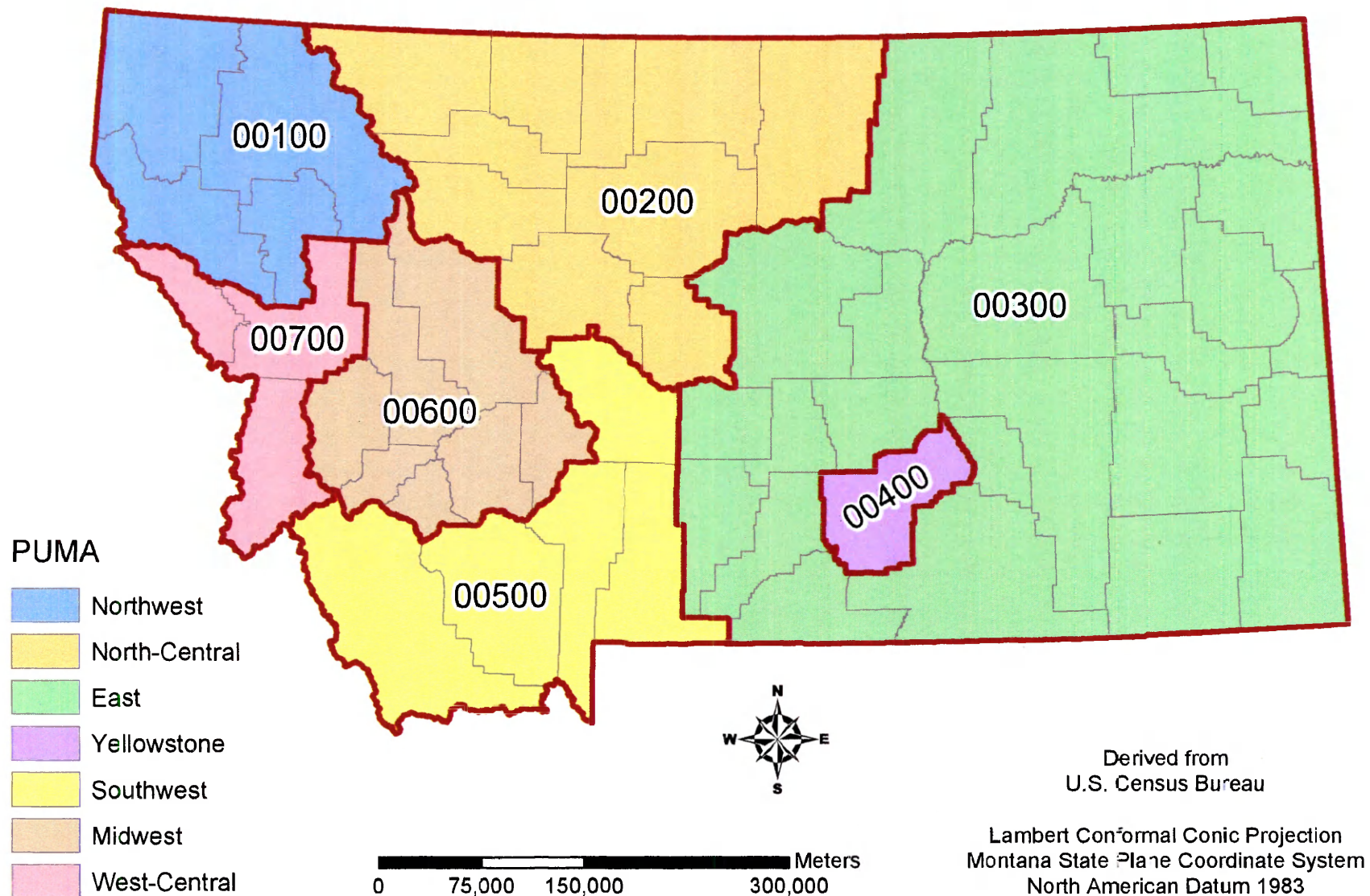


Figure 3.2: County-Level Attributes of Microdata Areas

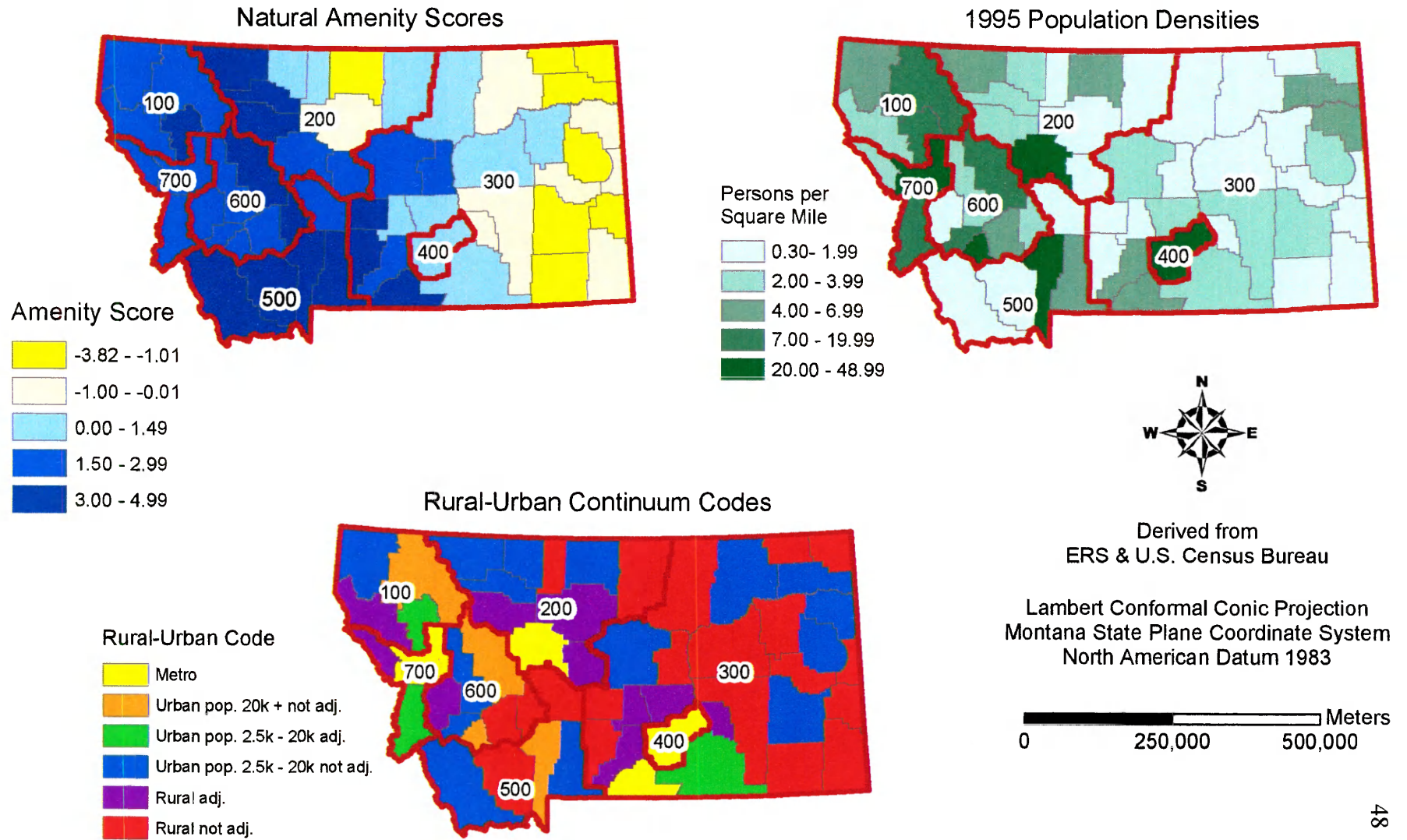
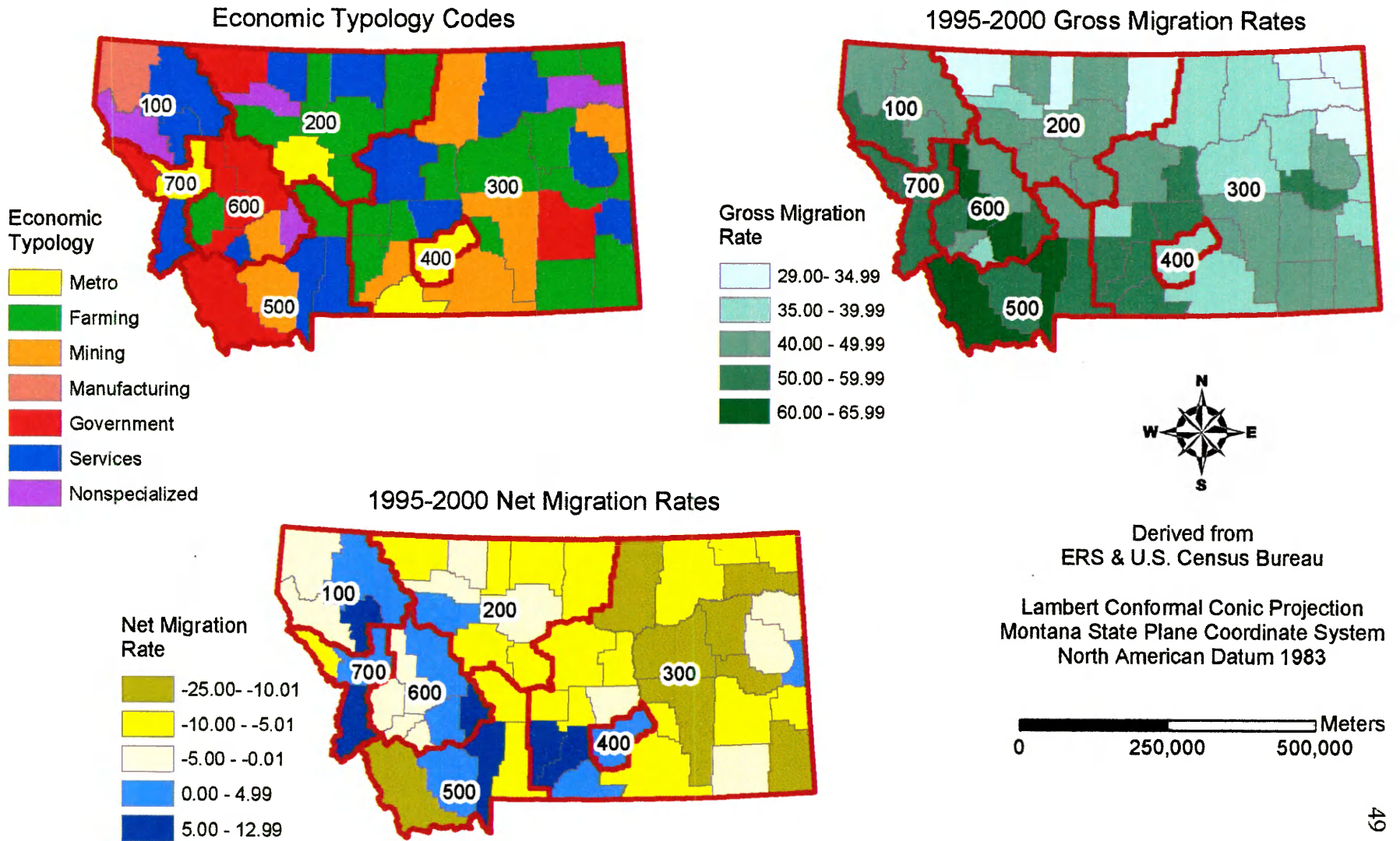


Figure 3.3: County-Level Attributes of Microdata Areas



Plains region. Aside from the counties located along the Rocky Mountain Front, these areas have lower natural amenity levels than western and southwestern Montana.

In general, the East and North-Central areas are also more sparsely populated, rural in nature, and dependent on farming and mining than other regions of the state. Nearly all of the counties in the East and North-Central regions experienced negative rates of net migration during the 1995-2000 period. Many of the economic and demographic attributes associated with the Great Plains region are characteristic of these two PUMAs, particularly the East. Yellowstone County, which experienced modest net immigration during the 1995-2000 interval, is distinct from the East and North-Central regions because it is the only PUMA in the state comprised solely of metropolitan territory.

The four western PUMAs, which correspond approximately with the Rocky Mountain region of the state, all have relatively high natural amenity levels. The maps of population density and rural-urban continuum codes show that most of the territory in these areas is more densely settled than eastern Montana. PUMAs in western and southwestern Montana also have more diverse economic structures and are less dependent on farming and mining. Although a number of counties in these four regions experienced net outmigration during the 1995-2000 interval, counties with positive net migration were more common than in the East and North-Central PUMAs. In addition, counties in western PUMAs experienced moderately higher rates of gross migration.

Since the PUMS includes a considerable amount of socioeconomic and migration information for each person in the sample, analyses of migration differentials can be made across a number of socioeconomic dimensions. The distribution of Montana's

PUMAs provides a means for comparing results between PUMAs in the Great Plains and those in the Rocky Mountain region. PUMA divisions also allow for comparisons within these regions of the state.

### **Procedures**

Five-percent PUMS files for each of the 50 states were downloaded in text format via FTP from the Census Bureau website.<sup>2</sup> Using data dictionaries provided in the PUMS Technical Documentation (U.S. Census Bureau 2003a, 7.16-7.22), state files were read into Microsoft Access, and necessary variables were selected. Selected housing and person variables were then exported to SPSS (Statistical Package for the Social Sciences).

The PUMS file for the state of Montana contains information for 45,887 survey respondents. When person weights are applied, the total weighted population in the file is 902,740. This file provided the basis for analyzing the socioeconomic characteristics of the state's non-migrants and internal immigrants. Analyses of the attributes of internal outmigrants required the creation of a file that included all persons who had moved from Montana to another state between 1995 and 2000. These individuals were selected from other state files using the state FIPS (Federal Information Processing Standards) code of residence on April 1, 1995, which is provided for all respondents who relocated during the 1995-2000 interval. The resulting file contained 5,926 records. Applying person weights to this file yielded a population total of 117,842 outmigrants from the state.

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<sup>2</sup> Five-percent PUMS files are available for download at:  
[http://ftp2.census.gov/census\\_2000/datasets/PUMS/FivePercent](http://ftp2.census.gov/census_2000/datasets/PUMS/FivePercent).

Since all persons in the outmigrant data set had lived in Montana five years prior to the 2000 census, there were no records for children under the age of five in this file. Similarly, there were no immigrants in the file of current Montana residents under the age of five. In order to maintain consistency between migrant and non-migrant groups, all non-migrants under the age of five were removed from the data set of current residents. In addition, since analyses were to be based on internal migration (and because it is not possible to capture emigrants from the U.S. in the PUMS), the 326 records of persons living outside the U.S. in April of 1995 were removed from the file of current residents.<sup>3</sup>

Each person in the data set of current residents was then coded as either a non-migrant or an immigrant. For the purposes of this study, a migrant was defined as any person who, at the time of the 2000 census, was residing in a PUMA different from the one in which he or she lived five years prior. Persons who lived in the same house in April of 1995 and April of 2000 and those who moved within PUMA boundaries were coded as non-migrants. Since information regarding prior residence is only provided for April of 1995, it is not possible to track other moves made during the 1995-2000 interval (U.S. Census Bureau 2003b, 2). Therefore, all migration analyses are based solely on place of residence on April 1, 2000 as compared to place of residence on April 1, 1995.

After coding the migrant status of each person, the Montana file was merged with the outmigrant file. Since migrants within the state would be considered an outmigrant from one PUMA and an immigrant to another, they were coded as such. Variables

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<sup>3</sup> The weighted total of this sample was 6,927. This figure, which represents approximately .8% of the state's population, includes military personnel who were stationed overseas in 1995.

designating age, educational attainment, occupation, and income were then recoded into categories, and analyses at both the state and PUMA levels were carried out in SPSS.

The variable designating age on April 1, 2000 was recoded into eight age cohorts: 5-9, 10-17, 18-23, 24-29, 30-39, 40-49, 50-64, and 65 and over. Person weights were applied to the data set, and SPSS was used to produce cross-tabulations of the age distributions of non-migrants, immigrants, and outmigrants for the state and each PUMA. These weighted totals served as estimates of relevant populations. Chi-square tests of independence were used to evaluate differences in age distributions and assess any relationship between age and migration. These tests, conducted in SPSS, were based on unweighted sample counts. Age-specific net migration rates were then calculated using weighted sample totals for the state of Montana and each of the PUMAs.

Five different categories were constructed in the process of recoding the educational attainment variable: did not complete high school, high school graduate, some college or associate degree, bachelor's degree, and graduate or professional degree. In order to maintain consistency with prior research (Bogue 1969, 769-770; Frey 1979, 229-235; Lansing and Mueller 1967, 43-44; Long 1973, 244-254; Long 1988, 42-45, 173-186; Tucker 1981, 33-35) and U.S. Census Bureau tables included in *Summary File 3* (2002), analysis of educational attainment was based solely on persons who were aged 25 and over at the time of the 2000 census. This is the age when most people have finished their formal education.

After applying weights to the sample of persons aged 25 and over, cross-tabulations were produced to illustrate the educational attainment distributions of non-



migrants, immigrants, and outmigrants for the state and each PUMA. Chi-square tests were used to assess differences in the educational attainment distributions of those in the sample. Net migration estimates for the state and each PUMA were then disaggregated by educational attainment.

The U.S. Census Bureau coded the occupations of PUMS respondents into one of 509 occupational categories. Since the Census Bureau classifies occupations in a hierarchical manner, it is possible to recode all occupations into one of six broad categories. Using a code list provided in the PUMS *Technical Documentation* (U.S. Census Bureau 2003a, G177-G196), occupations were recoded into the following six categories: management, professional, and related; sales and office; service; farming, forestry, and fishing; construction, extraction, and maintenance; and production, transportation, and material moving. It is important to note that the PUMS only contains information regarding occupation at the time of the census. Respondents may have had a different occupation or labor force status in 1995.

During the recoding process, farm and ranch owners and renters, who are categorized by the Census Bureau in the management, professional, and related occupational category, were included in the farming, forestry, and fishing category. This is the manner in which these occupations were categorized in the Standard Occupation Classification System prior to 1998 (U.S. Census Bureau 2003e, 1-2). Other than this modification, occupational classifications were consistent with those used in the U.S. Census Bureau's *Summary File 3* (2002).

The analysis of occupation was based on employed civilians aged 16 and over, which is the population considered in *Summary File 3*. After selecting all individuals who fit these criteria, cross-tabulations of weighted sample counts were used to produce estimates of non-migrants, immigrants, and outmigrants in each of the occupational groups at the state and PUMA levels. Chi-square tests were used to assess differences in the occupation distributions of those in the sample. Occupation-specific net migration estimates were then calculated for the state and each PUMA.

The final socioeconomic attribute considered in this study was income. The 2000 PUMS data set includes a number of income variables. Among these is a variable designating total income in 1999. This data was recoded into six income categories: less than \$10,000; \$10,000-\$19,999; \$20,000-\$34,999; \$35,000-\$49,999; \$50,000-\$99,999; and \$100,000 or more. Similar to the occupation variable, income data is provided only for 1999. No information is included for income five years prior, and it is likely that the income levels of many respondents changed during this period. Analysis of income distributions was based on persons aged 16 years and over with income in 1999. This is similar to Table P84 in *Summary File 3*, which shows earnings distributions for those aged 16 and over with earnings in 1999 (U.S. Census Bureau 2002). However, rather than examining only earnings income, this analysis considered the total of earnings and nonemployment income.

After selecting all those in the sample who were at least 16 years of age and had income in 1999, weights were applied to the records, and income distributions were generated at the state and PUMA levels. Multiple linear regression models were used to

assess income differences between migrants and non-migrants in the sample while controlling for age, gender, education, and school enrollment (Fox 1984, 27). Since older adults are typically more established in their careers than younger persons, there is a positive association between age and income for those in their working years. After retirement, however, this relationship is generally no longer valid. Therefore, both age and age<sup>2</sup> were included as independent variables in the model. In order to control for lower incomes among females, a gender variable was incorporated in the model. Five dummy variables were created to designate educational attainment, which has a positive association with income. Because students are often employed in part-time jobs and have lower incomes, school enrollment was also included as an independent variable. The final independent variable included in the model was a code designating each respondent as a non-migrant, immigrant, or outmigrant. The continuous variable designating total income in 1999 was entered as the dependent variable. Regression analyses, which were based on unweighted sample counts of persons aged 16 and over with income in 1999, were carried out using the linear regression function of SPSS.

In addition to examining the total income of migrant and non-migrant populations, average nonemployment income and the percentage of 1999 total income from nonemployment sources was calculated for these groups at the state and PUMA levels. Calculations were based on the total of interest, Social Security, Supplemental Security, public assistance, retirement, and other nonemployment income declared by those in the PUMS. After tabulating this data, net migration estimates for the state and each PUMA were disaggregated by total income categories.

## CHAPTER 4

### RESULTS

In this chapter, results of the data analysis are presented for the four socioeconomic attributes considered in this study: age, educational attainment, occupation, and income. Each of these sections is further divided into two sub-sections. In the first sub-section, weighted sample distributions of non-migrants, immigrants, and outmigrants are examined at the state level, then at the PUMA level. Results of statistical analyses are also summarized. In the second sub-section, attribute-specific net migration rates are presented for the state and each PUMA.

#### Age

The weighted PUMS total of persons residing in the state of Montana on April 1, 2000 was 902,740. Excluding those not yet born or living outside the United States on April 1, 1995, the total population was 840,040. Of these, 726,669 (86.5%) were non-migrants who resided in Montana on April 1, 1995. The remaining 113,371 (13.5%) were internal immigrants who moved to Montana from other parts of the U.S. between April of 1995 and April of 2000. The weighted sample total of outmigrants who moved from Montana to other parts of the U.S. during this interval was 117,842.<sup>1</sup>

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<sup>1</sup> Migration estimates produced using the PUMS differ somewhat from those cited in the background section, which were based on data from the entire long form sample.

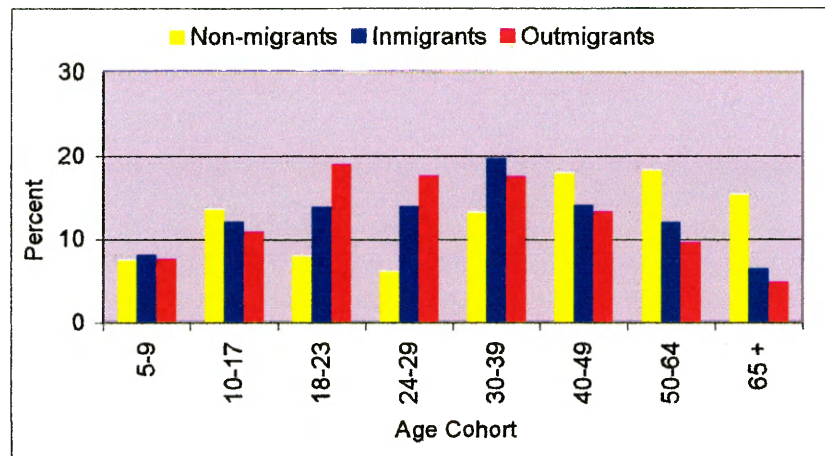
In addition to these interstate migrants, an estimated 62,678 Montanans moved to a different PUMA within the state during the 1995-2000 interval. The 113,371 migrants from out of state made up 64.4 percent of all immigrants at the PUMA level; the other 35.6 percent were intrastate migrants. Among all outmigrants at the PUMA level, 65.3 percent left the state and 34.7 percent moved to a different region within the state.

### *Age Distributions of Non-migrants, Immigrants, and Outmigrants*

On average, interstate immigrants and outmigrants were younger than non-migrants living in Montana. At the time of the 2000 census, the average age of the state's non-migrants aged five and over was 40.1 years. The average ages of immigrants to and outmigrants from the state were 33.2 and 31.2 years, respectively. Table 4.1 shows the age distributions of non-migrants, immigrants, and outmigrants for the state of Montana. Age distributions are illustrated graphically in Figure 4.1.

**Table 4.1: Age Distributions for the State of Montana**

<b>Age Cohort</b>	<b>Non-migrants in Montana</b>	<b>Immigrants to Montana</b>	<b>Outmigrants from Montana</b>
5-9	54,231 (7.5%)	9,190 (8.1%)	8,996 (7.6%)
10-17	98,587 (13.6%)	13,663 (12.1%)	12,698 (10.8%)
18-23	57,613 (7.9%)	15,696 (13.8%)	22,264 (18.9%)
24-29	43,986 (6.1%)	15,780 (13.9%)	20,718 (17.6%)
30-39	96,204 (13.2%)	22,248 (19.6%)	20,591 (17.5%)
40-49	131,090 (18.0%)	15,954 (14.1%)	15,632 (13.3%)
50-64	132,788 (18.3%)	13,596 (12.0%)	11,274 (9.6%)
65+	112,170 (15.4%)	7,244 (6.4%)	5,669 (4.8%)
<b>Total</b>	<b>726,669 (100%)</b>	<b>113,371 (100%)</b>	<b>117,842 (100%)</b>



**Figure 4.1: Age Distributions for the State of Montana**

In accord with general patterns of migrant selectivity, there were notably higher percentages of persons in each of the three younger adult cohorts (18-23; 24-29; 30-39) among inmigrants and outmigrants than among non-migrants. The considerable disparities in proportions of non-migrants and outmigrants in the 18-23 and 24-29 brackets reveal that migration from Montana was particularly selective of young adults. The percentage of all inmigrants who were aged 5-9 was slightly higher than the percentage of non-migrants in this age bracket. Shares of non-migrants and outmigrants aged 5-9 were about equal.

Non-migrants were more concentrated in each of the three older cohorts than were either inmigrants or outmigrants. While over half of all non-migrants were aged 40 or older at the time of the 2000 census, only 32.5 percent of inmigrants and 27.7 percent of outmigrants were of similar age. The small numbers of migrants in the 65 and over cohort are indicative of low mobility among the elderly. The percentage of older children

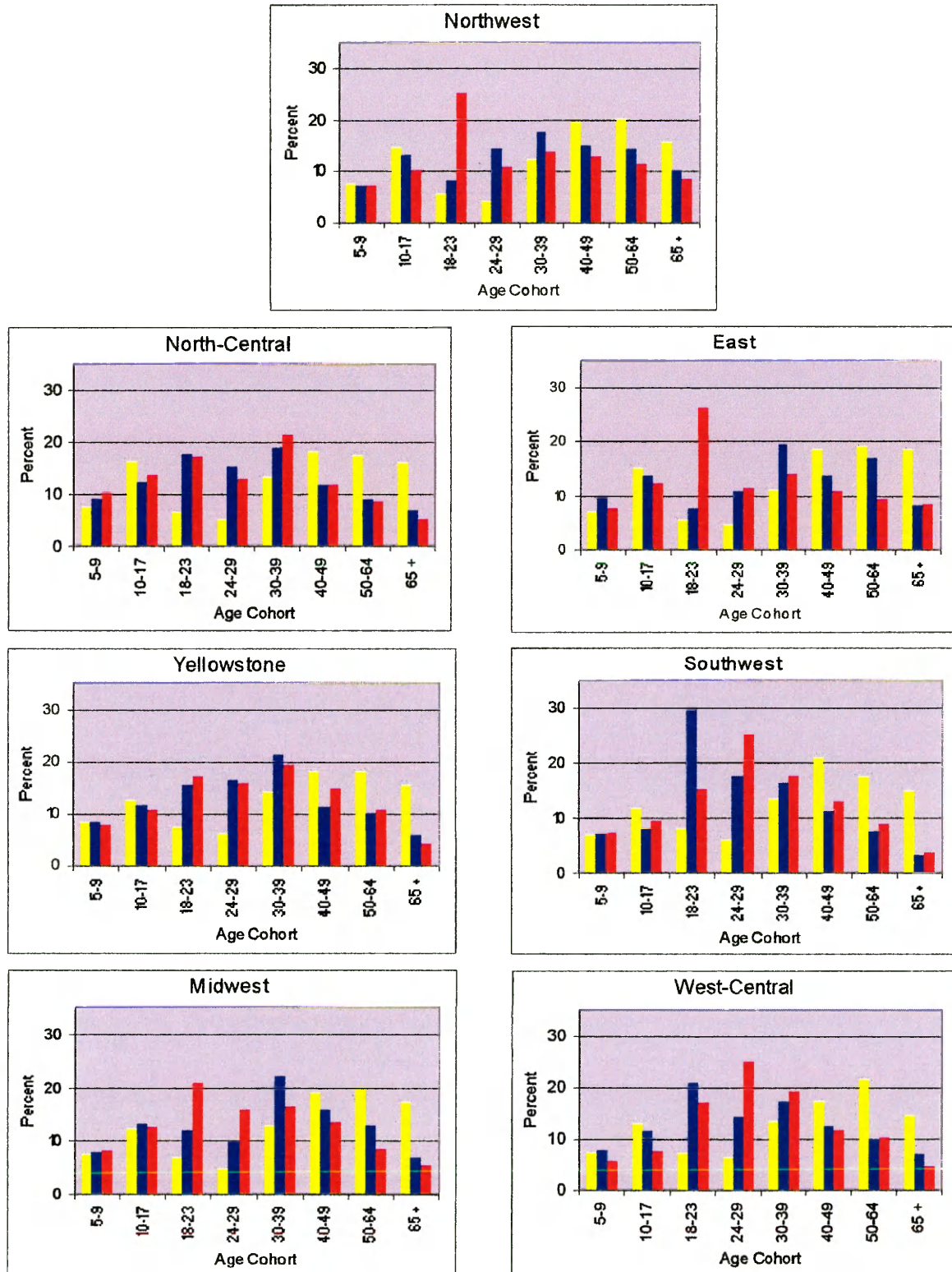
and adolescents (aged 10-17) was also greater among non-migrants in Montana than among either immigrants or outmigrants.

The age distributions of non-migrants, immigrants, and outmigrants for each of Montana's seven PUMAs are displayed in Appendix A and illustrated in Figure 4.2 on the following page. Overall, differences in the age distributions of these populations at the regional level were quite similar to those at the state level. In all seven PUMAs, percentages of those in each of the three younger adult cohorts were higher among immigrants and outmigrants than among non-migrants. The proportion of immigrants aged 5-9 exceeded the proportion of non-migrants in this bracket for all but the Northwest PUMA. In four of the regions, there were also higher percentages of 5-9 year-olds among outmigrants than among non-migrants. Non-migrants, conversely, were more concentrated in each of the three older adult cohorts than were either immigrants or outmigrants in all seven PUMAs. The percentage of 10-17 year-olds was also greater among non-migrants than among immigrants or outmigrants in all but the Midwest region.

Non-migrants living in the East, Midwest, and Northwest were somewhat older than those in other regions of Montana. While nearly one-fifth of non-migrants in the East were 65 or older at the time of the census, only about 10 percent were aged 18-29. This non-migrant population structure is characteristic of many parts of the Great Plains losing young adults to outmigration. As young adults leave these areas, older individuals become increasingly predominant in the population left behind. There were also comparatively high proportions of older adults among non-migrants in the Midwest and Northwest regions. North-Central Montana, a Great Plains PUMA that might be

**Figure 4.2: Age Distributions for Montana PUMAs**

■ Non-migrants ■ Immigrants ■ Outmigrants





expected to have a more aged non-migrant population, actually had the lowest percentage of non-migrants 40 years of age or older (51.5%). This is due in part to the relative concentration of non-migrants under the age of 18 (23.7%).

Examination of immigrant age distributions across PUMAs indicates that migration flows to the Southwest and West-Central regions were highly selective of 18-23 year-olds (29.4% and 20.7% of immigrants, respectively). Many immigrants in this cohort relocated to these regions for educational purposes. In the Southwest, three-quarters of 18-23 year-old immigrants were attending school in 2000, as were two-thirds of those in the West-Central area. There was also a relatively high concentration of young adults among immigrants to the North-Central PUMA. Approximately one-third of immigrants to this region were aged 18-29, over 70 percent of whom were from out of state. One factor contributing to the immigration of young adults in the North-Central area is Malmstrom Air Force Base in Great Falls. This is evidenced by the 15 percent of 18-29 year-old immigrants to the region who were on active military duty at the time of the census.

The relatively small proportions of those in the 18-23 and 24-29 age brackets among immigrants to the East signify the lack of pull this region's characteristics have for young adults. The high percentage of immigrants under the age of 18 (23.2%) is evidence that migration flows to the East were comparatively selective of parents with dependents. Although none of the PUMAs exhibited a pattern of immigration characteristic of a retirement area, adult immigrants to the Northwest, East, and Midwest were generally older than those in other parts of Montana. The greatest concentration of immigrants 65

and over was found in the Northwest region (10.1%), where natural amenities and quality of life are substantial pull factors. Three-quarters of these migrants were from out of state.

Outmigrant age compositions in the Southwest and West-Central PUMAs appear to have been heavily influenced by the movement of college graduates. Approximately one-fourth of all outmigrants from each of these areas were 24-29 years of age, a cohort that encompasses many recent college graduates. Nearly 75 percent of 24-29 year-old outmigrants from the Southwest and West-Central areas moved to a different state during the 1995-2000 interval. Young adults made up a considerable proportion of the outmigrant population for each of the other PUMAs, as well. Similar to many rural areas in the Great Plains, there was a high percentage of 18-23 year-olds among outmigrants from the East (26.2%). The Northwest and West-Central regions also witnessed a pattern of outmigration highly selective of persons in the 18-23 cohort. This suggests that the pull of natural amenities, which are particularly abundant in the Northwest, is superseded by other factors influencing this cohort. In North-Central Montana, nearly one-fifth of all outmigrants were under the age of 18, indicating comparatively substantial outmigration of parents with dependents.

Chi-square statistics displayed in Table 4.2 reveal that the age distribution of non-migrants in the Public Use Microdata Sample is significantly different from those of both immigrants and outmigrants for the state of Montana and each of the seven PUMAs.<sup>2</sup> Results of all analyses of non-migrant/immigrant and non-migrant/outmigrant distributions are significant at the .001 level. Chi-square tests of immigrant and

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<sup>2</sup> All chi-square tests are based on unweighted sample counts.

outmigrant age distributions showed significant differences ( $p < .001$ ) between these two groups for the state and all PUMAs except Yellowstone County.

**Table 4.2: Chi-Square Statistics for Age Distributions**

Location	Non-migrants/ Immigrants	Non-migrants/ Outmigrants	Immigrants/ Outmigrants
State of Montana	1097.51**	2360.08**	141.21**
Northwest	202.76**	476.94**	108.78**
North-Central	324.46**	502.24**	25.10**
East	320.43**	727.92**	176.70**
Yellowstone	230.53**	293.60**	11.81
Southwest	651.14**	574.96**	60.49**
Midwest	203.46**	476.26**	53.11**
West-Central	369.83**	542.09**	46.03**

df = 7      \* $p < .01$       \*\* $p < .001$

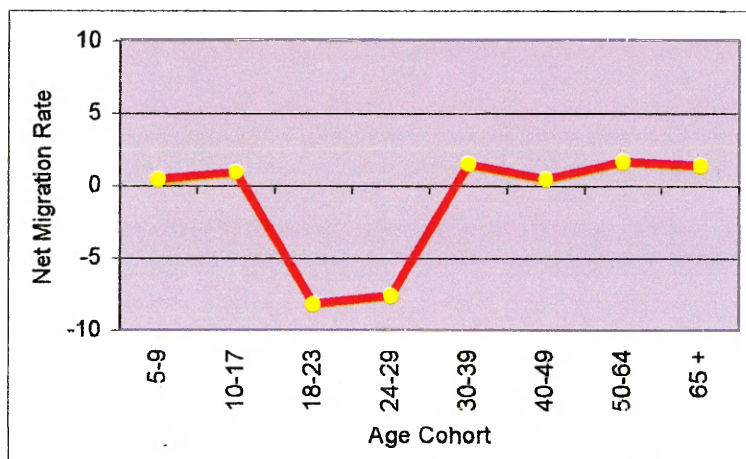
### *Net Migration Disaggregated by Age*

Estimates of 1995-2000 age-specific net migration rates for the state of Montana are shown in Table 4.3 and depicted graphically in Figure 4.3. Based on estimates from the Public Use Microdata Sample, Montana incurred a net loss of 4,471 internal migrants during this period, a rate of  $-.53$  per 100 of the 1995 base population.<sup>3</sup> Although net outmigration was confined to those who were aged 18-29 at the time of the census, losses of these young adults were fairly substantial. The state witnessed net gains of migrants in each of the other age brackets. Rates of net immigration were minimal among individual cohorts, however, with a high of 1.61 among persons in the 50-64 age bracket.

<sup>3</sup> Net migration data is based on persons aged 5 and over at the time of the 2000 census.

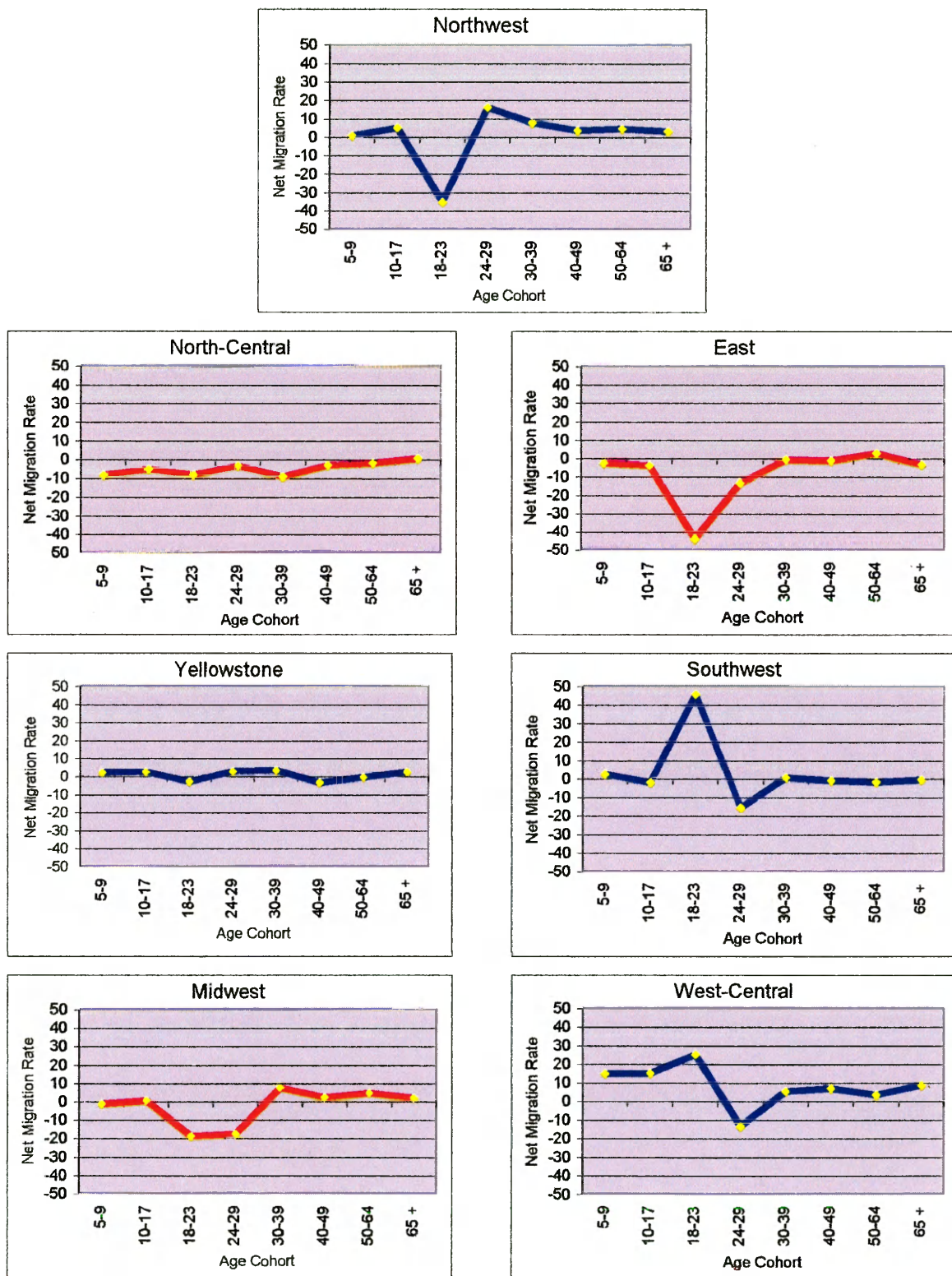
**Table 4.3: Net Migration by Age for the State of Montana**

Age Cohort	Net Migration	Rate (%)
5-9	194	0.31
10-17	965	0.87
18-23	-6,568	-8.22
24-29	-4,938	-7.63
30-39	1,657	1.42
40-49	322	0.22
50-64	2,322	1.61
65+	1,575	1.34
Total	-4,471	-0.53

**Figure 4.3: Net Migration Rate by Age for the State of Montana**

Tables in Appendix A reveal that four of the state's seven PUMAs experienced net immigration during the 1995-2000 interval. Figure 4.4 displays age-specific net migration rates of these regions in blue. With a rate of 7.04 per 100 of the 1995 base population, the West-Central area had the state's highest rate of net immigration. The

Figure 4.4: Net Migration Rate by Age for Montana PUMAs



substantial rate of net influx among 18-23 year-olds (24.81) was largely due to the immigration of University of Montana students. Similarly, the net loss of 24-29 year-olds (rate of -13.66) was partially a result of the outmigration of recent graduates. Rates of net migration in the 10-17 (14.73) and 5-9 (14.62) cohorts were much higher in the West-Central than in other PUMAs. These rates indicate that the immigrant population had a greater concentration of parents with dependents than did the outmigrant population. An influx of children and adolescents is important from a public policy perspective because of increased demand for educational and other services geared toward those under the age of 18. The net migration rate of persons 65 and older (8.47) suggests a considerable gain of retired migrants and increased demand for health care and other services for the elderly. Natural amenities in the West-Central region were likely a pull factor for many of these migrants.

Although Southwest Montana also experienced a positive net migration rate (2.12), migrant gains took place in only three age cohorts. The vast majority of this region's net immigration was among those aged 18-23, the rate of which was equal to approximately 45 percent of the 1995 base population. The net outmigration rate of persons in the 24-29 cohort (-15.85) was among the highest in the state. As in the West-Central region, the movement of new students and recent college graduates played an important role in shaping migration patterns in the Southwest.

Net immigration also occurred in the Northwest and Yellowstone PUMAs. Rates of net immigration in the 24-29 (15.98) and 30-39 (7.67) cohorts were higher in the Northwest than in any other part of the state. However, the rate of net outmigration

among 18-23 year-olds was estimated at more than one-third the 1995 base population of this cohort. In Yellowstone County, neither gains nor losses of migrants were particularly substantial in any of the age brackets, although the rate of net outmigration among 40-49 year-olds (-3.69) exceeded that of all other regions. This PUMA's metropolitan status was likely a factor contributing to net immigration in the 24-29 and 30-39 cohorts.

Figure 4.3 shows age-specific net migration rates of PUMAs with an overall net loss of migrants in red. The East region, which incurred net losses of migrants in all but the 50-64 cohort, had the highest rate of net outmigration (-6.54) in Montana. The rate of net outmigration among 18-23 year-olds (-43.96) was much higher than in any other PUMA. There was also a considerable rate of net loss in the 24-29 age bracket (-13.84). This pronounced loss of young adult migrants, which is characteristic of many parts of the Great Plains, has contributed to an aging population structure in the East.

Montana's North-Central region also experienced a comparatively high rate of net outmigration during the 1995-2000 period (-4.70). The 65 and over cohort was the only age bracket with a net influx of migrants. This PUMA incurred the state's highest rates of net outmigration in four of the eight age cohorts: 5-9 (-8.47), 10-17 (-5.32), 30-39 (-9.33), and 50-64 (-2.07). In this region, net outmigration was much more evenly distributed across age groups than in the East.

In the Midwest PUMA, net outmigration of 24-29 year-olds occurred at a higher rate than in any other part of the state (-17.95). Migrant losses in the 18-23 age bracket were also quite substantial, indicating a pattern of age-specific net migration similar to

that of the East. There was, however, a relatively high rate of immigration in the 30-39 (7.19) and 50-64 (4.47) cohorts. As a result, overall net outmigration in the Midwest was minimal.

### **Educational Attainment**

The weighted sample total of persons in the 2000 Montana PUMS who were aged 25 and over was 579,723. Of these, 507,718 (87.6%) were non-migrants who resided in the state on April 1, 1995. The remaining 72,005 (12.4%) were internal immigrants who moved to the state between April of 1995 and April of 2000. The weighted sample total of internal outmigrants aged 25 and over was 69,979.

An estimated 35,484 Montanans aged 25 and over moved to a different PUMA within the state during the 1995-2000 period. At the PUMA level, two-thirds of the entire weighted sample count of immigrants was comprised of persons from another state. The other one-third consisted of intrastate migrants. Interstate movers made up 66.4 percent of all outmigrants from the state's PUMAs; the other 33.6 percent remained in the state.

### ***Education Distributions of Non-migrants, Immigrants, and Outmigrants***

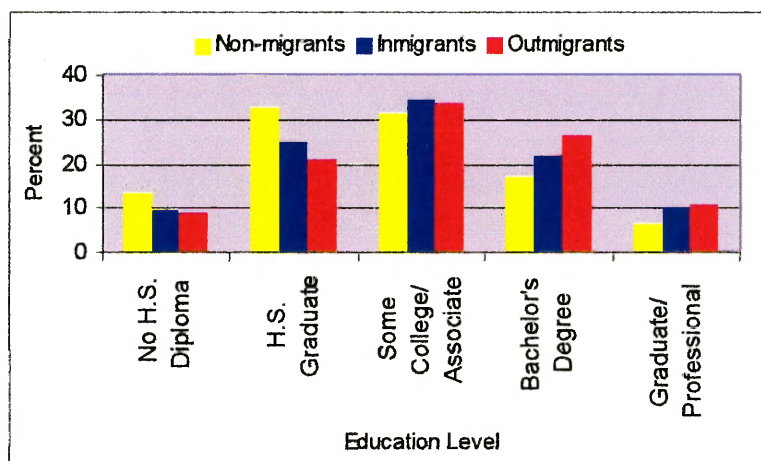
The education levels of Montana's non-migrants, immigrants, and outmigrants aged 25 and older are shown in Table 4.4 and Figure 4.5. These distributions suggest that migrant flows both to and from Montana during the 1995-2000 interval were selective of those with higher levels of education. This is consistent with the general pattern of education selectivity. Shares of persons at each of the three highest levels of educational attainment were greater among immigrants and outmigrants than among non-migrants.



The state's non-migrant population had a greater concentration of those at each of the two lowest education levels. While only 23.1 percent of non-migrants had a bachelor's degree or higher, 31.6 percent of immigrants had attained this level of education. The percentage of outmigrants with at least a bachelor's degree was even greater (36.7%).

**Table 4.4: Education Distributions for the State of Montana**

Education	Non-migrants in Montana	Inmigrants to Montana	Outmigrants from Montana
Did not complete high school	66,961 (13.2%)	6,599 (9.2%)	6,152 (8.8%)
High school graduate	164,842 (32.5%)	17,793 (24.7%)	14,557 (20.8%)
Some college or associate degree	158,456 (31.2%)	24,871 (34.5%)	23,612 (33.7%)
Bachelor's degree	85,549 (16.8%)	15,453 (21.5%)	18,323 (26.2%)
Graduate or professional degree	31,910 (6.3%)	7,289 (10.1%)	7,335 (10.5%)
Total	507,718 (100%)	72,005 (100%)	69,979 (100%)



**Figure 4.5: Education Distributions for the State of Montana**

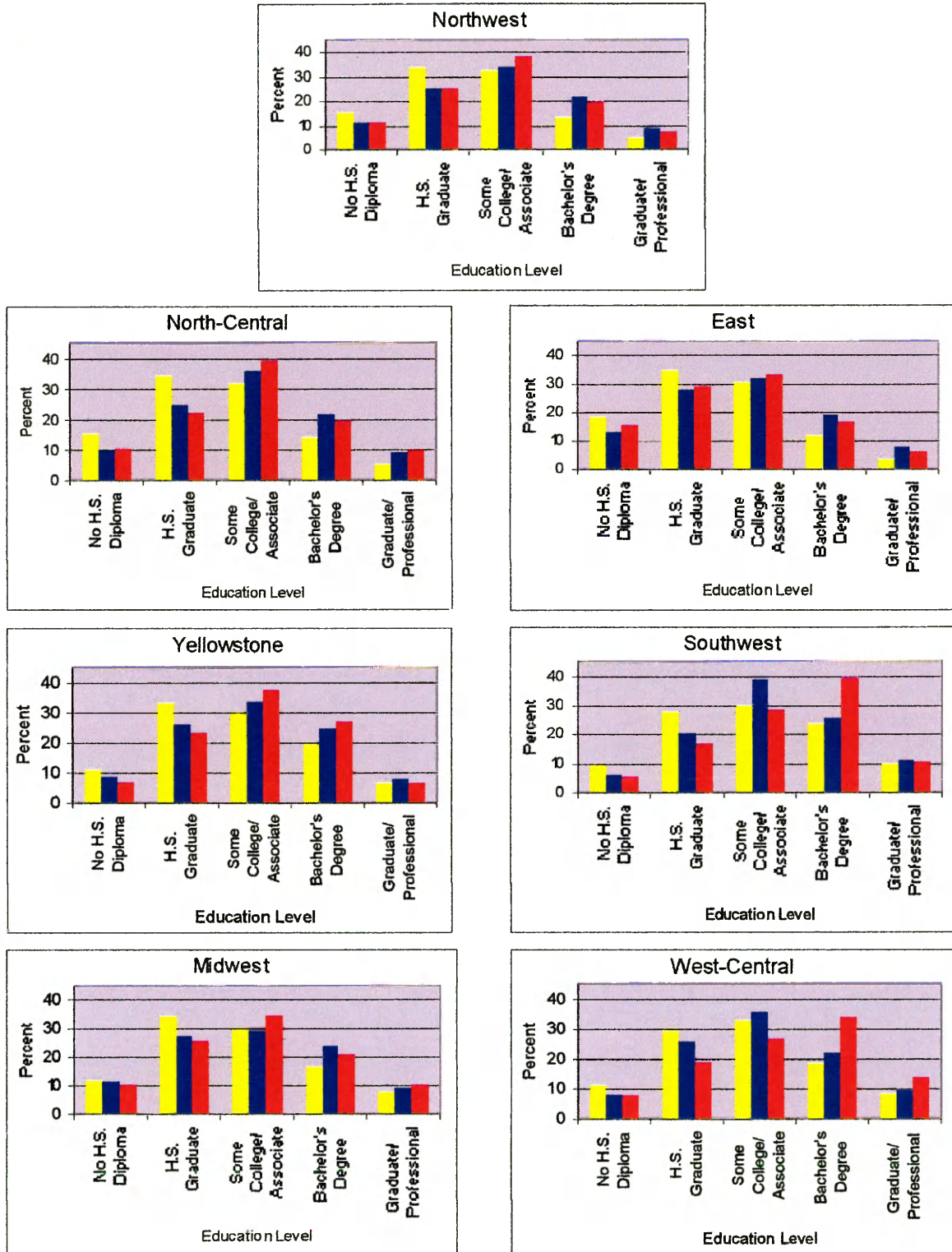
PUMA-level education distributions are displayed in Appendix B and illustrated graphically in Figure 4.6. These results show that the education levels of immigrants and outmigrants exceeded those of non-migrants in each of the seven regions. There were greater concentrations of persons with a bachelor's, graduate, or professional degree among immigrants and outmigrants, while non-migrants were found in greater shares at each of the two lowest levels of educational attainment.

Non-migrant education levels were lower in the East than in other regions of the state. Over 53 percent of non-migrants 25 and older in the East PUMA had no education beyond high school, and only 15.7 percent held a bachelor's degree or higher. A fairly large proportion of the non-migrant population in this PUMA did not complete high school (18.1%). The education levels of non-migrants were comparatively low in Northwest and North-Central Montana, as well. Approximately half of non-migrants in each of these regions had no post-secondary education; less than one-fifth had completed a four-year degree program. Conversely, 63 percent of non-migrants in the Southwest PUMA had attended college, and one-third had obtained a bachelor's, graduate, or professional degree. Non-migrants in the West-Central region were also relatively well educated.

Regional variation in the educational attainment of immigrants was not as great as that of non-migrants. Immigrants to the East PUMA had the lowest levels of education. Over 40 percent had no education beyond high school, and only 27 percent held a bachelor's degree or higher. Persons 25 and over who migrated to the Southwest region were more educated than immigrants to other PUMAs. Nearly three-quarters had some

**Figure 4.6: Education Distributions for Montana PUMAs**

■ Non-migrants ■ Immigrants ■ Outmigrants



college education, and 36 percent had completed a four-year degree program. Eighty percent of immigrants to the Southwest who held a bachelor's, graduate, or professional degree lived in a state other than Montana in 1995. This is consistent with prior research showing that highly educated migrants were more likely to undertake long-distance moves (Long 1973, 244-254; Schwartz 1973, 1165).

Largely due to the outmigration of recent graduates of Montana State and the University of Montana, nearly half of all persons moving from the Southwest and West-Central areas had a bachelor's degree or higher level of education. Three-quarters of these migrants left the state. Only 22 percent of outmigrants from the East PUMA held at least a bachelor's degree. Moreover, the East region had the highest proportion of outmigrants aged 25 and over lacking any post-secondary education (44.7%). Less than half of these migrants moved to a different state. Comparatively low levels of educational attainment were also found among outmigrants from the Northwest.

The results of chi-square tests of education distributions based on unweighted sample counts are displayed in Table 4.5. These results indicate that the distributions of non-migrants in the sample are significantly different from those of immigrants at the .001 level for the state of Montana and five of the seven PUMAs. In the Midwest and West-Central PUMAs, these disparities are significant at the .01 level. Differences between the education distributions of non-migrants and outmigrants are significant at the .001 level for the state and all PUMAs. There are significant differences ( $p < .001$ ) in the education distributions of immigrants and outmigrants in the sample for the state of Montana, as well as the Southwest and West-Central regions.

**Table 4.5: Chi-Square Statistics for Education Distributions**

Location	Non-migrants/ Immigrants	Non-migrants/ Outmigrants	Immigrants/ Outmigrants
State of Montana	201.26**	384.72**	25.01**
Northwest	71.93 **	43.24**	4.74
North-Central	65.64**	82.01**	5.78
East	91.49**	34.60**	4.30
Yellowstone	20.72**	32.52**	1.61
Southwest	32.67**	97.88**	32.00**
Midwest	16.04*	23.51**	4.00
West-Central	14.14*	116.55**	49.66**

df = 4      \* $p < .01$       \*\* $p < .001$

### *Net Migration Disaggregated by Educational Attainment*

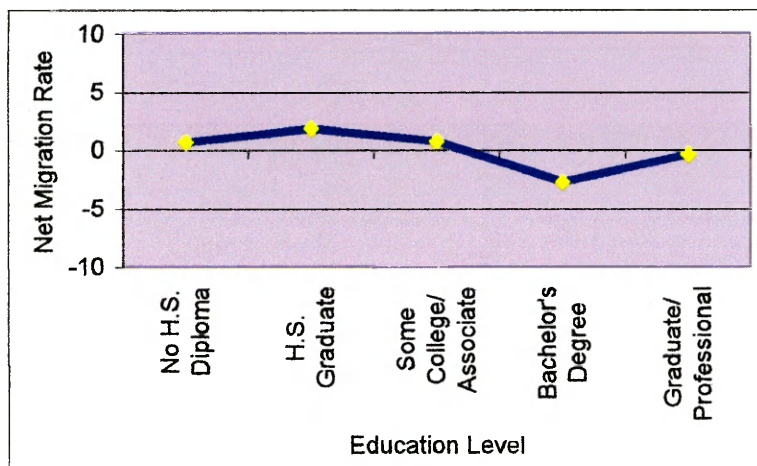
Table 4.6 and Figure 4.7 show estimates of net migration disaggregated by educational attainment for the state of Montana. During the 1995-2000 period, the state witnessed an estimated net gain of 2,026 internal migrants aged 25 and over, a rate of .35 per 100 of the 1995 base population. Net losses occurred among those at the two highest levels of educational attainment, while net immigration took place among persons with lower levels of education. These results indicate that Montana is more likely to draw persons with lower educational attainment.

Appendix B shows PUMA-level migration disaggregated by educational attainment. These data, depicted graphically in Figure 4.8, reveal that the Northwest had the state's highest rate of net immigration among persons 25 and older (5.82). This region witnessed migrant gains across all levels of educational attainment. Net migration rates for graduates of a bachelor's program (11.86) and those with a graduate or professional degree (14.45) were much higher than in any other area. These figures indicate a

pronounced net influx of educated migrants in the Northwest. This resulted in an increased concentration of college graduates in a region where non-migrant educational attainment was comparatively low.

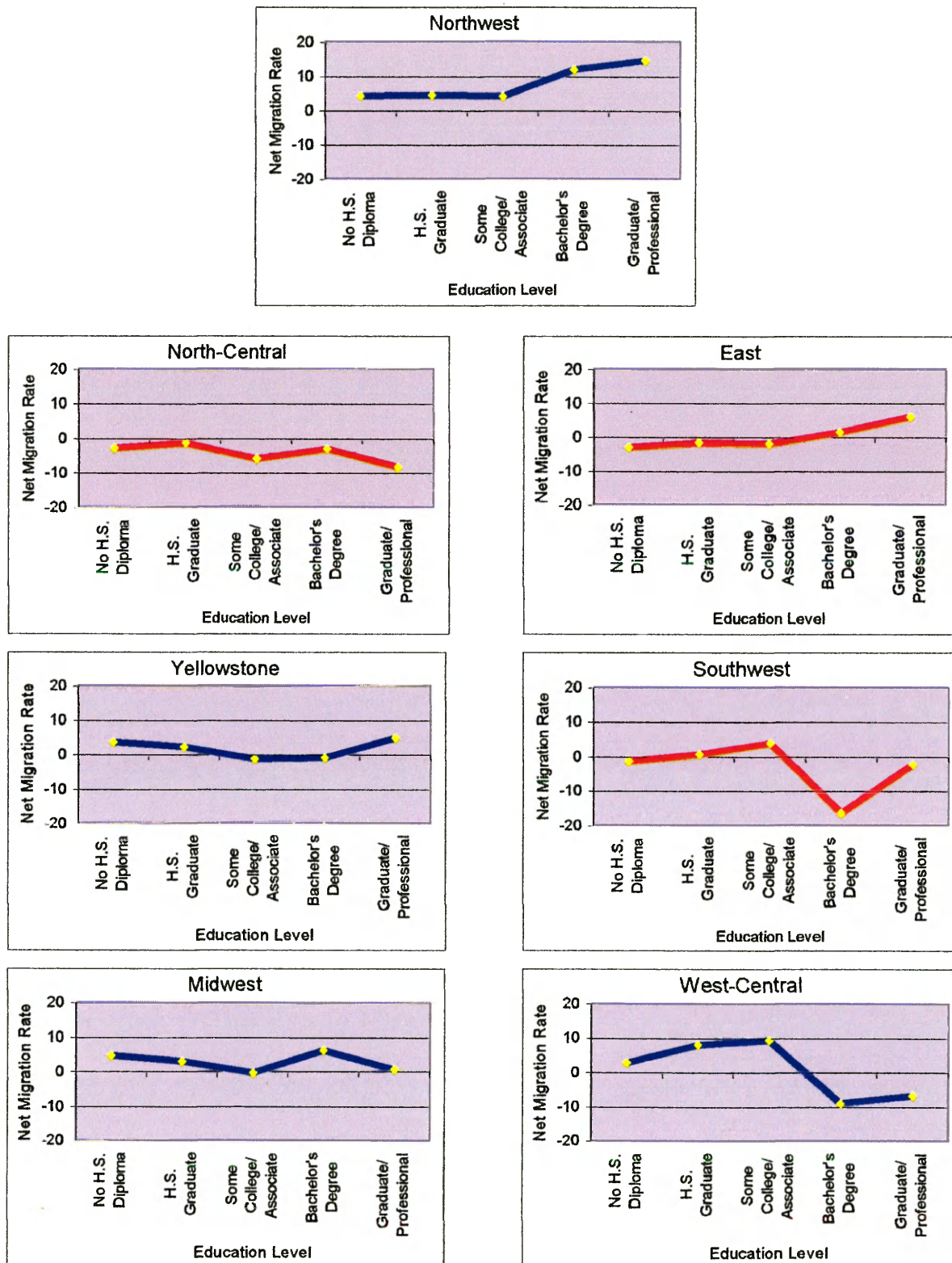
**Table 4.6: Net Migration by Educational Attainment for the State of Montana**

Education	Net Migration	Rate (%)
Did not complete high school	447	.61
High school graduate	3,236	1.80
Some college or associate degree	1,259	.69
Bachelor's degree	-2,870	-2.76
Graduate or professional degree	-46	-.12
Total	2,026	.35



**Figure 4.7: Net Migration Rate by Educational Attainment for the State of Montana**

**Figure 4.8: Net Migration Rate by Educational Attainment for Montana PUMAs**



The West-Central PUMA had the second highest rate of net immigration among those aged 25 and older. The net immigration rate of persons with no post-secondary education (6.43) exceeded that of any other region. This area also witnessed the highest rate of net gain among those with some college or an associate degree (9.13).

Outmigration of recent college graduates contributed to considerable rates of net loss in the bachelor's degree (-9.06) and graduate or professional degree (-6.92) categories.

Other PUMAs with positive net migration of persons 25 and older were the Midwest and Yellowstone areas. The Midwest region had the highest rate of net immigration among those who did not complete high school (4.53), but also witnessed a net gain of migrants at the upper end of the educational attainment distribution.

Yellowstone County also attracted migrants at both ends of the education distribution.

Overall, however, the net gain of those with a bachelor's degree or higher was negligible.

The greatest net outmigration rate of persons 25 and over occurred in North-Central Montana (-3.88). This region incurred a net loss of migrants at each of the five levels of educational attainment. Rates of loss among migrants with a graduate or professional degree (-8.51) and those with some college or an associate degree (-6.00) were higher in the North-Central than in any other area.

The Southwest region witnessed substantial net outmigration of persons who had completed bachelor's, as well as graduate or professional programs. This was largely due to the movement of recent graduates of Montana State University. The net outmigration rate of persons with a bachelor's degree (-16.52) was much higher than in any other



PUMA. Net immigration occurred among those with a high school diploma, as well as persons with some college or an associate degree.

In the East, net outmigration took place at the three lowest levels of educational attainment. The rate of net loss among those with no post-secondary education (-2.30) exceeded that of any other region. The East PUMA witnessed net gains among persons who had completed bachelor's and post-graduate programs. Net immigration at the graduate or professional degree level (rate of 5.95) was the second highest in Montana. This pattern of education-specific net migration indicates that migration exchanges led to a relative improvement in education levels.

### **Occupation**

Based on PUMS estimates, the number of employed civilians aged 16 and over living in Montana on April 1, 2000 was 423,996. This population consisted of 367,717 non-migrants (86.7%) and 56,279 internal immigrants (13.3%) who moved to the state during the 1995-2000 interval. The weighted sample total of internal outmigrants from the state was 64,453.

The estimated total of employed civilians 16 and older who moved to a different PUMA within the state of Montana was 32,795. These persons constituted 36.8 percent of all immigrants and 33.7 percent of all outmigrants at the PUMA level. The other 63.2 percent of immigrants and 66.3 percent of outmigrants were interstate movers.

### ***Occupation Distributions of Non-migrants, Immigrants, and Outmigrants***

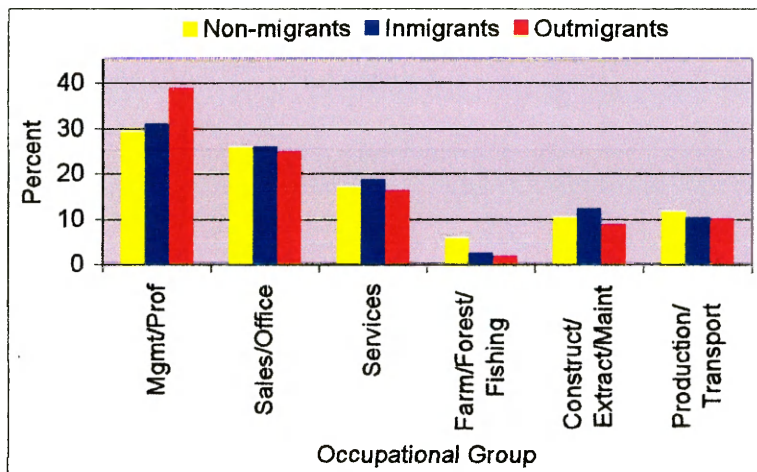
Results presented in this section are based on occupation at the time of the 2000 census and therefore represent occupations in which immigrants and outmigrants were

engaged at the destination location. The PUMS does not provide information regarding occupation at the location of origin for these persons. All results in this section should be considered in light of this fact.

Table 4.7 and Figure 4.9 show that an estimated 29.2 percent of Montana's non-migrants were employed in management, professional, or related occupations at the time of the census. This percentage was only slightly lower than the corresponding figure for immigrants (30.8%). However, the rate of management and professional employment among outmigrants (38.7%) was notably higher, indicating that migration from the state was selective of persons who gained employment in these occupations outside of the state. The share of sales and office workers among the non-migrant population was roughly equal to that of both immigrants and outmigrants. Similarly, only minor differences existed between migrants and non-migrants with regard to rates of service employment.

**Table 4.7: Occupation Distributions for the State of Montana**

<b>Occupation</b>	<b>Non-migrants in Montana</b>	<b>Immigrants to Montana</b>	<b>Outmigrants from Montana</b>
Management, Professional, and related	107,487 (29.2%)	17,337 (30.8%)	24,923 (38.7%)
Sales and Office	94,979 (25.8%)	14,488 (25.7%)	15,932 (24.7%)
Services	62,651 (17.0%)	10,487 (18.6%)	10,457 (16.2%)
Farming, Forestry, Fishing	21,327 (5.8%)	1,389 (2.5%)	1,130 (1.8%)
Construction, Extraction, Maintenance	38,174 (10.4%)	6,864 (12.2%)	5,647 (8.8%)
Production and Transportation	43,099 (11.7%)	5,714 (10.2%)	6,364 (9.9%)
<b>Total</b>	<b>367,717 (100%)</b>	<b>56,279 (100%)</b>	<b>64,453 (100%)</b>



**Figure 4.9: Occupation Distributions for the State of Montana**

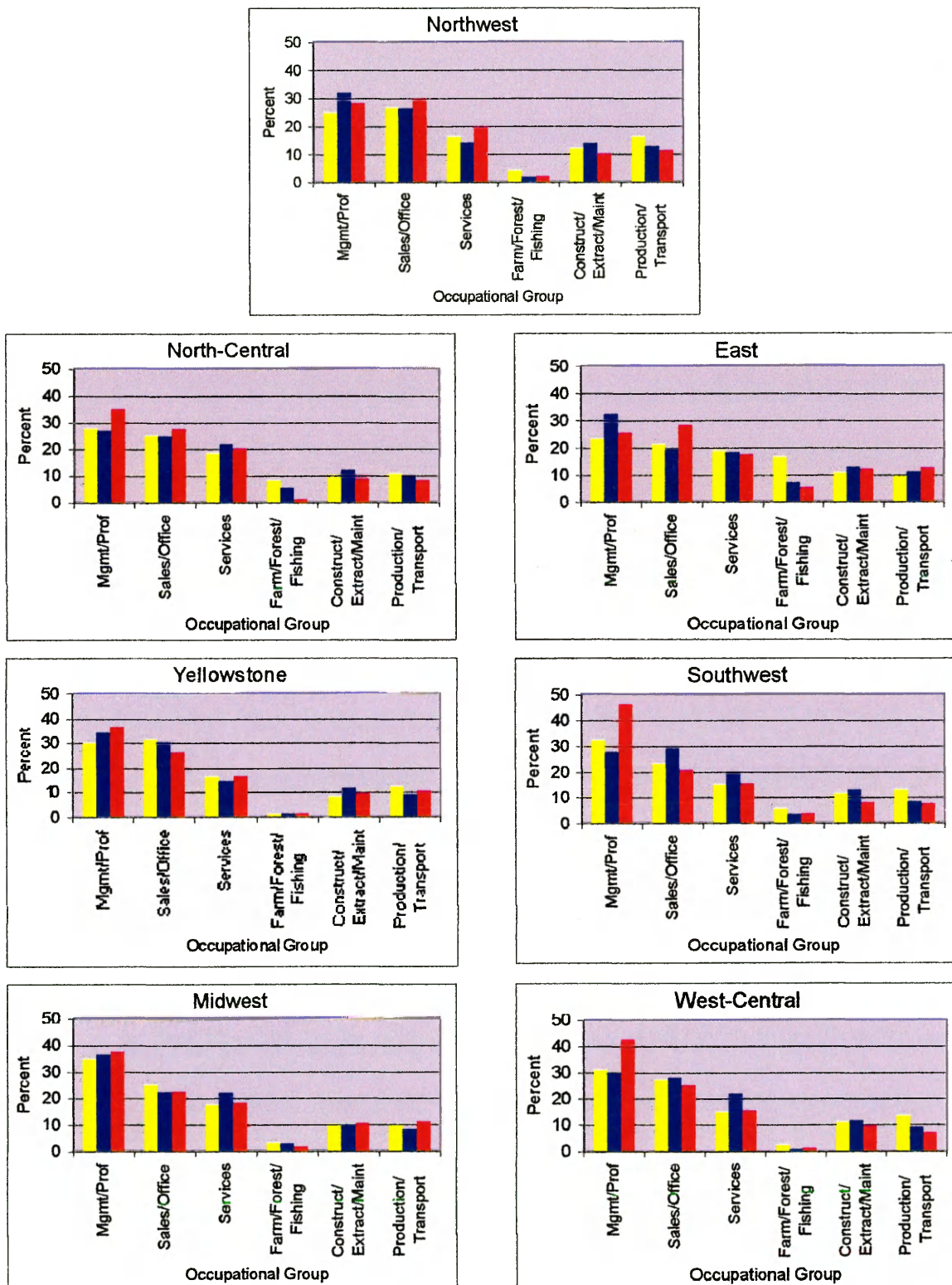
Blue-collar occupations<sup>4</sup> employed 27.9 percent of all non-migrants in the state. At 24.9 percent, the share of inmigrants working in these occupations was somewhat lower. Only about one-fifth of outmigrants were employed in blue-collar occupations. Divergence between migrant and non-migrant populations in these categories was most notable in farming, forestry, and fishing, an occupational group in which 5.8 percent of non-migrants were employed. Only 2.5 percent of inmigrants and 1.8 percent of outmigrants worked in these occupations.

Occupation distributions for the state's PUMAs are displayed in Appendix C and Figure 4.10. These results show that outmigrants from each of the regions had higher rates of management and professional employment at their destinations than non-migrants in their PUMAs of origin. In four of the regions, shares of inmigrants engaged in management, professional, and related occupations were also greater than the shares of

<sup>4</sup> For the purposes of this analysis, blue-collar occupations include farming, forestry, fishing; construction, extraction, maintenance; and production and transportation.

**Figure 4.10: Occupation Distributions for Montana PUMAs**

■ Non-migrants ■ Inmigrants ■ Outmigrants



non-migrants in this occupational group. Rates of employment in blue-collar occupations among non-migrants exceeded those among immigrants in all seven regions; non-migrant rates were higher than outmigrant rates in all regions but the Midwest. The percentage of non-migrants employed in farming, forestry, and fishing occupations exceeded the percentage of either immigrants or outmigrants engaged in these occupations for each of the PUMAs. Migrants in this occupational group were much less likely than others to have made interstate moves.

While less than one-fourth of non-migrants in the East and Northwest regions were employed in management, professional, and related occupations, nearly 35 percent of non-migrants in the Midwest worked in this occupational group. Sales and office occupations employed a considerable proportion of all non-migrants in Yellowstone County (31.3%). According to a recent U.S. Census Bureau brief (2003e, 11), the Billings metropolitan area had the nation's fifth highest rate of sales and office employment. Non-migrants in the East and Northwest had higher rates of employment in blue-collar occupations (36.7% and 32.2%, respectively) than those living in other regions of the state. Farming, forestry, and fishing occupations employed a substantial proportion of non-migrants in the East (16.5%). This figure indicates the importance of agriculture in this region of the state. A comparatively high percentage of non-migrants in the Northwest were engaged in construction, extraction, and maintenance (12%) and production and transportation (16.2%) occupations.

Inmigrants to the Midwest PUMA had higher rates of management and professional employment (36.2%) than those living in other parts of the state. In the North-Central region, management and professional occupations employed less than 27 percent of inmigrants. Similar to the non-migrant population in Yellowstone County, a substantial percentage of inmigrants to the PUMA were engaged in sales and office work (30%). Over one-fifth of inmigrants living in the West-Central, Midwest, and North-Central regions were employed in services. The highest rate of employment in blue-collar occupations among inmigrants was in the East (30.5%), where 7 percent of inmigrants worked in farming, forestry, and fishing. In Northwest Montana, construction, extraction, and maintenance (13.8%) and production and transportation (12.6%) occupations employed a relatively high percentage of the inmigrant population.

PUMA-level occupation distributions of outmigrants reveal that management, professional, and related occupations employed 45.9 percent of all movers from Southwest Montana and 42.2 percent of those from the West-Central region. Over 70 percent of managers and professionals who migrated from the Southwest were living in a different state in 2000; three-quarters of those from the West-Central PUMA relocated to another state. Many of these migrants were likely enrolled as students at Montana State or the University of Montana in 1995 and then obtained management or professional jobs in other locations after completing their studies. A substantial proportion of outmigrants from the Northwest were engaged in either sales and office (29.6%) or service (19.3%) occupations. Outmigrants from the East region had the lowest rate of management and professional employment (25.3%) and the highest rate of employment in blue-collar

occupations (29.4%). The percentage of outmigrants in each of the three blue-collar occupational groups was higher in the East than in any other PUMA.

Chi-square statistics displayed in Table 4.8 show that the occupation distributions of non-migrants in the sample are significantly different from those of immigrants for the entire state, as well as for the North-Central, East, Southwest, and West-Central regions ( $p < .001$ ). Differences in occupations between non-migrants and outmigrants in the sample are significant at the .001 level for the state and all but the Yellowstone and Midwest areas. The occupation distributions of interstate migrants were shown to be significantly different from one another ( $p < .001$ ), as were those for migrants moving to and from the East, Southwest, and West-Central PUMAs.

**Table 4.8: Chi-Square Statistics for Occupation Distributions**

Location	Non-migrants/ Immigrants	Non-migrants/ Outmigrants	Immigrants/ Outmigrants
State of Montana	99.49**	248.75**	54.26**
Northwest	14.49	21.18**	9.94
North-Central	20.89**	73.15**	14.61
East	63.80**	97.41**	25.37**
Yellowstone	9.77	11.97	3.82
Southwest	37.23**	64.88**	56.41**
Midwest	4.13	8.97	6.81
West-Central	24.07**	41.94**	30.16**

df = 5      \* $p < .01$       \*\* $p < .001$

### *Net Migration Disaggregated by Occupation*

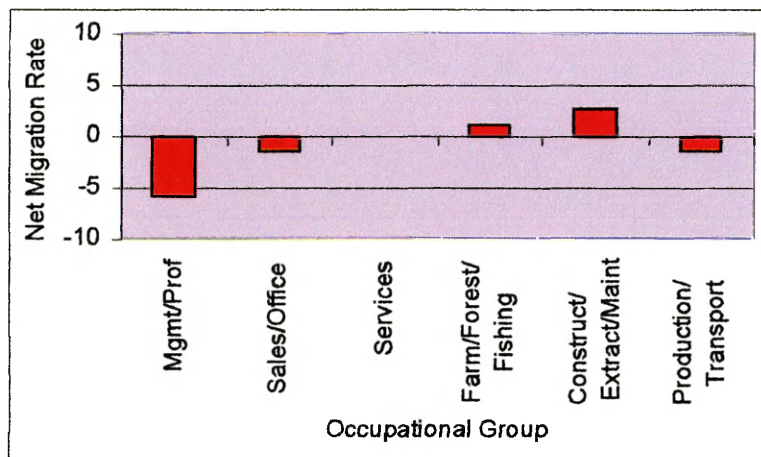
Rates of net migration by occupational group for the state of Montana are displayed in Table 4.9 and Figure 4.11. During the 1995-2000 period, the state of

Montana had a net migration rate of  $-1.89$  per 100 of the 1995 base population among employed civilians aged 16 and over. A considerable proportion of all net outmigration was due to losses of those who were employed in management, professional, and related occupations at the time of the census. At  $-5.73$ , the rate of net outmigration in this occupational group was fairly substantial. However, substantial interstate movement of managers and professionals from the Southwest and West-Central PUMAs suggests that much of this net loss may be due to the movement of persons who were enrolled at state universities in 1995 and then obtained management/professional employment in another state after completing their studies. Net outmigration also occurred in the production and transportation and sales and office occupational groups. Montana witnessed positive net migration in the other three categories, with the highest rate of net immigration among persons in construction, extraction, and maintenance occupations ( $2.78$ ).

**Table 4.9: Net Migration by Occupation for the State of Montana**

<b>Occupation</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management, Professional, and related	-7,586	-5.73
Sales and Office	-1,444	-1.30
Services	30	0.04
Farming, Forestry, Fishing	259	1.15
Construction, Extraction, Maintenance	1,217	2.78
Production and Transportation	-650	-1.31
<b>Total</b>	<b>-8,174</b>	<b>-1.89</b>



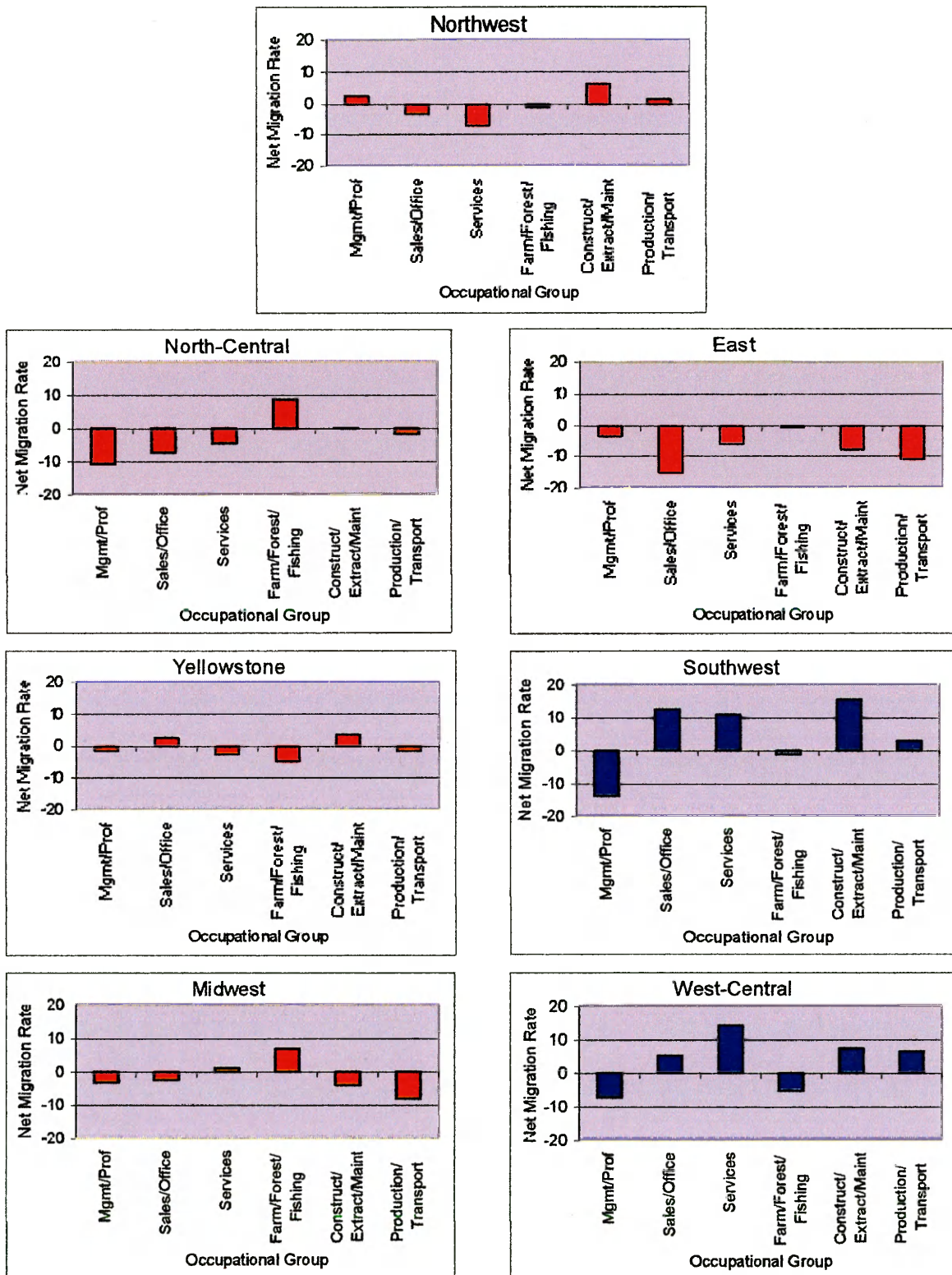


**Figure 4.11: Net Migration Rate by Occupation for the State of Montana**

Occupation-specific net migration rates shown in Appendix C and Figure 4.12 reveal that only two PUMAs had positive net migration among employed civilians aged 16 and over. The highest rate of net immigration was in the West-Central region (2.54). There was a substantial net influx of persons employed in services in this part of the state. However, there was a fairly high rate of net outmigration in the management, professional, and related occupational group (-7.26), indicative of the movement of recent university graduates who obtained such jobs in other locations.

The state's highest rate of net loss among those who gained employment in management and professional occupations was in the Southwest (-13.87), which was the only other PUMA with an overall net gain of migrants. This pattern of occupation-specific net migration again reflects the influence of a major state university. In this region, net immigration was concentrated in the sales and office and construction,

**Figure 4.12: Net Migration Rate by Occupation for Montana PUMAs**



extraction, maintenance categories. Rates of net immigration in these occupational groups, 12.68 and 15.54, respectively, exceeded those in other regions of Montana.

The highest net outmigration rate of employed civilians at least 16 years of age was in the East PUMA (-7.51). This area incurred net losses in all six occupational groups. Rates of net outmigration in the sales and office (-15.11), production and transportation (-10.89), and construction, extraction, maintenance (-7.48) occupational groups were the state's highest.

The North-Central, Midwest, Northwest, and Yellowstone PUMAs also experienced net outmigration of employed civilians aged 16 and over. Most net outmigration in the North-Central region could be attributed to substantial rates of loss among persons employed in management and professional (-10.57) and sales and office (-7.18) occupations at the time of the census. Although the Northwest incurred an overall loss of migrants, this was the only PUMA that had a net gain of managers and professionals.

### **Income**

The weighted sample total of Montanans in the 2000 PUMS who were aged 16 or older and had income in 1999 was 632,186. Of these, 547,814 (86.7%) were non-migrants who lived in the state on April 1, 1995, and 84,372 (13.3%) were immigrants from a different state. The estimated total of outmigrants to another state during the April 1995 to April 2000 interval was 89,790.

The relative proportions of interstate and intrastate migrants at the PUMA level were consistent with prior analyses. Between 1995 and 2000, an estimated 47,782

Montanans who were aged 16 or older and had income in 1999 moved to another PUMA within the state. These migrants constituted 36.2 percent of all immigrants at the PUMA level. Migrants from out of state made up the other 63.8 percent of immigrants. Among all outmigrants at the PUMA level, 34.7 percent moved to another microdata area in the state and 65.3 percent relocated to a different state.

### *Income Distributions of Non-migrants, Immigrants, and Outmigrants*

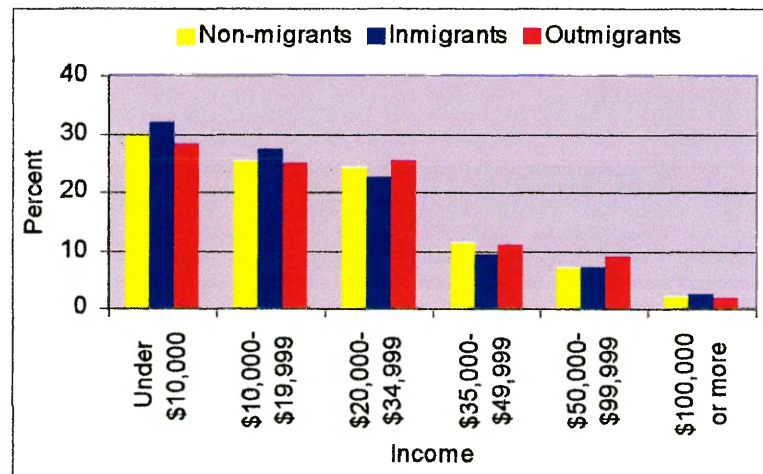
Results presented in this section are based on 1999 income and therefore represent income at destination for most immigrants and outmigrants. The only migrants who received some or all of their income at the location of origin are those who moved after January 1, 1999. Income at the location of origin is not known for migrants who moved before 1999. Since the PUMS does not provide information regarding the specific year a move was made, it is not possible to distinguish between migrants whose incomes were received at the location of origin and those whose incomes were received at the destination. All results in this section should be considered in light of these data limitations.

Income distributions of persons 16 and older with income in 1999 are displayed for the state of Montana in Table 4.10 and Figure 4.13. These data indicate that differences in the income distributions of non-migrants, immigrants, and outmigrants do not appear to be substantial. In general, non-migrant incomes were slightly higher than those of immigrants and slightly lower than those of outmigrants. Nearly 60 percent of immigrants to the state had less than \$20,000 total income in 1999. About 55 percent of non-migrants and 53 percent of outmigrants had similar incomes. The proportions of

non-migrants and immigrants with at least \$50,000 total income were essentially equal (about 9%), while the share of outmigrants with this level of income was marginally higher (10.6%).

**Table 4.10: Income Distributions for the State of Montana**

Total Income	Non-migrants in Montana	Immigrants to Montana	Outmigrants from Montana
Less than \$10,000	162,886 (29.7%)	26,893 (31.9%)	25,151 (28.0%)
\$10,000-\$19,999	139,228 (25.4%)	23,144 (27.4%)	22,327 (24.9%)
\$20,000-\$34,999	132,732 (24.2%)	18,892 (22.4%)	22,811 (25.4%)
\$35,000-\$49,999	62,164 (11.3%)	7,557 (9.0%)	9,920 (11.0%)
\$50,000-\$99,999	39,131 (7.1%)	5,845 (6.9%)	7,924 (8.8%)
\$100,000 or more	11,673 (2.1%)	2,041 (2.4%)	1,657 (1.8%)
Total	547,814 (100%)	84,372 (100%)	89,790 (100%)
Average Income	\$24,200	\$23,227	\$24,665



**Figure 4.13: Income Distributions for the State of Montana**

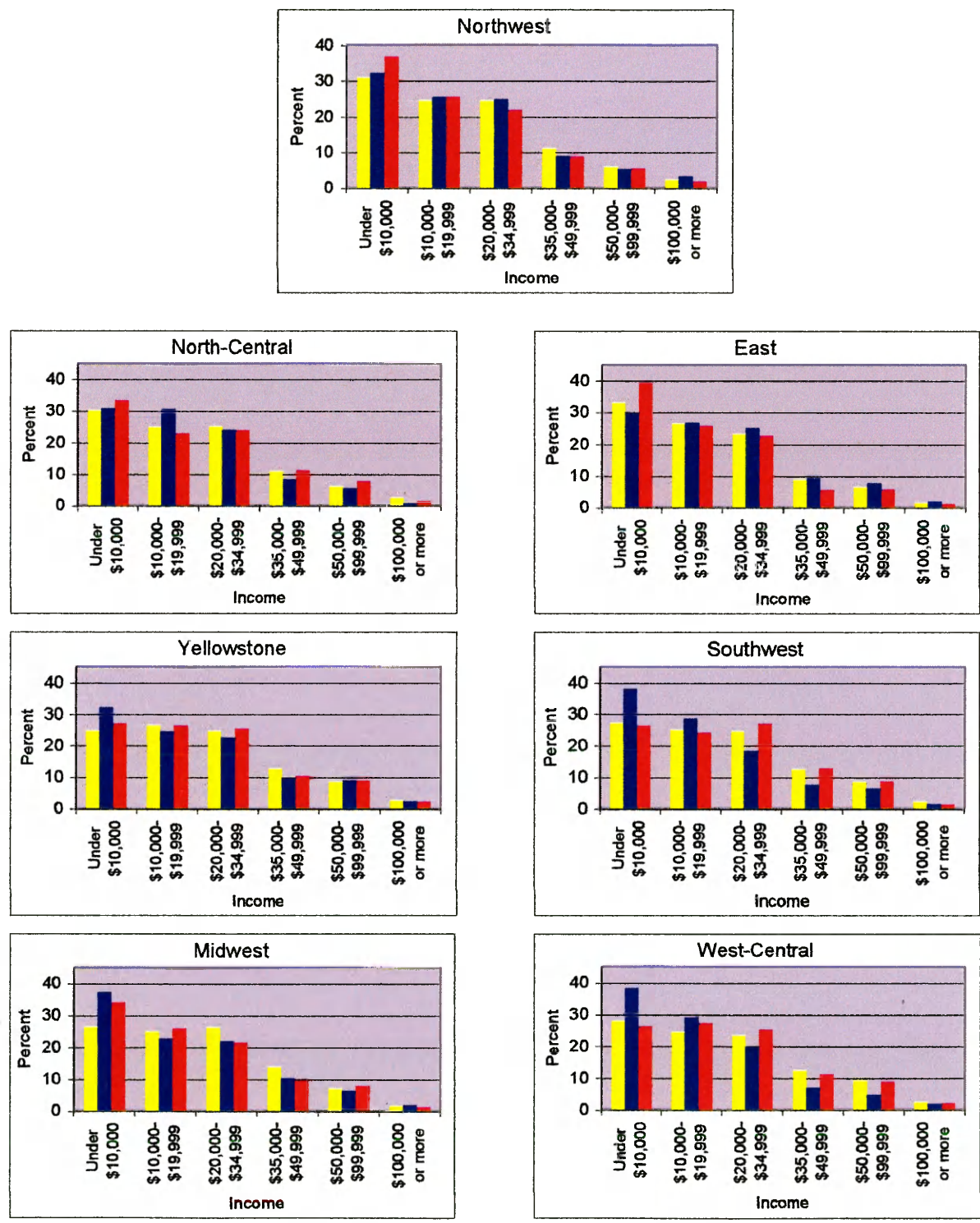
PUMA-level income distributions in Appendix D and Figure 4.14 show that non-migrant incomes were higher than those of immigrants in most regions of the state. In all but the East PUMA, the percentage of immigrants with less than \$20,000 total income exceeded the percentage of non-migrants in the two lower income brackets. Conversely, the share of non-migrants with at least \$50,000 total income was greater than or equal to the share of immigrants with similar incomes in each of these six regions.

In general, non-migrant incomes were also higher than those of outmigrants at the regional level. There were higher percentages of outmigrants with less than \$20,000 total income in 1999 for all PUMAs but the Southwest. The North-Central and Midwest were the only regions in which the proportion of outmigrants with \$50,000 or more income exceeded the proportion of non-migrants with similar incomes. In each of the seven PUMAs, the share of non-migrants in the highest income bracket was greater than the share of outmigrants in this bracket.

Non-migrant incomes were comparatively high in Yellowstone County, where nearly half of non-migrants had at least \$20,000 income, and a total of 11.4 percent were in the two highest income brackets. Income levels in this area are influenced by the fact that it is the only PUMA comprised solely of metropolitan territory. In West-Central Montana, also a region with relatively high non-migrant incomes, 11.6 percent of non-migrants had \$50,000 or more total income. The lowest non-migrant incomes were in the East region, where only about 40 percent of this population had \$20,000 or more total income.

**Figure 4.14: Income Distributions for Montana PUMAs**

■ Non-migrants ■ Immigrants ■ Outmigrants



Inmigrants to the Northwest and Yellowstone County had higher incomes than those living in other regions of the state. In Yellowstone County, the percentage of immigrants with at least \$50,000 income (11.3%) was higher than in any other region. The highest average immigrant income was in the Northwest, where the proportion of those with \$100,000 or more total income (3.3%) exceeded that of any other migrant or non-migrant population. Ninety percent of these migrants were from out of state, many of whom were likely drawn to the region by natural amenities and quality of life factors. Immigrant incomes were also comparatively high in the East region, which had the smallest share of immigrants with less than \$20,000 total income. This is somewhat surprising, given the rural nature of this PUMA, as well as the fact that immigrants were shown to have lower levels of education and a smaller proportion of managers and professionals than those living in other regions. Immigrants to the East were, however, older than those who moved to most other parts of the state. This may have been a factor influencing income levels.

Approximately two-thirds of immigrants in the Southwest and West-Central regions had less than \$20,000 total income in 1999. About 38 percent of all migrants to these areas were in the lowest income bracket. In Southwest Montana, over 64 percent of immigrants with less than \$10,000 total income were enrolled in school and also held jobs at the time of the census; nearly 45 percent of those in West-Central Montana were both working and attending school. Low-income migrants to these and most other PUMAs were less likely to have moved from a different state.



Outmigrants from the Southwest, Yellowstone, and West-Central PUMAs had higher incomes than those who moved from other regions of the state. Nearly half of all outmigrants from the Southwest PUMA had at least \$20,000 total income in 1999. Among movers from Yellowstone County and West-Central Montana, about 11 percent were in the two highest income brackets. Persons who moved from the East region had the lowest outmigrant incomes. Approximately two-thirds of outmigrants from this area of the state had less than \$20,000 total income; 40 percent were in the lowest income bracket. For all regions of the state, low-income outmigrants were less likely than others to have made an interstate move during the 1995-2000 interval.

In order to examine income differences between migrants and non-migrants while controlling for other influential factors, a linear regression model was fit. Independent variables in the model included age, age<sup>2</sup>, gender, school enrollment, migrant code, and dummy variables indicating educational attainment. After fitting a model in which total 1999 income was the dependent variable, a probability plot of residuals revealed that the assumption of normality had been violated. A logarithmic transformation of the income variable was then carried out, and the model was fit again using log income as the dependent variable. Results showed that logarithmic transformation had improved the distribution of residuals a great deal. Therefore, log income was used as the dependent variable in all linear regression analyses.

The results of these analyses, which are based on unweighted sample counts of persons aged 16 and over with income in 1999, are displayed in Appendix E. Regression coefficients, t-statistics, and significance levels for the variables designating immigrants

and outmigrants are shown in Table 4.11. Where significant, positive regression coefficients indicate that migrant incomes were higher than non-migrant incomes when other factors in the model were controlled for. Significant negative coefficients indicate that migrant incomes were lower when controlling for other factors.

**Table 4.11: Regression Statistics for Log Total Income**

Location	<u>Immigrants</u>			<u>Outmigrants</u>		
	Standardized Coefficients	T Statistics	Sig.	Standardized Coefficients	T Statistics	Sig.
State of Montana	-.001	-.143	.886	.046	9.933	<.001
Northwest	-.018	-1.496	.135	.003	.276	.782
North-Central	-.009	-.846	.398	.041	3.573	<.001
East	.023	2.250	.025	.037	3.565	<.001
Yellowstone	-.048	-3.729	<.001	-.016	-1.202	.230
Southwest	.025	1.941	.052	.044	3.458	.001
Midwest	-.054	-4.344	<.001	.004	.279	.780
West-Central	-.020	-1.596	.111	.034	2.650	.008

These results indicate that differences in 1999 total income between non-migrants and immigrants at the state level were not significant when other factors in the model were controlled for. Outmigrants from Montana, however, had significantly higher incomes than non-migrants when controlling for other factors. This is not surprising, given the fact that incomes in the state of Montana are low by national standards, and it is likely that most 1999 income figures for outmigrants correspond to income at destination. The incomes of immigrants to Yellowstone County and the Midwest PUMA were significantly lower than those of non-migrants. The variable designating immigrants was marginally significant in the East region, indicating higher incomes for this sample of the

population. Outmigrants from the Southwest, North-Central, East, and West-Central regions were shown to have significantly higher incomes than non-migrants living in these PUMAs. As migration is often viewed as an investment in human capital, significantly higher outmigrant incomes reflect returns on this investment.

Table 4.12 shows average nonemployment income and the percentage of total income from nonemployment sources for weighted sample counts of non-migrants, immigrants, and outmigrants aged 16 and over with income in 1999. These data are based on the total of interest, Social Security, Supplemental Security, public assistance, retirement, and other nonemployment income declared by those in the Public Use Microdata Sample.

**Table 4.12: Average Nonemployment Income and Percentage of 1999 Total Income from Nonemployment Sources**

Location	<u>Non-migrants</u>		<u>Immigrants</u>		<u>Outmigrants</u>	
	Average	Percent of Total	Average	Percent of Total	Average	Percent of Total
State of Montana	\$6,023	24.9%	\$4,710	20.3%	\$3,113	12.6%
Northwest	\$6,345	26.5%	\$5,548	22.5%	\$3,607	17.1%
North-Central	\$6,728	27.8%	\$3,015	15.3%	\$3,141	14.1%
East	\$5,964	27.4%	\$4,775	20.6%	\$3,202	17.3%
Yellowstone	\$6,218	22.8%	\$2,474	10.2%	\$2,729	10.9%
Southwest	\$6,469	24.8%	\$3,203	16.4%	\$2,463	9.8%
Midwest	\$6,289	25.5%	\$4,576	21.0%	\$3,044	14.2%
West-Central	\$6,181	24.0%	\$4,849	24.7%	\$3,293	13.2%

The average nonemployment income of non-migrants in the state of Montana was notably higher than that of immigrants and nearly twice that of outmigrants. Figures showing the percentage of 1999 total income from nonemployment sources reveal that

non-migrants and immigrants living in the state were much more reliant on this income than were outmigrants. For some non-migrants and immigrants, comparatively high nonemployment incomes may be a factor that allows them to remain in the state, even if their earnings are not substantial.

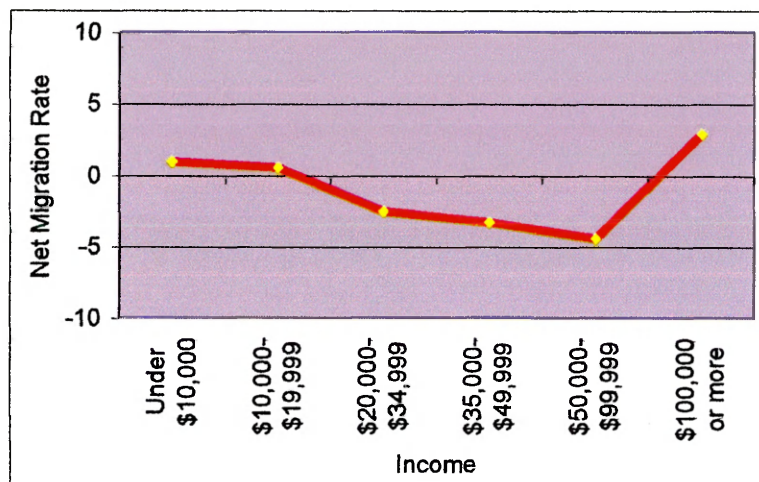
On average, non-migrants also had higher nonemployment incomes than either immigrants or outmigrants at the regional level. Much of this disparity is likely due to the fact that a higher percentage of non-migrants receive Social Security and retirement income. The average immigrant nonemployment income was highest in the Northwest PUMA, where natural amenities have drawn retirees and others with footloose income sources to the region.

### ***Net Migration Disaggregated by Income***

PUMS estimates of 1995-2000 net migration disaggregated by income for the state of Montana are displayed in Table 4.13 and Figure 4.15. These results, which are based on 1999 total income, correspond to income at destination for most migrants. Montana experienced an estimated net loss of 5,418 persons aged 16 and over with income in 1999, a rate of -.85 per 100 of the 1995 base population. Net immigration occurred at the lower end of the income distribution, as well as in the \$100,000 or more bracket. The state incurred net outmigration of persons with between \$20,000 and \$100,000 total income in 1999. The rate of loss was greatest among persons with \$50,000 to \$100,000 total income (-4.42).

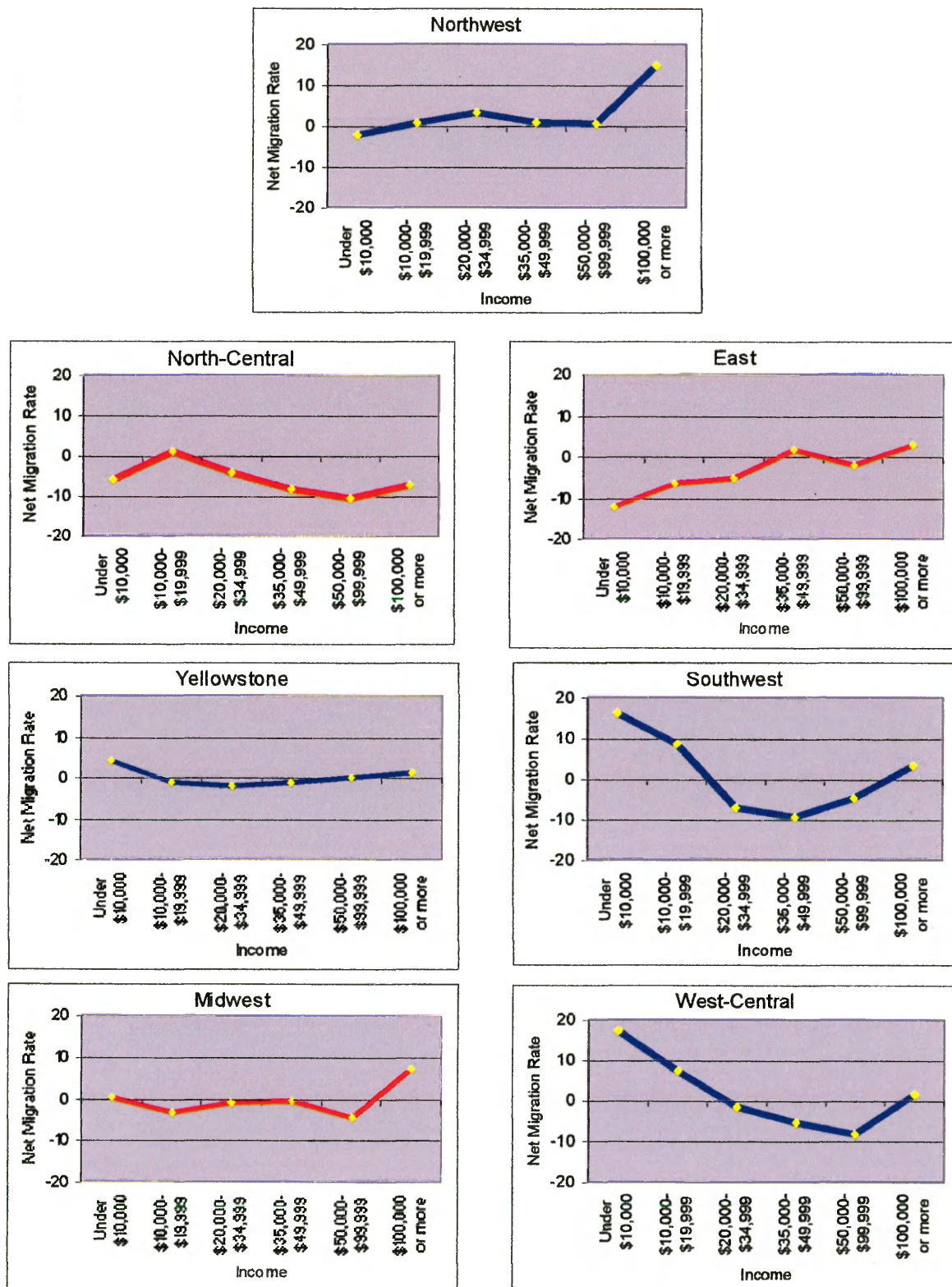
**Table 4.13: Net Migration by Income for the State of Montana**

Total Income	Net Migration	Rate (%)
Less than \$10,000	1,742	0.93
\$10,000-\$19,999	817	0.51
\$20,000-\$34,999	-3,919	-2.52
\$35,000-\$49,999	-2,363	-3.28
\$50,000-\$99,999	-2,079	-4.42
\$100,000 or more	384	2.88
Total	-5,418	-0.85

**Figure 4.15: Net Migration Rate by Income for the State of Montana**

Income-specific net migration rates in Appendix D and Figure 4.16 show that the West-Central PUMA had the state's highest rate of net immigration among persons considered in the analysis of income (4.81). Nearly all net gains occurred among migrants with less than \$20,000 total income; the rate of net immigration in the lowest income bracket (17.20) was quite high. There was a net loss of migrants in each of the

**Figure 4.16: Net Migration Rate by Income for Montana PUMAs**



two middle-income categories, as well as a net outmigration rate of  $-8.24$  among persons with \$50,000-\$100,000 total income.

A similar pattern of net migration occurred in Southwest Montana. Here, migrant gains were also concentrated in the two lowest income groups. The Southwest had the state's highest rate of net immigration among those with \$10,000-\$20,000 total income (8.60). Rates of net outmigration among persons with incomes of \$20,000-\$35,000 ( $-7.10$ ) and \$35,000-\$50,000 ( $-9.37$ ) exceeded those of any other PUMA.

Again, the movement of college students and recent graduates was influential in shaping patterns of net migration in the West-Central and Southwest. An influx of university students contributed to net gains in the lower income categories. The outmigration of recent graduates who obtained employment in occupations with middle-level incomes contributed to net losses in these income brackets.

The Northwest and Yellowstone PUMAs witnessed minor net immigration of those considered in this analysis. In the Northwest, net immigration occurred at all but the lowest income level. The net immigration rate of persons with \$100,000 or more total income (14.83) was much higher in the Northwest than in any other region. Furthermore, this was the only PUMA in which the immigration of those with \$20,000 to \$50,000 total income exceeded the outmigration of persons with incomes in this range. These results suggest an influx of high-income migrants in the Northwest region.

The rate of net outmigration of persons aged 16 and older with income in 1999 was greater in the East than in any other microdata area ( $-7.11$ ). Rates of net outmigration among those with less than \$10,000 ( $-12.19$ ) and \$10,000-\$20,000 ( $-6.42$ )

income were higher than any other PUMA. Numbers of inmigrants were marginally higher than numbers of outmigrants in the \$35,000-\$50,000 and \$100,000 or more brackets.

The North-Central and Midwest PUMAs also incurred net outmigration of persons considered in the analysis of income. In the North-Central region, rates of net loss in the \$50,000-\$100,000 (-10.71) and \$100,000 or more (-7.31) brackets exceeded those of any other region. These figures suggest a relatively pronounced loss of high-income migrants. The Midwest PUMA witnessed a comparatively high rate of net immigration among those with at least \$100,000 total income (7.19) but lost migrants in four of the other five income brackets.



## CHAPTER 5

### SUMMARY AND CONCLUSIONS

Oftentimes, the impact of internal migration is only considered in the context of population size. Such a narrow view can mask a great deal of population change resulting from the movement of different types of people into and out of a location. To better capture the socioeconomic impact of migration, this research examined the socioeconomic compositions of Montana's non-migrants, immigrants, and outmigrants at the time of the 2000 census.

Public Use Microdata from the 2000 census showed that although interstate migration exchanges had a comparatively minor impact on the total number of people living in the state, these exchanges altered the socioeconomic composition of the population. This structural population change was influenced by patterns of selectivity affecting migration flows to and from the state. It is likely that the social and economic effects of structural population change have been greater than those resulting from the change in total number of people living in the state.

Analysis of PUMS data revealed that non-migrants living in Montana in both 1995 and 2000 were significantly different from those who migrated to the state during this interval with regard to age, education, and occupation. Immigrants were younger and had higher levels of education than non-migrants. They also had somewhat lower rates

of employment in blue-collar occupations. Non-migrants had slightly higher incomes and received more nonemployment income than immigrants. These results show that most immigrants to Montana are not wealthy, as some stereotypes suggest. Regression analysis revealed that the incomes of immigrants in the sample were not significantly different from those of non-migrants when age, gender, school enrollment, and educational attainment were controlled for. In most cases, socioeconomic differences between non-migrants and immigrants at the PUMA level were consistent with those at the state level.

The immigration of young adults, the highly educated, and skilled workers can be viewed as an influx of human capital. These migrants can make positive contributions to the economic and social well being of a community (Krieg 1991, 75), which may be particularly vital for nonmetro areas in eastern Montana with a recent history of demographic and economic decline. However, when the socioeconomic composition of immigrants differs from that of established residents, heterogeneous interests, values, and lifestyles can emerge between these two populations. This may result in conflict and inhibit social integration (Stinner and Toney 1980, 314, 318). Such conflict between newcomers and established residents is likely to be most intense in high amenity areas of western Montana with a recent history of rapid growth and restructuring.

Differences between non-migrants and outmigrants from the state were comparable to those between non-migrants and immigrants. This implies that general patterns of selectivity influenced the socioeconomic compositions of migrant flows both to and from the state. Outmigrants were younger and more highly educated than non-

migrants. They also had higher rates of employment in management, professional, and related occupations and lower rates of blue-collar employment than non-migrants.

Outmigrant incomes (most of which were received at the destination location) were slightly higher than those of non-migrants who remained in Montana. The incomes of outmigrants were significantly higher than those of non-migrants in the sample when age, gender, school enrollment, and educational attainment were controlled for. The fact that both non-migrants and inmigrants were much more dependent on nonemployment income than were outmigrants indicates the importance of these income sources for residents of Montana. For some Montanans, nonemployment income may afford the opportunity to remain in the state, while some of those without nonemployment income choose to relocate in search of higher paying jobs.

Differences in age, education, and occupation between non-migrants and outmigrants at the regional level were quite consistent with those at the state level. At the regional level, however, non-migrants generally had higher incomes than outmigrants. This indicates that migrants who left the state had higher incomes than those who remained in Montana. Since most outmigrant incomes were received at the destination location, the income disparity between intrastate and interstate outmigrants likely reflects the fact that incomes in Montana are low by national standards. In most cases, outmigrants in the sample were shown to have higher incomes than non-migrants in their PUMAs of origin when age, gender, school enrollment, and educational attainment were controlled for.

Although general patterns of age, education, and occupation selectivity were influential in determining the socioeconomic compositions of both immigrant and outmigrant streams at the state level, such selectivity appeared to be more pervasive in outmigrant streams. This contributed to the net outmigration of young adults, persons with a bachelor's degree or higher, and managers and professionals. Higher outmigrant incomes resulted in net outmigration in three of the four highest income brackets. These outcomes may indicate that 1995-2000 interstate migration exchanges resulted in a net loss of human capital in Montana. However, these results must be considered in light of the fact that the education levels, occupations, and in most cases the incomes of migrants correspond to those at the destination location and may have been different while they were living in the location of origin. This consideration is particularly relevant with regard to persons who were enrolled in institutions of higher education while living in the location of origin.

Data analysis at the regional level revealed substantial variation in patterns of migration and socioeconomic change across the state. The lack of natural amenities, rural nature, and dependence on farming and mining are place attributes that were likely influential in shaping the socioeconomic compositions of both migrant and non-migrant populations in the East region. Non-migrants and immigrants who resided in this region were older, less educated, and had higher rates of blue-collar employment than those in other parts of Montana. Although non-migrant incomes were lower than in other regions of the state, immigrant incomes were comparatively high in the East. It is probable that many older immigrants with relatively high incomes were return migrants to the East

region, where family ties may be one of the most significant pull factors (von Reichert 2002, 150). Similar to other rural locations in the Great Plains, outmigrants from the East were heavily concentrated in the young adult cohorts. Outmigrants from this region had lower levels of education, higher rates of blue-collar employment, and lower incomes than those from other PUMAs. Therefore, although migration from the East region was selective, the socioeconomic composition of the outmigrant population reflected that of non-migrants with regard to education, occupation, and income.

Because the East PUMA incurred a fairly high rate of net outmigration, both general and location-specific patterns of migrant selectivity influenced socioeconomic change in the region. Age-specific net migration rates were indicative of these combined influences, as the East PUMA lost a substantial proportion of its young adult population. There was also a net outmigration of white-collar workers from the region. The loss of human capital possessed by young working age adults and skilled workers can have negative social and economic repercussions for an area. Among the consequences associated with patterns of net outmigration in the East are a decreased demand for local goods and services, inability to attract new businesses, and a shrinking tax base that hampers the ability of communities to provide public services (Rathge and Highman 1998, 4-5).

However, the effects of 1995-2000 migration exchanges in the East PUMA were not entirely negative. Inmigrants were more educated and had higher incomes than outmigrants. These results contrast with prior research showing that migration exchanges resulted in decreased levels of education in nonmetro areas (Tucker 1981, 33-35) and

lower incomes in much of the Great Plains region (Manson and Groop 1999, 68-72; Cromartie and Nord 1997, 40-45; Vias and Collins 2003, 237-248).

Although a lack of natural amenities, rurality, and dependence on farming are also characteristic of many parts of North-Central Montana, these attributes are not as pervasive as in the East PUMA. The presence of Great Falls MSA and Malmstrom Air Force Base were factors that contributed to younger non-migrant and immigrant populations in the North-Central PUMA, as well as a lower percentage of young adults among outmigrants from the region. As the North-Central region also incurred a comparatively high rate of net outmigration, it is likely that changes in the socioeconomic composition of the population were influenced by both general and location-specific patterns of selectivity. The net loss of young adults was not nearly as pronounced as in the East region. However, rates of net outmigration among persons with a bachelor's degree or higher, white-collar workers, and those at the upper end of the income distribution were higher than rates of overall net outmigration in the North-Central PUMA. These results may indicate a decrease in human capital and the potential for negative social and economic repercussions in North-Central Montana.

Natural amenities, which are often considered to be a pull factor for retirees and migrants with high incomes, most likely played a role in the comparatively high percentages of these persons among migrants to the Northwest. Net immigration of managers and professionals, those with \$100,000 or more total income, and persons with a bachelor's degree or higher appeared to increase human capital levels in this region, where non-migrants had relatively low incomes and education levels and a high rate of

blue-collar employment. The influx of these migrants, many of whom were from out of state, could lead to an increased likelihood of conflicts between oldtimers and newcomers in this region of Montana. Another notable outcome of migration exchanges in the Northwest was the substantial net loss of 18-23 year-olds in the Northwest. This suggests that for these young adults the pull of natural amenities may be superseded by other locational attributes such as the presence of a university. The Midwest PUMA, another amenity-rich region of the state, also experienced a high rate of net outmigration among young adults.

The importance of natural amenities in shaping patterns of retirement migration is also suggested by the high rate of net immigration in the 65 and over cohort in the West-Central PUMA. Furthermore, natural amenities and other quality of life factors may have been a pull factor for parents with dependents, resulting in the high rate of net immigration among children and adolescents in this region. Although there was a substantial overall net influx of migrants in West-Central Montana, the net gain of children and the elderly resulted in an increased dependency ratio in the PUMA. In addition, demands for education, health care, and other services geared toward these populations have likely increased.

The relationship between metropolitan status and patterns of socioeconomic change could best be seen in Yellowstone County, the only PUMA comprised entirely of metropolitan territory. As expected, non-migrants and immigrants who resided in this PUMA had comparatively high incomes and rates of white-collar employment. However, Yellowstone County actually incurred a minor net loss of young adults and

those who were employed in management and professional occupations at the time of the 2000 census. Net immigration of the highly educated was marginal. In this PUMA, patterns of selectivity affecting immigration streams were fairly similar to those affecting outmigration streams. Consequently, changes in the socioeconomic composition of Yellowstone County's population were not as substantial as in other PUMAs.

The presence of major state universities greatly influenced migrant profiles in West-Central and Southwest Montana, and all results should be interpreted with regard to this circumstance. Migration flows affecting these regions were dominated by 18-23 year-olds who relocated for educational purposes and then migrated out again in their mid-twenties after completing their studies. Thus, net immigration occurred among service workers and those at the lower end of the income distribution. Net outmigration occurred among university graduates, managers and professionals, and persons with middle-level incomes. These results reflect changes in the socioeconomic structure of student populations during their enrollment periods. Although many young adults left these two PUMAs, the West-Central and Southwest were the only regions of the state with a net gain of 18-29 year-olds during the 1995-2000 interval. This outcome is consistent with general patterns of migrant selectivity, as these regions had the highest rates of net immigration in the state.

This research has provided considerable insight regarding patterns of migration and socioeconomic change in Montana during the 1995-2000 period. Results indicated that the socioeconomic compositions of migrants and non-migrants were influenced by general patterns of migrant selectivity. However, differing locational attributes



contributed to regional variation in the compositions of these populations throughout the state. Natural amenity level, position on the rural-urban continuum, economic structure, and the presence of a major university were among the factors that appeared to influence this variation. Both general and location-specific patterns of selectivity were influential in determining the net effect of migration on the socioeconomic compositions of populations throughout the state. Further investigation of the relationship between locational attributes and patterns of migrant selectivity is an area of research that would lead to a better understanding of migration and socioeconomic change in the United States. Such research would contribute to informed policy decisions for the future.

## APPENDICES

### Appendix A: Age Distributions and Net Migration by Age for PUMAs

Age Cohort	Non-migrants in Northwest	Inmigrants to Northwest	Outmigrants from Northwest	Net Migration	Rate (%)
5-9	7,061 (7.4%)	1,830 (7.1%)	1,778 (7.2%)	52	0.59
10-17	14,163 (14.8%)	3,363 (13.0%)	2,540 (10.3%)	823	4.93
18-23	5,454 (5.7%)	2,108 (8.1%)	6,222 (25.2%)	-4,114	-35.23
24-29	3,962 (4.2%)	3,733 (14.4%)	2,673 (10.8%)	1,060	15.98
30-39	11,970 (12.6%)	4,591 (17.7%)	3,411 (13.8%)	1,180	7.67
40-49	18,681 (19.6%)	3,922 (15.1%)	3,178 (12.9%)	744	3.40
50-64	19,185 (20.1%)	3,764 (14.5%)	2,802 (11.3%)	962	4.38
65+	14,860 (15.6%)	2,617 (10.1%)	2,102 (8.5%)	515	3.04
Total	95,309 (100%)	25,928 (100%)	24,706 (100%)	1,222	1.02

Age Cohort	Non-migrants in North-Central	Inmigrants to North-Central	Outmigrants from North-Central	Net Migration	Rate (%)
5-9	8,478 (7.5%)	2,009 (9.0%)	2,979 (10.2%)	-970	-8.47
10-17	18,451 (16.2%)	2,738 (12.2%)	3,929 (13.5%)	-1,191	-5.32
18-23	7,324 (6.4%)	3,938 (17.6%)	4,961 (17.0%)	-1,023	-8.33
24-29	5,786 (5.1%)	3,398 (15.2%)	3,738 (12.8%)	-340	-3.57
30-39	15,064 (13.3%)	4,209 (18.8%)	6,193 (21.3%)	-1,984	-9.33
40-49	20,581 (18.1%)	2,621 (11.7%)	3,409 (11.7%)	-788	-3.28
50-64	19,760 (17.4%)	1,999 (8.9%)	2,458 (8.4%)	-459	-2.07
65+	18,185 (16.0%)	1,513 (6.7%)	1,465 (5.0%)	48	0.24
Total	113,629 (100%)	22,425 (100%)	29,132 (100%)	-6,707	-4.70

Age Cohort	Non-migrants in East	Inmigrants to East	Outmigrants from East	Net Migration	Rate (%)
5-9	7,763 (7.1%)	1,856 (9.5%)	2,141 (7.5%)	-285	-2.88
10-17	16,171 (15.0%)	2,665 (13.7%)	3,495 (12.3%)	-830	-4.22
18-23	6,085 (5.7%)	1,483 (7.6%)	7,420 (26.2%)	-5,937	-43.96
24-29	4,921 (4.6%)	2,080 (10.7%)	3,205 (11.3%)	-1,125	-13.84
30-39	11,858 (11.0%)	3,809 (19.6%)	3,964 (14.0%)	-155	-0.98
40-49	19,962 (18.6%)	2,697 (13.9%)	3,050 (10.8%)	-353	-1.53
50-64	20,636 (19.2%)	3,277 (16.8%)	2,684 (9.5%)	593	2.54
65+	20,186 (18.8%)	1,605 (8.2%)	2,404 (8.5%)	-799	-3.54
Total	107,492 (100%)	19,472 (100%)	28,363 (100%)	-8,891	-6.54

Age Cohort	Non-migrants in Yellowstone	Inmigrants to Yellowstone	Outmigrants from Yellowstone	Net Migration	Rate (%)
5-9	7,944 (8.3%)	1,992 (8.5%)	1,790 (7.8%)	202	2.08
10-17	11,898 (12.4%)	2,741 (11.7%)	2,395 (10.4%)	346	2.42
18-23	7,116 (7.4%)	3,598 (15.3%)	3,927 (17.1%)	-329	-2.98
24-29	5,989 (6.2%)	3,848 (16.4%)	3,594 (15.7%)	254	2.65
30-39	13,594 (14.2%)	4,989 (21.2%)	4,398 (19.2%)	591	3.28
40-49	17,358 (18.1%)	2,649 (11.3%)	3,416 (14.9%)	-767	-3.69
50-64	17,180 (17.9%)	2,316 (9.9%)	2,449 (10.7%)	-133	-0.68
65+	14,949 (15.6%)	1,354 (5.8%)	962 (4.2%)	392	2.46
Total	96,028 (100%)	23,487 (100%)	22,931 (100%)	556	0.47

Age Cohort	Non-migrants in Southwest	Inmigrants to Southwest	Outmigrants from Southwest	Net Migration	Rate (%)
5-9	4,698 (6.9%)	1,973 (7.2%)	1,821 (7.2%)	152	2.33
10-17	8,079 (11.9%)	2,171 (7.9%)	2,397 (9.4%)	-226	-2.16
18-23	5,490 (8.1%)	8,067 (29.4%)	3,831 (15.1%)	4,236	45.45
24-29	4,032 (5.9%)	4,767 (17.4%)	6,424 (25.3%)	-1,657	-15.85
30-39	9,210 (13.6%)	4,453 (16.3%)	4,427 (17.4%)	26	0.19
40-49	14,255 (21.0%)	3,071 (11.2%)	3,281 (12.9%)	-210	-1.20
50-64	11,981 (17.6%)	2,025 (7.4%)	2,285 (9.0%)	-260	-1.82
65+	10,175 (15.0%)	872 (3.2%)	958 (3.8%)	-86	-0.77
Total	67,920 (100%)	27,399 (100%)	25,424 (100%)	1,975	2.12

<b>Age Cohort</b>	<b>Non-migrants in Midwest</b>	<b>Inmigrants to Midwest</b>	<b>Outmigrants from Midwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
5-9	7,003 (7.5%)	1,737 (7.7%)	1,863 (8.0%)	-126	-1.42
10-17	11,340 (12.1%)	2,946 (13.1%)	2,899 (12.5%)	47	0.33
18-23	6,331(6.8%)	2,689 (12.0%)	4,799 (20.6%)	-2,110	-18.96
24-29	4,402 (4.7%)	2,214 (9.9%)	3,661 (15.7%)	-1,447	-17.95
30-39	11,814 (12.6%)	4,932 (22.0%)	3,808 (16.4%)	1,124	7.19
40-49	17,912 (19.1%)	3,541 (15.8%)	3,086 (13.3%)	455	2.17
50-64	18,750 (20.0%)	2,869 (12.8%)	1,943 (8.3%)	926	4.47
65+	16,125 (17.2%)	1,510 (6.7%)	1,213 (5.2%)	297	1.71
<b>Total</b>	<b>93,677 (100%)</b>	<b>22,438 (100%)</b>	<b>23,272 (100%)</b>	<b>-834</b>	<b>-0.71</b>

<b>Age Cohort</b>	<b>Non-migrants in West-Central</b>	<b>Inmigrants to West-Central</b>	<b>Outmigrants from West-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
5-9	6,506 (7.2%)	2,661 (7.6%)	1,492 (5.6%)	1,169	14.62
10-17	11,552 (12.8%)	3,999 (11.5%)	2,003 (7.5%)	1,996	14.73
18-23	6,386 (7.1%)	7,240 (20.7%)	4,531 (17.0%)	2,709	24.81
24-29	5,688 (6.3%)	4,946 (14.2%)	6,629 (24.8%)	-1,683	-13.66
30-39	11,996 (13.3%)	5,963 (17.1%)	5,088 (19.1%)	875	5.12
40-49	15,484 (17.2%)	4,310 (12.3%)	3,069 (11.5%)	1,241	6.69
50-64	19,270 (21.4%)	3,372 (9.7%)	2,679 (10.0%)	693	3.16
65+	13,054 (14.5%)	2,409 (6.9%)	1,201 (4.5%)	1,208	8.47
<b>Total</b>	<b>89,936 (100%)</b>	<b>34,900 (100%)</b>	<b>26,692 (100%)</b>	<b>8,208</b>	<b>7.04</b>

**Appendix B: Education Distributions and Net Migration by  
Educational Attainment for PUMAs**

<b>Education</b>	<b>Non-migrants in Northwest</b>	<b>Inmigrants to Northwest</b>	<b>Outmigrants from Northwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	10,481 (15.4%)	1,981 (10.9%)	1,480 (11.0%)	501	4.19
High school graduate	23,225 (34.2%)	4,524 (24.8%)	3,365 (25.0%)	1,159	4.36
Some college or associate degree	22,103 (32.5%)	6,225 (34.2%)	5,113 (37.9%)	1,112	4.09
Bachelor's degree	8,860 (13.0%)	3,937 (21.6%)	2,580 (19.1%)	1,357	11.86
Graduate or professional degree	3,287 (4.8%)	1,559 (8.6%)	947 (7.0%)	612	14.45
<b>Total</b>	<b>67,956 (100%)</b>	<b>18,226 (100%)</b>	<b>13,485 (100%)</b>	<b>4,741</b>	<b>5.82</b>

<b>Education</b>	<b>Non-migrants in North-Central</b>	<b>Inmigrants to North-Central</b>	<b>Outmigrants from North-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	11,775 (15.1%)	1,261 (9.7%)	1,665 (10.0%)	-404	-3.01
High school graduate	26,771 (34.3%)	3,175 (24.5%)	3,646 (21.9%)	-471	-1.55
Some college or associate degree	24,744 (31.7%)	4,624 (35.7%)	6,497 (39.1%)	-1,873	-6.00
Bachelor's degree	10,948 (14.0%)	2,767 (21.3%)	3,225 (19.4%)	-458	-3.23
Graduate or professional degree	3,895 (5.0%)	1,136 (8.8%)	1,604 (9.6%)	-468	-8.51
<b>Total</b>	<b>78,133 (100%)</b>	<b>12,963 (100%)</b>	<b>16,637 (100%)</b>	<b>-3,674</b>	<b>-3.88</b>

<b>Education</b>	<b>Non-migrants in East</b>	<b>Inmigrants to East</b>	<b>Outmigrants from East</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	13,929 (18.1%)	1,697 (13.0%)	2,217 (15.4%)	-520	-3.22
High school graduate	27,047 (35.2%)	3,648 (27.9%)	4,222 (29.3%)	-574	-1.84
Some college or associate degree	23,860 (31.0%)	4,200 (32.1%)	4,821 (33.4%)	-621	-2.17
Bachelor's degree	9,207 (12.0%)	2,498 (19.1%)	2,346 (16.3%)	152	1.32
Graduate or professional degree	2,832 (3.7%)	1,035 (7.9%)	818 (5.7%)	217	5.95
<b>Total</b>	<b>76,875 (100%)</b>	<b>13,078 (100%)</b>	<b>14,424 (100%)</b>	<b>-1,346</b>	<b>-1.47</b>

<b>Education</b>	<b>Non-migrants in Yellowstone</b>	<b>Inmigrants to Yellowstone</b>	<b>Outmigrants from Yellowstone</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	7,424 (10.9%)	1,225 (8.4%)	928 (6.6%)	297	3.56
High school graduate	22,636 (33.3%)	3,773 (25.9%)	3,209 (23.0%)	564	2.18
Some college or associate degree	20,255 (29.8%)	4,882 (33.5%)	5,207 (37.3%)	-325	-1.28
Bachelor's degree	13,186 (19.4%)	3,571 (24.5%)	3,741 (26.8%)	-170	-1.00
Graduate or professional degree	4,394 (6.5%)	1,124 (7.7%)	873 (6.3%)	251	4.77
Total	67,895 (100%)	14,575 (100%)	13,958 (100%)	617	0.75

<b>Education</b>	<b>Non-migrants in Southwest</b>	<b>Inmigrants to Southwest</b>	<b>Outmigrants from Southwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	4,478 (9.1%)	797 (5.7%)	877 (5.3%)	-80	-1.49
High school graduate	13,659 (27.9%)	2,812 (20.0%)	2,740 (16.6%)	72	0.44
Some college or associate degree	14,582 (29.8%)	5,399 (38.4%)	4,693 (28.4%)	706	3.66
Bachelor's degree	11,486 (23.5%)	3,540 (25.2%)	6,514 (39.5%)	-2,974	-16.52
Graduate or professional degree	4,747 (9.7%)	1,524 (10.8%)	1,681 (10.2%)	-157	-2.44
Total	48,952 (100%)	14,072 (100%)	16,505 (100%)	-2,433	-3.72

<b>Education</b>	<b>Non-migrants in Midwest</b>	<b>Inmigrants to Midwest</b>	<b>Outmigrants from Midwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	8,110 (11.9%)	1,693 (11.5%)	1,268 (9.9%)	425	4.53
High school graduate	23,578 (34.6%)	3,994 (27.1%)	3,243 (25.3%)	751	2.80
Some college or associate degree	20,050 (29.4%)	4,286 (29.0%)	4,379 (34.2%)	-93	-0.38
Bachelor's degree	11,249 (16.5%)	3,485 (23.6%)	2,642 (20.6%)	843	6.07
Graduate or professional degree	5,204 (7.6%)	1,306 (8.8%)	1,275 (10.0%)	31	0.48
Total	68,191 (100%)	14,764 (100%)	12,807 (100%)	1,957	2.42

<b>Education</b>	<b>Non-migrants in West-Central</b>	<b>Inmigrants to West-Central</b>	<b>Outmigrants from West-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Did not complete high school	7,160 (11.1%)	1,549 (7.8%)	1,321 (7.5%)	228	2.69
High school graduate	18,742 (29.2%)	5,051 (25.5%)	3,316 (18.8%)	1,735	7.87
Some college or associate degree	21,089 (32.8%)	7,028 (35.5%)	4,675 (26.5%)	2,353	9.13
Bachelor's degree	11,941 (18.6%)	4,327 (21.8%)	5,947 (33.7%)	-1,620	-9.06
Graduate or professional degree	5,300 (8.3%)	1,856 (9.4%)	2,388 (13.5%)	-532	-6.92
Total	64,232 (100%)	19,811 (100%)	17,647 (100%)	2,164	2.64

**Appendix C: Occupation Distributions and Net Migration  
by Occupation for PUMAs**

<b>Occupation</b>	<b>Non-migrants in Northwest</b>	<b>Immigrants to Northwest</b>	<b>Outmigrants from Northwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	11,130 (24.8%)	3,835 (31.8%)	3,500 (28.0%)	335	2.29
Sales/Office	11,897 (26.5%)	3,157 (26.2%)	3,697 (29.6%)	-540	-3.46
Services	7,290 (16.3%)	1,691 (14.0%)	2,408 (19.3%)	-717	-7.39
Farming, Forestry, Fishing	1,892 (4.2%)	201 (1.7%)	224 (1.8%)	-23	-1.09
Construction, Extr., Maintenance	5,366 (12.0%)	1,666 (13.8%)	1,249 (10.0%)	417	6.30
Production/ Transportation	7,242 (16.2%)	1,522 (12.6%)	1,404 (11.2%)	118	1.36
<b>Total</b>	<b>44,817 (100%)</b>	<b>12,072 (100%)</b>	<b>12,482 (100%)</b>	<b>-410</b>	<b>-0.72</b>

<b>Occupation</b>	<b>Non-migrants in North-Central</b>	<b>Immigrants to North-Central</b>	<b>Outmigrants from North-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	14,814 (27.8%)	2,714 (26.8%)	4,785 (34.9%)	-2,071	-10.57
Sales/Office	13,420 (25.2%)	2,504 (24.7%)	3,736 (27.3%)	-1,232	-7.18
Services	9,861 (18.5%)	2,184 (21.6%)	2,749 (20.1%)	-565	-4.48
Farming, Forestry, Fishing	4,379 (8.2%)	530 (5.2%)	134 (1.0%)	396	8.77
Construction, Extr., Maintenance	4,990 (9.4%)	1,200 (11.9%)	1,195 (8.7%)	5	0.08
Production/ Transportation	5,733 (10.8%)	992 (9.8%)	1,103 (8.0%)	-111	-1.62
<b>Total</b>	<b>53,197 (100%)</b>	<b>10,124 (100%)</b>	<b>13,702 (100%)</b>	<b>-3,578</b>	<b>-5.35</b>

<b>Occupation</b>	<b>Non-migrants in East</b>	<b>Immigrants to East</b>	<b>Outmigrants from East</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	11,926 (23.4%)	3,075 (32.2%)	3,655 (25.3%)	-580	-3.72
Sales/Office	10,780 (21.1%)	1,822 (19.1%)	4,065 (28.1%)	-2,243	-15.11
Services	9,583 (18.8%)	1,736 (18.2%)	2,499 (17.3%)	-763	-6.32
Farming, Forestry, Fishing	8,414 (16.5%)	672 (7.0%)	744 (5.1%)	-72	-0.79
Construction, Extr., Maintenance	5,445 (10.7%)	1,198 (12.5%)	1,735 (12.0%)	-537	-7.48
Production/ Transportation	4,867 (9.5%)	1,052 (11.0%)	1,775 (12.3%)	-723	-10.89
<b>Total</b>	<b>51,015 (100%)</b>	<b>9,555 (100%)</b>	<b>14,473 (100%)</b>	<b>-4,918</b>	<b>-7.51</b>

<b>Occupation</b>	<b>Non-migrants in Yellowstone</b>	<b>Inmigrants to Yellowstone</b>	<b>Outmigrants from Yellowstone</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	15,954 (30.2%)	4,360 (34.0%)	4,705 (36.5%)	-345	-1.67
Sales/Office	16,564 (31.3%)	3,847 (30.0%)	3,309 (25.7%)	538	2.71
Services	8,572 (16.2%)	1,848 (14.4%)	2,143 (16.6%)	-295	-2.75
Farming, Forestry, Fishing	897 (1.7%)	142 (1.1%)	194 (1.5%)	-52	-4.77
Construction, Extr., Maintenance	4,296 (8.1%)	1,462 (11.4%)	1,248 (9.7%)	214	3.86
Production/ Transportation	6,583 (12.5%)	1,169 (9.1%)	1,300 (10.1%)	-131	-1.66
<b>Total</b>	<b>52,866 (100%)</b>	<b>12,828 (100%)</b>	<b>12,899 (100%)</b>	<b>-71</b>	<b>-0.11</b>

<b>Occupation</b>	<b>Non-migrants in Southwest</b>	<b>Inmigrants to Southwest</b>	<b>Outmigrants from Southwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	12,145 (32.2%)	4,426 (27.4%)	7,094 (45.9%)	-2,668	-13.87
Sales/Office	8,679 (23.0%)	4,643 (28.8%)	3,144 (20.3%)	1,499	12.68
Services	5,609 (14.9%)	3,177 (19.7%)	2,311 (15.0%)	866	10.93
Farming, Forestry, Fishing	2,100 (5.6%)	527 (3.3%)	558 (3.6%)	-31	-1.17
Construction, Extr., Maintenance	4,295 (11.4%)	2,054 (12.7%)	1,200 (7.8%)	854	15.54
Production/ Transportation	4,893 (13.0%)	1,318 (8.2%)	1,143 (7.4%)	175	2.90
<b>Total</b>	<b>37,721 (100%)</b>	<b>16,145 (100%)</b>	<b>15,450 (100%)</b>	<b>695</b>	<b>1.31</b>

<b>Occupation</b>	<b>Non-migrants in Midwest</b>	<b>Inmigrants to Midwest</b>	<b>Outmigrants from Midwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	16,498 (34.9%)	3,857 (36.2%)	4,541 (37.3%)	-684	-3.25
Sales/Office	11,878 (25.1%)	2,341 (22.0%)	2,696 (22.1%)	-355	-2.44
Services	8,301 (17.5%)	2,316 (21.7%)	2,190 (18.0%)	126	1.20
Farming, Forestry, Fishing	1,417 (3.0%)	289 (2.7%)	178 (1.5%)	111	6.96
Construction, Extr., Maintenance	4,705 (9.9%)	1,005 (9.4%)	1,248 (10.2%)	-243	-4.08
Production/ Transportation	4,541 (9.6%)	857 (8.0%)	1,328 (10.9%)	-471	-8.03
<b>Total</b>	<b>47,340 (100%)</b>	<b>10,665 (100%)</b>	<b>12,181 (100%)</b>	<b>-1,516</b>	<b>-2.55</b>



<b>Occupation</b>	<b>Non-migrants in West-Central</b>	<b>Inmigrants to West-Central</b>	<b>Outmigrants from West-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Management/ Professional	14,879 (31.0%)	5,211 (29.5%)	6,784 (42.2%)	-1,573	-7.26
Sales/Office	13,042 (27.2%)	4,893 (27.7%)	4,004 (24.9%)	889	5.22
Services	7,125 (14.9%)	3,845 (21.7%)	2,467 (15.4%)	1,378	14.37
Farming, Forestry, Fishing	1,129 (2.4%)	127 (.7%)	197 (1.2%)	-70	-5.28
Construction, Extr., Maintenance	5,331 (11.1%)	2,025 (11.5%)	1,518 (9.5%)	507	7.40
Production/ Transportation	6,460 (13.5%)	1,584 (9.0%)	1,091 (6.8%)	493	6.53
Total	47,966 (100%)	17,685 (100%)	16,061 (100%)	1,624	2.54

### Appendix D: Income Distributions and Net Migration by Income for PUMAs

Total Income	Non-migrants in Northwest	Inmigrants to Northwest	Outmigrants from Northwest	Net Migration	Rate (%)
Less than \$10,000	21,914 (31.0%)	6,279 (32.2%)	6,938 (36.8%)	-659	-2.28
\$10,000-\$19,999	17,385 (24.6%)	4,960 (25.4%)	4,794 (25.4%)	166	0.75
\$20,000-\$34,999	17,360 (24.6%)	4,845 (24.8%)	4,131 (21.9%)	714	3.32
\$35,000-\$49,999	7,922 (11.2%)	1,738 (8.9%)	1,660 (8.8%)	78	0.81
\$50,000-\$99,999	4,279 (6.1%)	1,043 (5.3%)	1,012 (5.4%)	31	0.59
\$100,000 or more	1,758 (2.5%)	650 (3.3%)	339 (1.8%)	311	14.83
Total	70,618 (100%)	19,515 (100%)	18,874 (100%)	641	0.72
Average Income	\$23,959	\$24,676	\$21,110		

Total Income	Non-migrants in North-Central	Inmigrants to North-Central	Outmigrants from North-Central	Net Migration	Rate (%)
Less than \$10,000	24,631 (30.2%)	5,036 (30.8%)	6,929 (33.2%)	-1,893	-6.00
\$10,000-\$19,999	20,393 (25.0%)	5,005 (30.6%)	4,774 (22.8%)	231	0.92
\$20,000-\$34,999	20,439 (25.1%)	3,908 (23.9%)	4,982 (23.8%)	-1,074	-4.22
\$35,000-\$49,999	8,887 (10.9%)	1,373 (8.4%)	2,308 (11.0%)	-935	-8.35
\$50,000-\$99,999	5,030 (6.2%)	889 (5.4%)	1,599 (7.7%)	-710	-10.71
\$100,000 or more	2,094 (2.6%)	126 (.8%)	301 (1.4%)	-175	-7.31
Total	81,474 (100%)	16,337 (100%)	20,893 (100%)	-4,556	-4.45
Average Income	\$24,178	\$19,742	\$22,334		

Total Income	Non-migrants in East	Inmigrants to East	Outmigrants from East	Net Migration	Rate (%)
Less than \$10,000	26,205 (33.2%)	4,186 (29.6%)	8,403 (39.5%)	-4,217	-12.19
\$10,000-\$19,999	21,017 (26.6%)	3,770 (26.7%)	5,471 (25.7%)	-1,701	-6.42
\$20,000-\$34,999	18,359 (23.2%)	3,553 (25.1%)	4,815 (22.6%)	-1,262	-5.45
\$35,000-\$49,999	7,011 (8.9%)	1,300 (9.2%)	1,159 (5.4%)	141	1.73
\$50,000-\$99,999	5,134 (6.5%)	1,070 (7.6%)	1,203 (5.7%)	-133	-2.10
\$100,000 or more	1,297 (1.6%)	262 (1.9%)	216 (1.0%)	46	3.04
Total	79,023 (100%)	14,141 (100%)	21,267 (100%)	-7,126	-7.11
Average Income	\$21,777	\$23,147	\$18,481		

<b>Total Income</b>	<b>Non-migrants in Yellowstone</b>	<b>Inmigrants to Yellowstone</b>	<b>Outmigrants from Yellowstone</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Less than \$10,000	18,310 (24.8%)	5,626 (32.1%)	4,706 (27.0%)	920	4.00
\$10,000-\$19,999	19,602 (26.5%)	4,279 (24.4%)	4,569 (26.2%)	-290	-1.20
\$20,000-\$34,999	18,170 (24.6%)	3,936 (22.5%)	4,396 (25.2%)	-460	-2.04
\$35,000-\$49,999	9,382 (12.7%)	1,700 (9.7%)	1,815 (10.4%)	-115	-1.03
\$50,000-\$99,999	6,397 (8.7%)	1,553 (8.9%)	1,541 (8.8%)	12	0.15
\$100,000 or more	1,989 (2.7%)	414 (2.4%)	389 (2.2%)	25	1.05
<b>Total</b>	<b>73,850 (100%)</b>	<b>17,508 (100%)</b>	<b>17,416 (100%)</b>	<b>92</b>	<b>0.10</b>
<b>Average Income</b>	<b>\$27,262</b>	<b>\$24,170</b>	<b>\$24,954</b>		

<b>Total Income</b>	<b>Non-migrants in Southwest</b>	<b>Inmigrants to Southwest</b>	<b>Outmigrants from Southwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Less than \$10,000	14,532 (27.2%)	8,358 (38.0%)	5,173 (26.3%)	3,185	16.16
\$10,000-\$19,999	13,391 (25.1%)	6,295 (28.6%)	4,736 (24.1%)	1,559	8.60
\$20,000-\$34,999	13,148 (24.6%)	4,000 (18.2%)	5,310 (27.0%)	-1,310	-7.10
\$35,000-\$49,999	6,609 (12.4%)	1,641 (7.5%)	2,494 (12.7%)	-853	-9.37
\$50,000-\$99,999	4,537 (8.5%)	1,399 (6.4%)	1,691 (8.6%)	-292	-4.69
\$100,000 or more	1,213 (2.3%)	313 (1.4%)	265 (1.3%)	48	3.25
<b>Total</b>	<b>53,430 (100%)</b>	<b>22,006 (100%)</b>	<b>19,669 (100%)</b>	<b>2,337</b>	<b>3.20</b>
<b>Average Income</b>	<b>\$26,060</b>	<b>\$19,513</b>	<b>\$25,266</b>		

<b>Total Income</b>	<b>Non-migrants in Midwest</b>	<b>Inmigrants to Midwest</b>	<b>Outmigrants from Midwest</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Less than \$10,000	19,239 (26.5%)	6,071 (37.2%)	5,978 (34.1%)	93	0.37
\$10,000-\$19,999	18,030 (24.9%)	3,706 (22.7%)	4,524 (25.8%)	-818	-3.63
\$20,000-\$34,999	19,026 (26.2%)	3,565 (21.8%)	3,750 (21.4%)	-185	-0.81
\$35,000-\$49,999	10,016 (13.8%)	1,669 (10.2%)	1,741 (9.9%)	-72	-0.61
\$50,000-\$99,999	5,021 (6.9%)	1,037 (6.3%)	1,343 (7.7%)	-306	-4.81
\$100,000 or more	1,175 (1.6%)	286 (1.8%)	188 (1.1%)	98	7.19
<b>Total</b>	<b>72,507 (100%)</b>	<b>16,334 (100%)</b>	<b>17,524 (100%)</b>	<b>-1,190</b>	<b>-1.32</b>
<b>Average Income</b>	<b>\$24,674</b>	<b>\$21,815</b>	<b>\$21,390</b>		

<b>Total Income</b>	<b>Non-migrants in West-Central</b>	<b>Immigrants to West-Central</b>	<b>Outmigrants from West-Central</b>	<b>Net Migration</b>	<b>Rate (%)</b>
Less than \$10,000	19,357 (28.0%)	10,035 (38.1%)	5,722 (26.1%)	4,313	17.20
\$10,000-\$19,999	16,907 (24.5%)	7,632 (29.0%)	5,962 (27.2%)	1,670	7.30
\$20,000-\$34,999	16,147 (23.4%)	5,168 (19.6%)	5,510 (25.1%)	-342	-1.58
\$35,000-\$49,999	8,664 (12.5%)	1,809 (6.9%)	2,416 (11.0%)	-607	-5.48
\$50,000-\$99,999	6,363 (9.2%)	1,224 (4.7%)	1,905 (8.7%)	-681	-8.24
\$100,000 or more	1,692 (2.4%)	445 (1.7%)	414 (1.9%)	31	1.47
<b>Total</b>	<b>69,130 (100%)</b>	<b>26,313 (100%)</b>	<b>21,929 (100%)</b>	<b>4,384</b>	<b>4.81</b>
<b>Average Income</b>	<b>\$25,783</b>	<b>\$19,628</b>	<b>\$24,957</b>		

**Appendix E: Results of Linear Regression Analyses of Log Total Income**

	<b>State of Montana</b>		<b>Northwest</b>		<b>North-Central</b>		<b>East</b>	
<b>Independent Variables</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>
Age	.914	36.049**	.949	14.509**	.919	14.970**	.932	15.942**
Age <sup>2</sup>	-.776	-31.574**	-.840	-13.272**	-.769	-12.849**	-.768	-13.555**
Gender	-.250	-56.215**	-.276	-24.076**	-.228	-21.087**	-.243	-24.406**
No H.S. Diploma	-.179	-34.515**	-.173	-12.858**	-.192	-15.175**	-.190	-15.933**
H.S. Graduate	-.070	-13.424**	-.063	-4.693**	-.067	-5.340**	-.068	-5.803**
Bachelor's Degree	.106	21.313**	.090	7.138**	.097	8.153**	.084	7.673**
Grad/Professional Degree	.121	25.590**	.119	9.778**	.123	10.898**	.088	8.425**
Student	-.180	-33.906**	-.155	-11.365**	-.167	-13.413**	-.165	-13.574**
Inmigrant	-.001	-.143	-.018	-1.496	-.009	-.846	.023	2.250
Outmigrant	.046	9.933**	.003	.276	.041	3.573**	.037	3.565**
R Square	.293		.288		.276		.271	
Observations	36,169		5,477		6,269		7,469	

\*\* $p < .001$

\* $p < .01$

<sup>++</sup> The reference category for education variables is *Some College or Associate Degree*.

	<b>Yellowstone</b>		<b>Southwest</b>		<b>Midwest</b>		<b>West-Central</b>	
<b>Independent Variables</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>	<b>Standardized Coefficients</b>	<b>T Statistics</b>
Age	.880	12.414**	.805	11.935**	.883	12.789**	.981	14.636**
Age <sup>2</sup>	-.779	-11.332**	-.650	-10.076**	-.763	-11.465**	-.832	-12.856**
Gender	-.272	-21.847**	-.250	-21.175**	-.220	-18.246**	-.256	-21.551**
No H.S. Diploma	-.185	-12.895**	-.152	-11.443**	-.167	-11.837**	-.165	-12.209**
H.S. Graduate	-.088	-6.032**	-.051	-3.636**	-.096	-6.658**	-.076	-5.452**
Bachelor's Degree	.116	8.212**	.104	7.604**	.122	8.940**	.121	8.925**
Grad/Professional Degree	.121	9.156**	.129	10.031**	.144	11.141**	.119	9.266**
Student	-.207	-14.021**	-.231	-15.599**	-.186	-12.722**	-.203	-14.198**
Inmigrant	-.048	-3.729**	.025	1.941	-.054	-4.344**	-.020	-1.596
Outmigrant	-.016	-1.202	.044	3.458**	.004	.279	.034	2.650*
R Square	.330		.311		.298		.322	
Observations	4,382		4,979		4,887		4,893	

\*\* $p < .001$

\* $p < .01$

†† The reference category for education variables is *Some College or Associate Degree*.

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