

# Aging Workforce Analysis

## West Central Workforce Investment Area Lawrence & Mercer Counties



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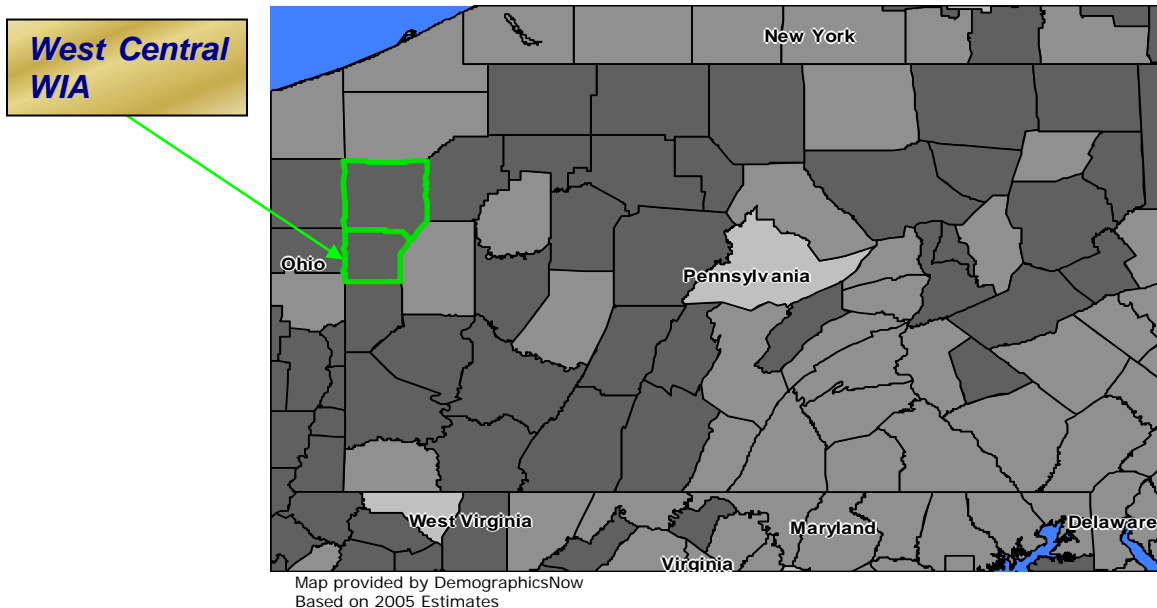
# Aging Workforce Analysis West Central Workforce Investment Area

## Introduction:

Across the country, firms are beginning to plan for the large wave of workers born during the Baby Boom of 1946 to 1964 who will be leaving the workforce over the next few decades. A baby death which occurred following this time period is undoubtedly the cause of much concern for both businesses and decisionmakers alike because as baby-boomers retire, a sufficient pool of younger individuals may not be available to completely replace this significant loss in the workforce.

While reports on the aging workforce have been conducted statewide, this report focuses specifically on the West Central Workforce Investment Area (WIA), which is comprised of Lawrence and Mercer Counties, and how the anticipated labor shortage may affect local industries and businesses. Businesses can utilize this information to make more informed transition plans and to identify potential problem areas and new opportunities. Older workers that wish to continue working after retirement will be aware of what types of jobs are available, how flexible businesses are about their working arrangements, and the level of earnings that can be anticipated. Younger workers can anticipate industries that may offer job opportunities to replace retiring workers. Government officials can use the data for economic development planning and for policy analysis of issues affected by an aging workforce.

As of 2005, the total population median age for the West Central WIA is 41.17. The following map identifies the median age by county using thematic mapping, where a darker shade of gray indicates a higher median age for that county:

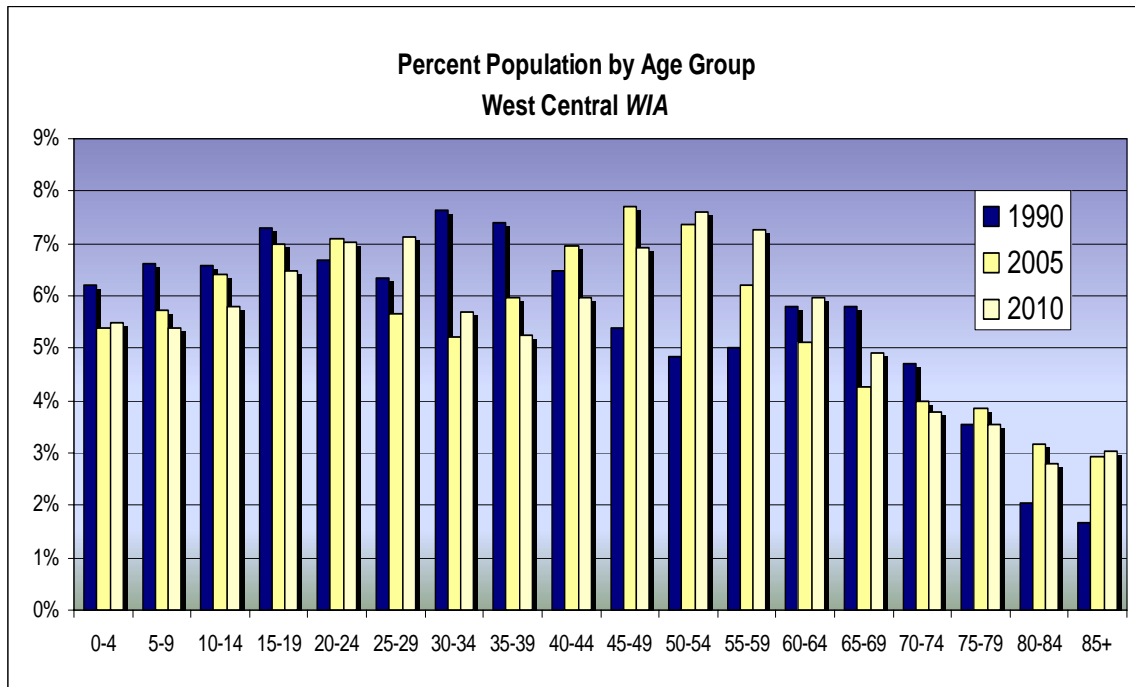


*This thematic map demonstrates the median age by county where a darker shade of gray indicates a higher median age.*

*As one of the older regions in the state, the West Central WIA demonstrates a relatively high median age. This region is also surrounded by several counties that demonstrate higher median ages. West Central may be one of the most affected regions in the state by the aging workforce.*

To demonstrate the pending gaps that may exist in the West Central Region, the following chart shows the percent population by age group in the West Central WIA for 1990 and 2005 and also projected values for 2010:

**See Appendix A for population estimates and projections**



Data provided by DemographicsNow  
Calculations performed by CPWDC

It is apparent that the population in the West Central WIA is aging. For all younger age groups between the ages of 5 and 24, the percent of the total population is projected to be lower than ever by 2010. Conversely, older age groups, specifically individuals in the age groups falling between 50 and 69, are projected to comprise relatively higher percentages of the total population in the West Central WIA within the same time-frame.

*The population for younger age groups in the West Central WIA is lower than ever, while for older age groups it is higher. These trends are similar statewide. However, the region is projected to have higher population proportions relative to the state for individuals over the age of 55 and lower proportions for individuals between the ages of 30 and 54, which may indicate that the impact of an aging workforce may be advanced 5-10 years as compared to the state overall. As of 2005, there are roughly 5,000 more individuals in the 40-64 age group than the 15-39 age group for the West Central WIA. By 2010, however, this difference is projected to drop to nearly 4,000, which indicates the population in the West Central Region will continue to have a greater composition of older individuals. With the aging of the workforce, companies may struggle to meet hiring demands and may have to compete for younger workers. Better wages, more flexible schedules, and other incentives may have to be offered by businesses to attract new, potentially younger workers. This may lead to an increase in out-migration in the West Central Region, because workers may be more willing to travel a greater distance to work for such incentives.*

According to other estimates<sup>1</sup>, the ratio of the working population compared to the retired population (i.e. individuals ages 15-64 compared to people over the age of 65) in the West Central WIA as of 2005 is approximately 3.55 to 1. By 2015, this ratio is projected to decrease slightly to 3.53 to 1, suggesting that the population over the age of 65 is increasing at a greater rate in the West Central WIA than the working population.

Further evidence of an aging population is presented by anticipated changes in the population by various age groups in the West Central WIA. Using the year 2002 as a base period, the population of individuals between the ages of 15 and 44 is expected to grow less than one percent (1%) by 2015. There is a projected increase of one percent (1%) for people between 45 and 54 and five percent (5%) for the retired population (over the age of 65). Most alarming, though, is the forty-one percent (41%) projected increase for individuals ages 55-64. If these projections prove remotely accurate, the West Central WIA will experience a large increase in older age groups, even though current estimates demonstrate that the population already has a high proportion of older individuals.

*Projected to 2015, the older population in the West Central WIA is expected to increase dramatically from 2002 estimates. The marginal increase of only 1% for the 15-44 population harshly contrasts the 1% projected increase for the 45-54 population, the 41% projected increase for the 55-64 population, and the 5% increase for the retired population (individuals over the age of 65).*

These changes in population are quite drastic indeed, especially for older individuals in the West Central Region. It is certainly possible (based exclusively on provided projections) that within the next decade the number of people leaving the workforce will exceed the number of people entering the workforce. Knowing that most jobs will require some type of postsecondary education, the assumption is that individuals will not

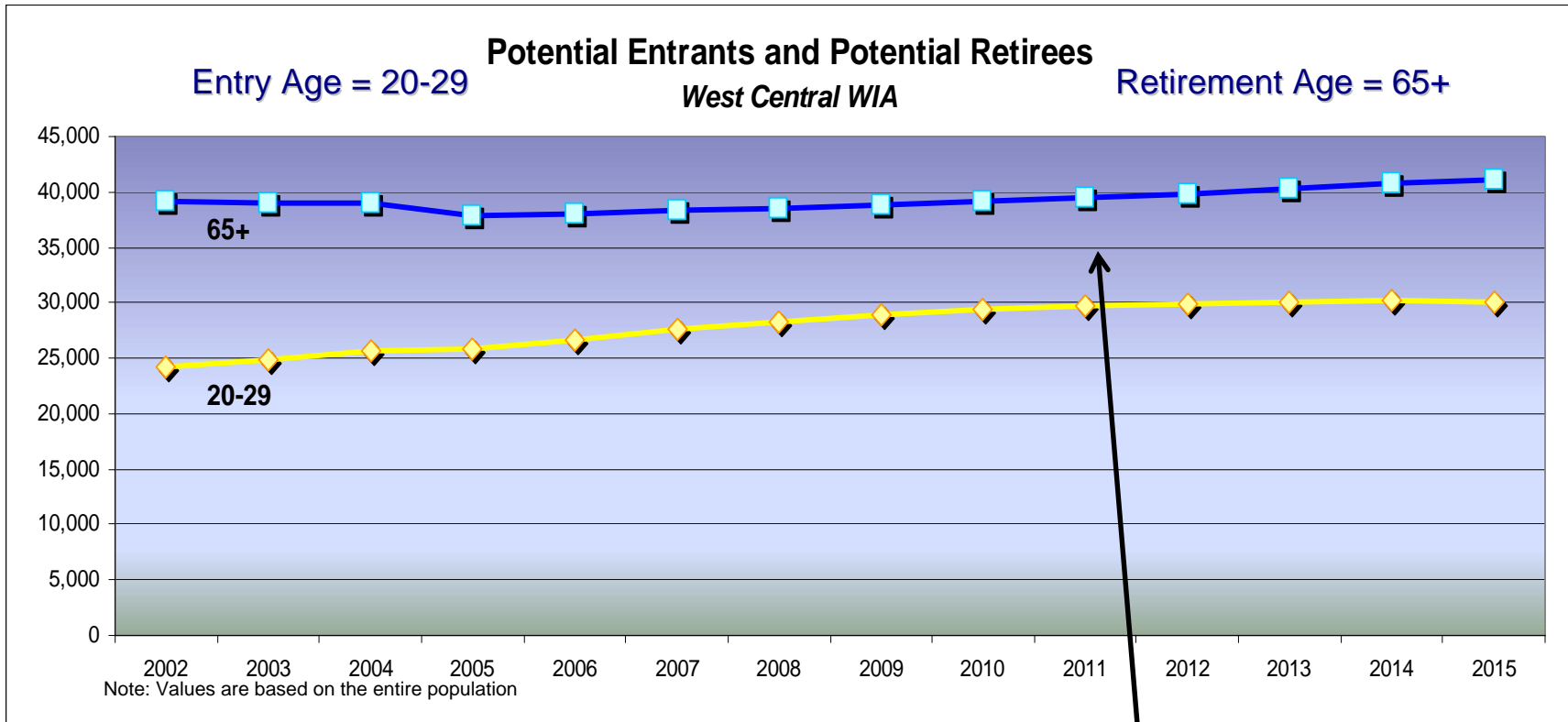
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<sup>1</sup> Other estimates and projections of the population provided by Economic Modeling Specialists, Incorporated.

start working until age 20. It can also be assumed that a lesser percentage of individuals in the 15 to 19 age bracket will participate in the labor market. Therefore, the population ages 20 to 29 will be considered potential entrants into the workforce, while the population over the age of 65 will be considered potential exits (retirements) from the workforce, even though individuals may retire before 65 or participate to some degree after age 65.

As evidenced by the following chart, it appears that after 2011 the number of potential retirees will potentially increase at a faster rate than the potential number of new admissions to the workforce. This may indicate that any new job openings created in the West Central WIA after 2011 will remain vacant without at least leaving another job unoccupied if that position is filled. There simply may not be enough workers to fill the existing jobs plus any new job opportunities. Of course, this does not take into consideration any unforeseen advancement in technology or productivity that may lead to workforce reductions, but the impact of the aging workforce is articulated. The following chart shows the population in the West Central WIA for those projected to enter the workforce and those projected to retire from the workforce between 2002 and 2015:

***See Appendix B for population estimates and projections***



Data provided by Economic Modeling Specialists, Inc.  
Calculations performed by CPWDC

Note: This chart assumes constant flow, meaning it does not account for in- and out-migration, mortality rates, et cetera. It merely looks at the eligible workforce and not participation in the labor force.

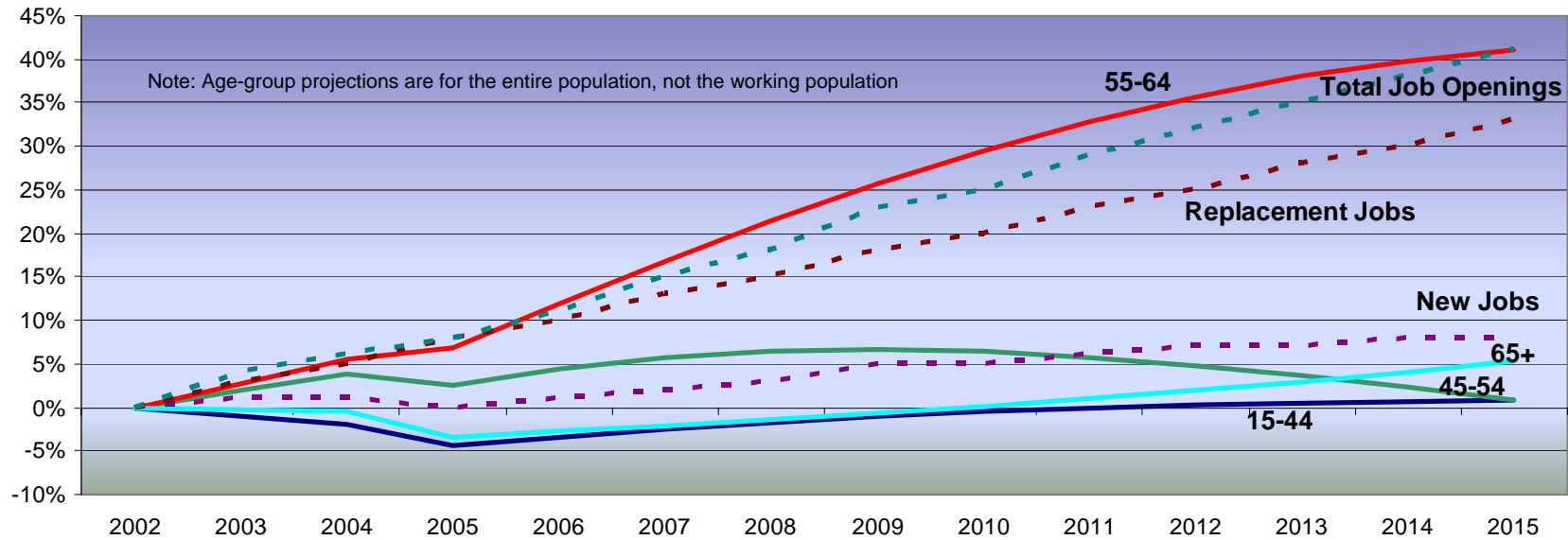
*After the year 2011, the number of potential retirees from the workforce may increase at a greater rate than the number of entrants into the workforce in the West Central WIA.*

By comparing percent increases in population with projected percent increases in job openings<sup>2</sup> in the West Central WIA, it can be best understood why the aging population is of great concern. The following chart demonstrates the percent changes in the population in the West Central WIA by age group and the percent increases in new jobs and replacement jobs from 2002 to 2015 (**Note: Using 2002 as the base year, each data point represents the percent change of the respective category for the appropriate year from its 2002 value**):

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<sup>2</sup> Job openings can be broken down into two categories-jobs due to growth and jobs due to replacement. Jobs due to growth are a result of new businesses opening or existing businesses expanding, referred to as new jobs. Jobs due to replacement are a result of existing positions becoming available as former employees retire, are promoted, or leave the position for any other reason, referred to as replacement jobs. The total number of job openings is the number of new jobs and replacement jobs combined. Percent changes in new jobs and jobs due to replacement are also provided by Economic Modeling Specialists, Inc. (See Appendix B)

**Potential Gaps in the Population and Job Openings**  
**Percent Changes in the Population and Job Openings (2002-2015)**  
**West Central WIA**



Data provided by Economic Modeling Specialists, Inc.  
 Calculations performed by CPWDC

*From 2002 to 2015, the population in each older age group is projected to increase while the younger age group remains fairly dormant. However, except for the pre-retirement group (ages 55-64), these increases may not keep pace with the increasing rate of total job openings in the West Central WIA. It appears that after 2015 the rate of increase for total job openings may surpass the rate of increase for the 55-64 age bracket. Replacement jobs are expected to have a greater rate of increase than new jobs, possibly resulting from a potential increase in retirees within the next decade in the region.*

*Between 2002 and 2015, new jobs are projected to increase by eight percent (8%) and replacement jobs by thirty-three percent (33%) in the West Central WIA. This equates to a forty-one percent (41%) increase in job openings within the next decade. The large increase in replacement jobs can be attributable to several factors, but one of the major possibilities may be retirement. This potential increase in the number of retirees may be in direct connection with the aging workforce. Based on these projections, the total number of job openings in the West Central WIA is expected to grow at a faster rate than the available number of workers, except for the pre-retirement group (ages 55-64). This may present a huge problem for the West Central WIA, where there may be too many jobs available and not enough workers to fill them. With this potential gap looming in the face of the West Central WIA's economy, it is vital for businesses to begin planning now for the aging workforce and how to counteract potential massive losses in older, skilled workers.*

### **Methodology:**

This report is based on data provided by the Census Bureau's Local Employment Dynamics (LED) program for the West Central WIA. The LED program is designed to provide Quarterly Workforce Indicators (QWIs) which include employment, turnover rate, monthly earnings, job creations, job separations, net job flows, and new hires. Each Quarterly Workforce Indicator provides a critical measure of an area's economy and can also offer insight to changes in the performance of the local economy.

*Quarterly Workforce Indicators (QWIs) analyzed in this report include: employment, turnover rate, monthly earnings, job creations, job separations, net job flows, and new hires.*

The LED program's database covers approximately 98 percent of the West Central WIA's labor force. The remaining 2 percent of the labor force not covered by the LED program, which are all self-employed individuals, includes primarily railroad workers, independent contractors, some agricultural workers, and workers for some nonprofit organizations (e.g. religious organizations).

Three groups of older workers are emphasized in this report: the retirement group, those who are currently likely to be receiving pension income (age 65 and older), the preretirement group (age 55-64), and the approaching-retirement group (age 45-54). Workers in the preretirement group are likely to collect pensions within the next 10 years, and workers in the approaching-retirement group may begin collecting pensions within the next 15 to 20 years.

*The three age groups of workers analyzed in this report include: 45-54 (approaching-retirement group), 55-64 (preretirement group), and 65+ (retirement group).*

All analysis is based on industries at the two-digit North American Industry Classification System (NAICS) level. The time period is limited in this analysis due to the novelty of the LED program; statistics are provided as average quarterly estimates for both 2001

and 2003. Changes in the demographics of the workforce, however, are still apparent within the two-year time period.

*Analysis is conducted for all two-digit NAICS (North American Industry Classification System) industries using average 2001 and 2003 Quarterly Workforce Indicator values.*

Through the analysis of Quarterly Workforce Indicators (QWIs), the following topics can be addressed:

- *To what extent are age and each Quarterly Workforce Indicator (employment, turnover rate, monthly earnings, job creations, job separations, net job flows, and new hires) related?*
- *What changes are occurring in the age composition of the workforce in the West Central WIA?*
- *Which industries will be the most affected by the aging of the workforce?*
- *In what industries do older workers tend to work beyond retirement?*
- *Which industries provide stable employment for older workers?*
- *How much do older workers in the West Central WIA earn in various industries?*
- *Which industries are creating new job opportunities for older workers?*
- *Which companies see the greatest separations by older workers?*
- *What are the net job flows for older workers in the West Central WIA?*
- *Which industries hire older workers?*

*By understanding current levels of various Quarterly Workforce Indicators, business executives, economic developers, decisionmakers, and workers themselves can gain insight into how the local economy in the West Central WIA may be affected by the aging workforce.*

## Relationships between Age and Quarterly Workforce Indicators:

**See Appendix C for the values of each QWI within each age group**

Age plays a crucial role in determining the levels of various Quarterly Workforce Indicators (QWIs) for workers in an area. For example, turnover rates are often greater for younger workers than older workers because younger individuals may work at several jobs before finding their ideal career. Furthermore, as a result of more work experience, wages typically increase as age increases. These are just two examples of workers in different age groups having assorted levels of QWIs, but differences are present with most QWIs. **The extent to which a change in age affects a change in a particular QWI is important because without even knowing the specific level of that QWI, industries can expect certain alterations to the dynamics of their workforce based solely on the age composition of their employees.**

A technique known as regression<sup>3</sup> will help determine which Quarterly Workforce Indicators (QWIs) are greatly influenced by changes in age in the West Central WIA. Simply, regression calculations identify which QWIs have strong dependencies on age. Calculations are based on average 2003 data in the West Central WIA. Using both linear and quadratic regression techniques, the following chart demonstrates the R<sup>2</sup> values as to what extent each Quarterly Workforce Indicator is related to age in the West Central WIA for 2003:

Coefficient of Determination	Quarterly Workforce Indicator						
	Employment	Turnover Rate	Earnings	Job Creations	Job Separations	New Hires	Net Job Flows
R <sup>2</sup> Value (Linear)	0.12	0.85	0.44	0.01	0.04	0.29	0.14
R <sup>2</sup> Value (Quadratic)	0.68	0.97	0.88	0.66	0.76	0.78	0.35

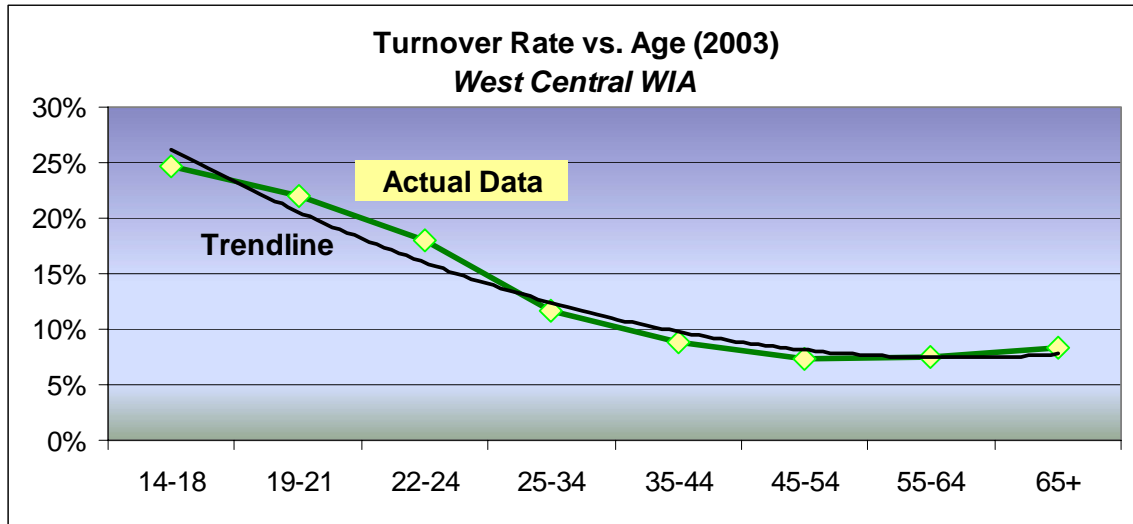
Data provided by the Census  
Calculations performed by CPWDC

As indicated by the regression calculations, turnover rate is most affected by a change in age. The value of 0.97, for example, indicates that 97 percent of the variability in turnover can be explained by the variability in age when using quadratic regression.

<sup>3</sup> Certain limitations exist when using this method with the available data. First, the age groups are not uniform. The age groups included in the LED program are 14-18, 19-21, 22-24, 25-34, 35-44, 45-54, 55-64, and 65+. While disparities exist, a general relationship between age and a Quarterly Workforce Indicator (QWI) can still be determined because the age groups are increasing and do not overlap. Secondly, it will not be determined why there are stronger relationships between age and certain QWIs and weaker relationships between age and other QWIs. Regression calculations merely provide an indication of how changes in QWIs are the result of an aging workforce.

The value of interest when using regression is the coefficient of determination, symbolized by R<sup>2</sup>. This value determines the proportion of variability in a Quarterly Workforce Indicator that can be explained by the variability in age (i.e. R<sup>2</sup> explains how much of the variability in the QWIs can be explained by the fact that they are related to age).

This strong relationship is seen in the following chart, where turnover rates decrease to an extent and then increase as age increases, thus forming a parabolic curve:



Data provided by the Census  
Calculations performed by CPWDC

Average monthly earnings and new hires also demonstrated relatively strong dependencies on changes in age. These relationships, however, are more visible with the quadratic calculations as opposed to the linear regressions. This means that the QWIs do not strictly increase or decrease as age increases (i.e. the graphs of these QWIs are not straight lines). These QWIs follow a similar pattern to turnover-the values will increase (or decrease) to an extent and then decrease (or increase) as age increases, resulting in a parabolic (quadratic) curve.

*Turnover has the highest dependency on age in the West Central WIA. Because turnover rate measures the stability of a certain workforce, this is not surprising. Younger individuals often work at several jobs before settling on a particular career, which as a result causes a higher turnover in younger age groups. Furthermore, turnover rate incorporates retirement, thus causing a workforce with a large number of retirees to have an increase in turnover. Both of these factors heavily influence the dependency of turnover on age. Average monthly earnings and new hires also demonstrate fairly strong dependencies on age mainly due to the similar relationships seen between these Quarterly Workforce Indicators and turnover with different age groups.*

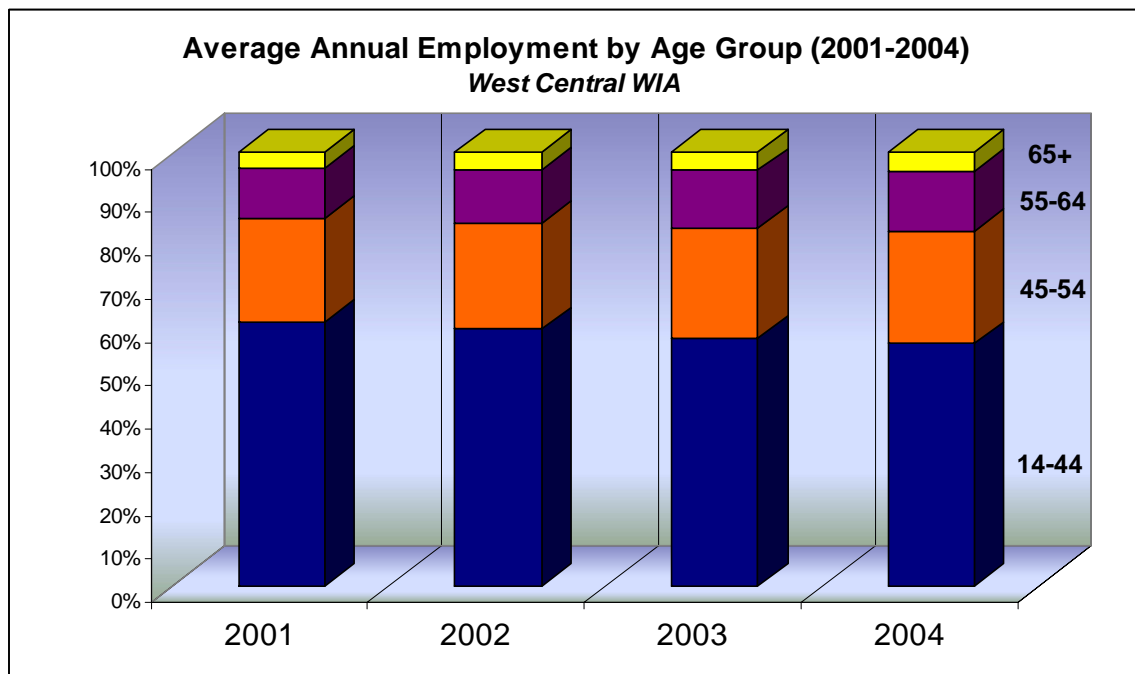
There is no guarantee that industries will experience the same patterns with respect to each Quarterly Workforce Indicator and age. The regression calculations are based on average quarterly estimates for the West Central WIA. Each  $R^2$  value merely determines the variability in the QWI that can be attributed to the variability in age (i.e. how dependent QWI is on age).

## Changes Occurring in the Age Composition of the Workforce in the West Central WIA:

*See Appendix D for total employment by age group from Q1 of 2001 to Q4 of 2004*

The West Central WIA can certainly expect to see significant changes in the demographic characteristics of its workforce in the next two decades. Consequently, many businesses will face the problem of a large loss of skilled workers to retirement. The labor market will encounter important transitional issues even though some workers may continue working past age 65, younger workers may fill many of the positions left vacant by retirees, and some jobs may be phased out with improved technology.

The first Quarterly Workforce Indicator that will be analyzed to clarify the looming effect of the aging workforce is employment, the most fundamental statistic used in labor market research. From quarter one (Q1) of 2001 to Q4 of 2004, the workforce in the West Central WIA has remained fairly consistent. Most employment in the West Central WIA is comprised of workers of the age 14-44<sup>4</sup>, while relatively smaller proportions come from older workers. The following chart shows the percent employment by age group in the West Central WIA over the same time period:

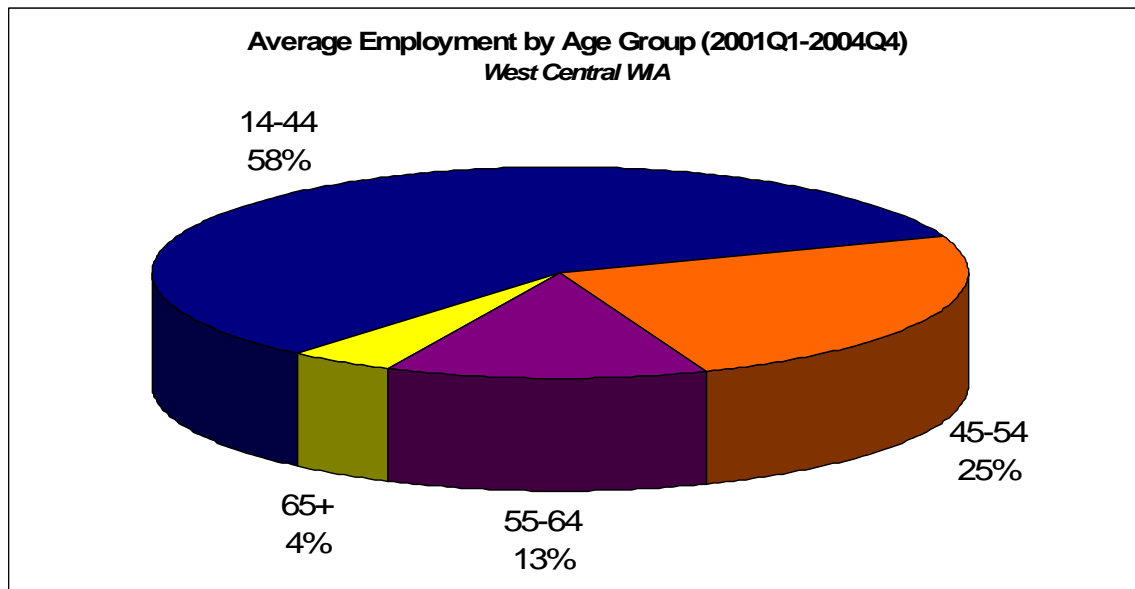


Data provided by the Census  
Calculations performed by CPWDC

Clearly, most employment in the West Central WIA comes from workers of the age 14-44. As of 2004 Q4, workers over the age of 45 comprise about 45 percent of the workforce in the region, compared to about 55 percent for workers 14-44. Significant employment, however, does come from the approaching-retirement group (age 45-54)

<sup>4</sup> The LEHD site provides data for workers ages 14-18, 19-21, 22-24, 25-34, and 35-44. Information for all of these workers was combined to include all workers who do not belong to the older age brackets (i.e. workers ages 14-44).

whose workers are expected to retire within the next 15 to 20 years. The following chart shows the average employment for workers in the age groups 14-44, 45-54, 55-64, and 65+ in the West Central WIA from Q1 of 2001 to Q4 of 2004:



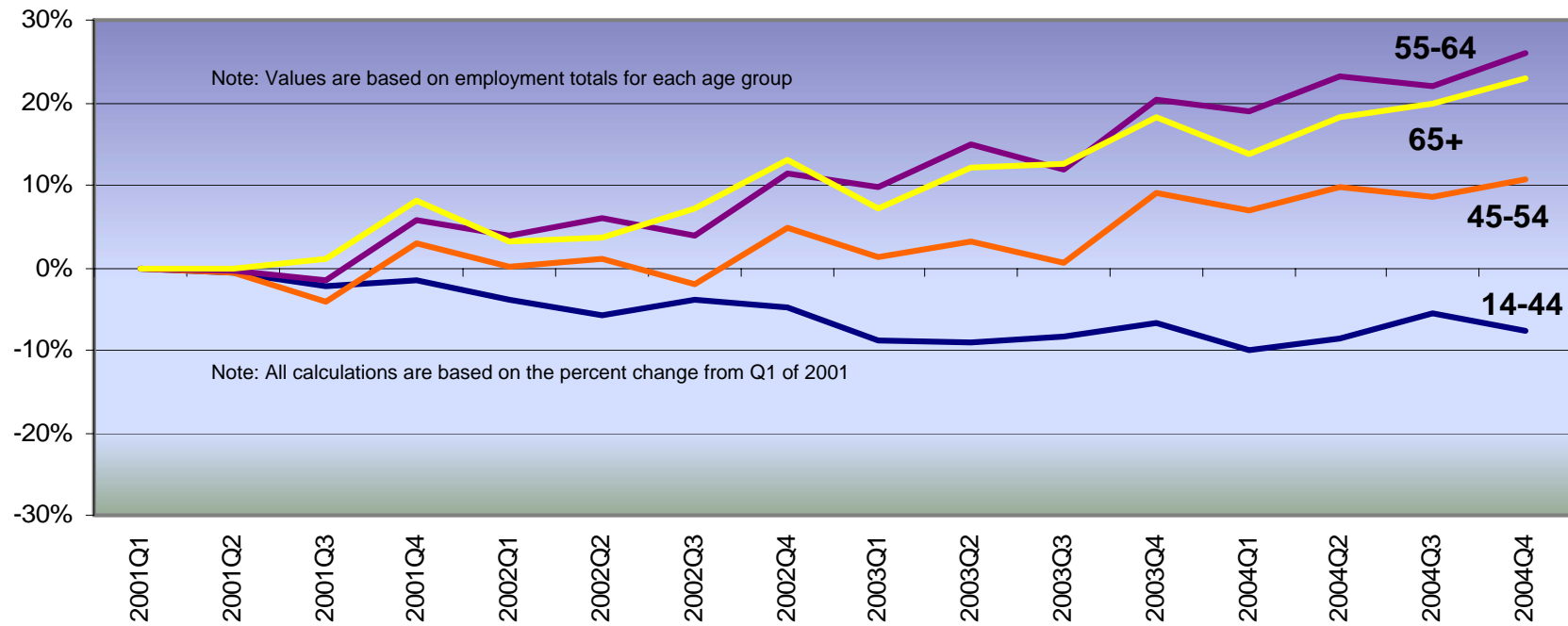
Data provided by the Census  
Calculations performed by CPWDC

It is obvious that relatively younger workers consistently comprise most of the employment in the West Central WIA. A majority of the workers in the West Central WIA (58 percent) were of the age 14-44 between Q1 of 2001 and Q4 of 2004.

What may not be apparent with these charts, however, is how the workforce has changed dramatically since the beginning of this time period in the West Central WIA. While the proportion of employment contributed by workers of the age 14-44 has actually decreased from 61 percent to 55 percent, the older age groups have shown positive changes. In fact, between Q1 of 2001 and Q4 of 2004, the percent of employment for workers ages 45-54 increased by 2 percent and the 65+ bracket by approximately 1 percent. Most importantly, though, the preretirement group (age 55-64) demonstrated the greatest increase-3 percent.

Trends in recent history show that employment by older workers in the West Central WIA is increasing. The 14-44 age group has decreased in total employment, while the older age groups have all increased employment between Q1 of 2001 and Q4 of 2004. Businesses most certainly need to begin preparing now for a large wave of potential retirees in the coming years. This is evidenced by the following chart, which demonstrates the percent increases in employment between Q1 of 2001 and Q4 of 2004 in the West Central WIA (Note: Each value is based on the percent change in employment from Q1 of 2001, meaning all percent increases or decreases in employment refer to the change in employment from Q1 of 2001):

## Trends in Employment by Age Group (2001Q1-2004Q4) West Central WIA



Data provided by the Census  
Calculations performed by CPWDC

*Between Q1 of 2001 and Q4 of 2004, the number of workers over the age of 55 (age groups 55-64 and 65+) increased at a faster rate far exceeding the 45-54 age group in the West Central WIA. More importantly, though, the younger age group (workers ages 14-44) experienced a decrease in the same time period. This clearly indicates the aging of the workforce in the West Central WIA.*

*In the West Central Region, the number of older workers is increasing while the number of younger workers is decreasing. Many businesses may suffer large losses due to their employees retiring. The aging workforce is certainly a cause for concern in the local economy.*

### **Industries Most Affected by the Aging of the Workforce:**

According to estimates provided by the Bureau of Labor Statistics, the Labor Force Participation Rate<sup>5</sup> (LFPR) in the United States is projected to increase for older age groups between 2005 and 2014, while a majority of the younger age groups are forecasting a decrease. For individuals over the age of 65, the labor force participation rate is projected to have the largest increase, indicating that people across the nation may be more willing to work beyond retirement for various reasons in the future, all while younger age groups may participate less in the labor force. A potential increase in postsecondary enrollment by younger individuals may delay participation in the labor force. The following chart identifies the Labor Force Participation Rates by age group in 2005 and 2014 for the United States:

Age Group	Year	
	2005	2014
16-24	60.7%	59.1%
35-44	83.6%	83.0%
25-54	82.7%	83.5%
45-54	81.4%	82.3%
55-64	62.7%	65.2%
65+	14.9%	19.7%

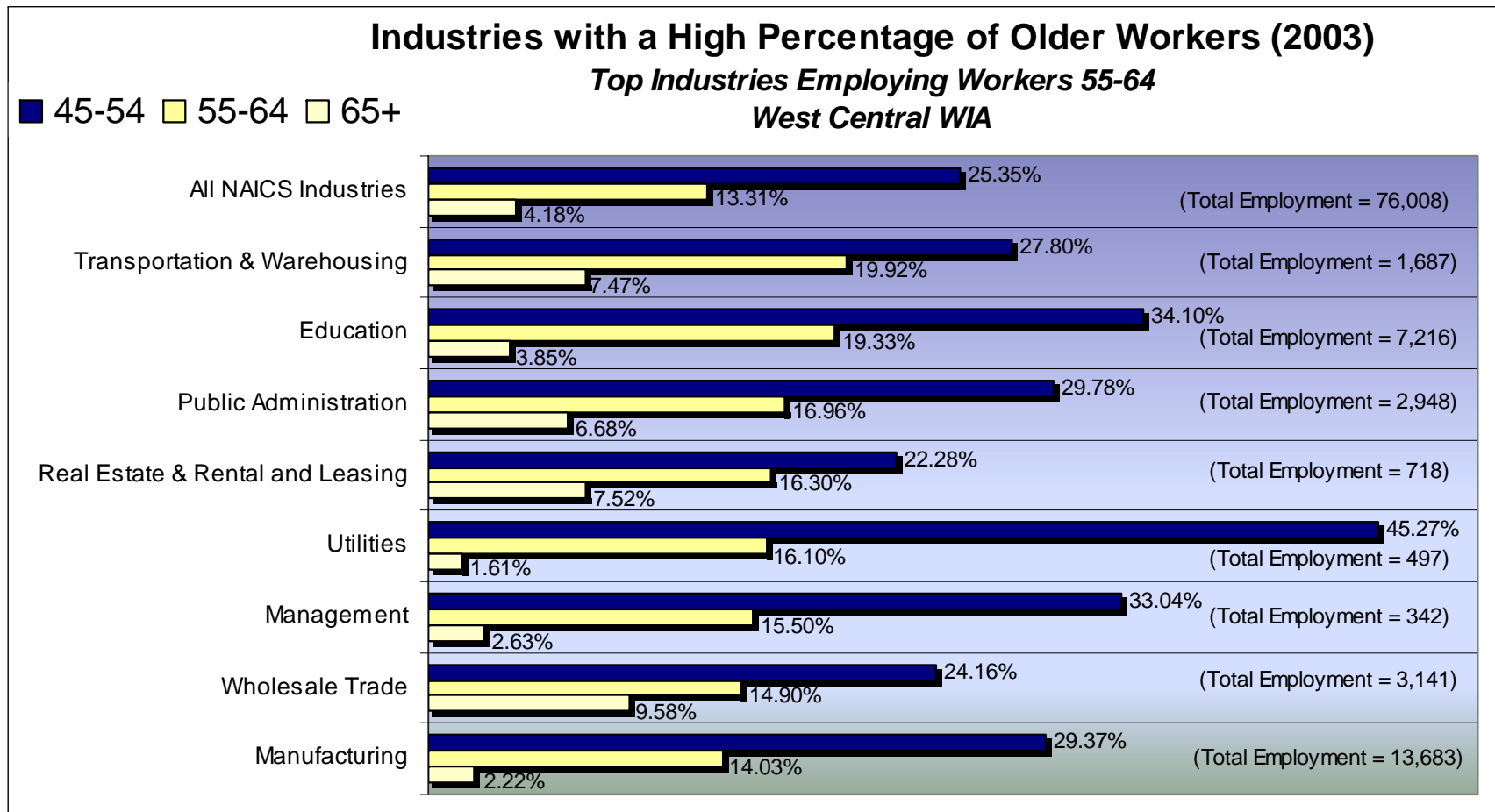
Data provided by the U.S. Department Bureau of Labor Statistics  
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*Nationally, labor force participation rates are projected to decrease for younger age groups and increase for older age groups. This may be an indication of individuals being more willing for various reasons to continue working past retirement age in the next decade.*

Certain industries in the West Central WIA will be affected to a greater extent than other industries when baby-boomers enter retirement. Unless this loss in workers is offset by new workers from outside the region, or from other local industries, industries with high proportions of older workers are most likely to be greatly affected by the aging of the workforce. The following chart identifies which industries in the West Central WIA have the largest concentrations of employment as of 2003 by workers ages 55-64:

<sup>5</sup> Labor force participation rate is defined as the proportion of people working plus the number of people looking for work out of the total population in an area. While this rate does not distinguish between those who are employed and those who are unemployed (i.e. looking for work), it does give a baseline as to what proportion of individuals may be working-the higher the labor force participation rate the higher the chances for more employment.

See Appendix E for employment values by age group and by industry



Data provided by the Census  
Calculations performed by CPWDC

*To put this in perspective, within the next decade, the Education industry could expect to lose about 19% of workers slated for retirement. Also, the Manufacturing industry could expect to lose approximately 14% of employees preparing to retire. Together, these two industries are facing the potential loss of over 3,000 workers in the next decade. **Education and Manufacturing** may be two of the most highly affected industries as a result of the aging workforce.*

The average percent employment for all NAICS industries identified in the chart above for the West Central Region by workers of the age 55-64 in 2003 is about 13 percent. All identified industries have higher-than-average percentages of the 55-64 age group, while other industries have percentages lower than 13.7 percent. Moreover, the industries of Transportation & Warehousing and Public Administration have higher than average percent employment for each age group. These industries represent those that will likely be most affected by the aging workforce because of the high concentrations of preretirement workers (ages 55-64). In preparation of these workers retiring, companies must have in place appropriate transition plans to counteract the loss in workers.

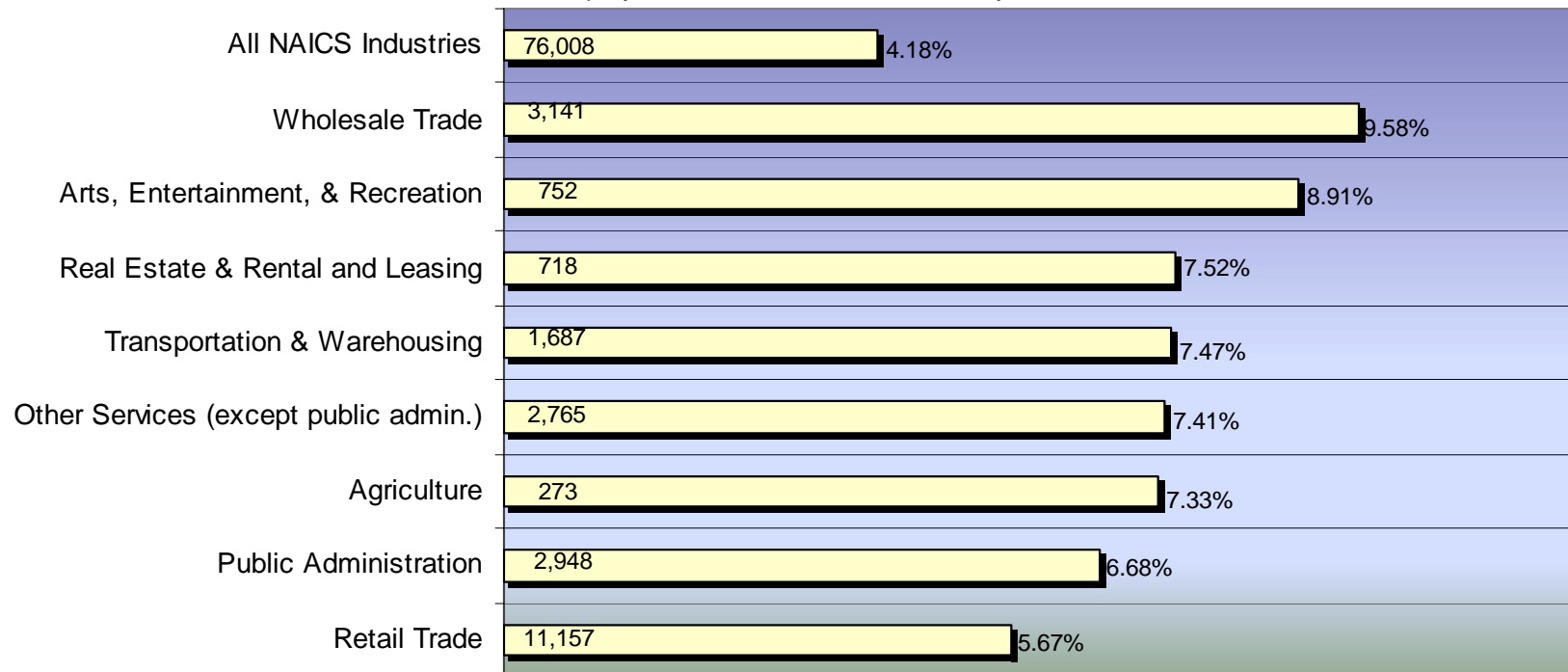
Industries with high proportions of older workers will likely encounter the most problems due to the aging workforce. Employees may retire from the labor force completely or seek other jobs for various reasons, such as greater flexibility, higher wages, less physical demand, et cetera, and take with them their valuable knowledge and skills. These industries must prepare for considerable losses through increased training of younger workers and other potential employees to replace the future labor force deficit due to the aging workforce.

Many workers may choose to retire (ages 65+) but then seek part-time employment to supplement their pension incomes. These individuals may find opportunities in industries that employ relatively high proportions of the oldest workers. The following industries employed the greatest percentages of workers over the age of 65 in the West Central WIA as of 2003:

## Industries with a High Percentage of Older Workers (2003)

### Top Industries Employing Workers 65+ West Central WIA

Total Employment Provided for Each Industry



Data provided by the Census  
Calculations performed by CPWDC

*Individuals who delay retirement or choose to supplement retirement with work may find the most job opportunities in industries that have high proportions of workers over the age of 65. The **Wholesale Trade** and **Retail Trade** industries employ high levels of workers beyond the age of 65. Combined, these two industries employ nearly 1,000 individuals age 65+ in the West Central WIA. While it appears that older individuals may potentially find employment in the identified industries, the nature of the job must be considered.*

All other industries' workforces are comprised of less than 4.5 percent of workers over the age of 65. This chart demonstrates that there is opportunity for workers who decide to work beyond retirement in the West Central WIA. Further analysis in this report will focus on such industries to illustrate how the labor market will be possibly affected in the future with the large increase in workers over the age of 65. This information is vital to not only businesses but also to the workers themselves in deciding if they want to work and/or where they want to work beyond retirement (i.e. which industry). All industries will have to consider the need to employ older workers, whether pre or post retirement, whether part- or full-time, as a strategy to meet employment demand.

#### **Where Older Workers Tend to Work beyond Retirement:**

The next Quarterly Workforce Indicator of interest is the turnover rate of older workers in the West Central WIA which indicates the degree to which local businesses need older workers within an industry. Turnover rate is defined mathematically as  $(1/2) * (\text{accessions} + \text{separations}) / \text{employment stable jobs}$ . Accessions, which are basically new hires, refer to the total number of workers who are employed by a business during the current time period but not the previous time period. Separations are the total number of workers who are employed in the current time period but not in the subsequent time period (i.e. employed in the previous time period but not the current time period). Employment stable jobs refer to the total number of jobs that are held for the entire quarter.

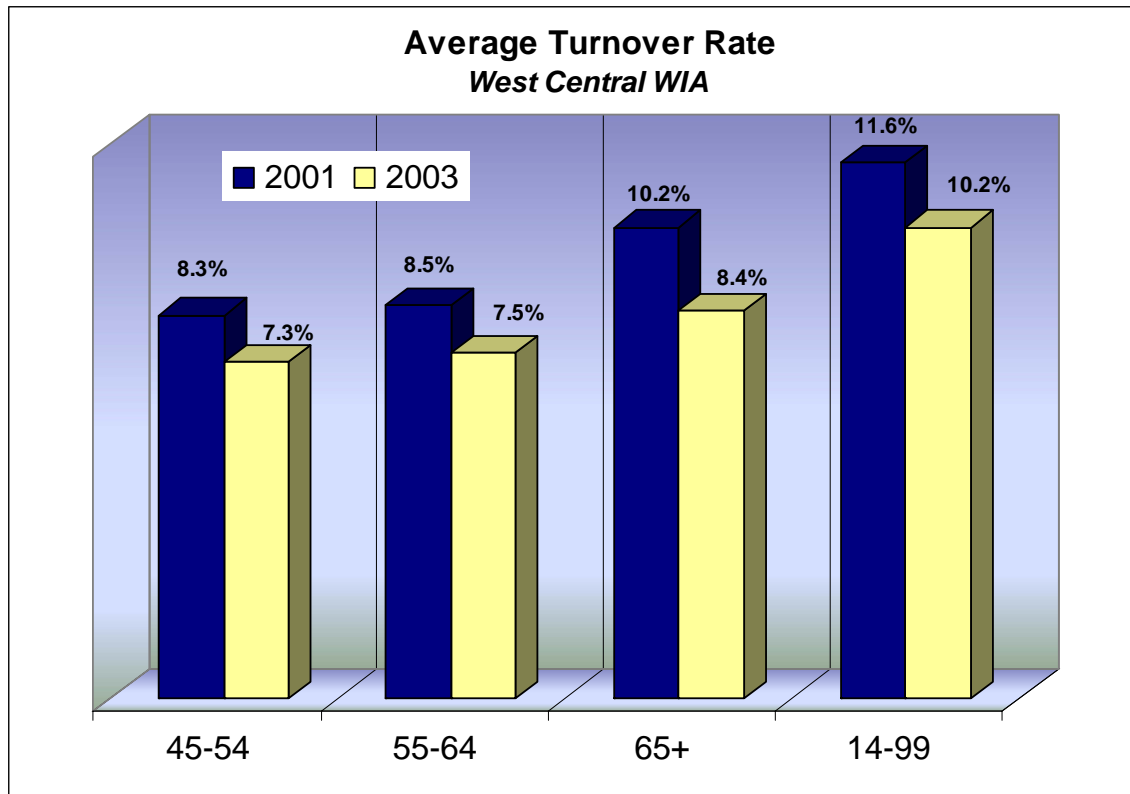
Conceptually, turnover rate identifies how many workers in a particular workforce/industry are new over a certain time period. This QWI determines the extent to which companies need employees with specific skills. Industries with high turnover rates typically require little need for specialized skills and can often easily replace workers. These industries may also be more likely to offer lower wages. Low turnover rates in an industry indicate that workers are relatively skilled and/or not easily replaced. It is important to note that turnover rates include retirement, therefore the trendline of decreasing turnover as age increases will begin to reverse as individuals reach retirement age.

#### **Stable Employment for Older Workers:**

Turnover rates also provide a measure for the stability of jobs in certain industries. By focusing on older workers in the West Central WIA, turnover rate can help determine which industries tend to keep older workers because of the workers' specialized skill sets that may be difficult to replace or because of benefits and other advantages that are associated with the job. Stable employment for older workers is more likely present in

industries with low turnover. The following chart shows the average turnover rate for workers in the West Central WIA by age group in 2001 and 2003:

**See Appendix F for turnover rate by age group and by industry**



Data provided by the Census  
Calculations performed by CPWDC

*Turnover helps determine the need for specific skills in an industry and measures job stability. Lower turnover may indicate a greater need for specialized skills due to on-the-job training and higher job stability. From 2001 to 2003, changes in the local economy caused the turnover to decrease for all workers. This decreasing trend was present for all older age groups, with the retirement group (ages 65+) experiencing the greatest decrease.*

The average turnover rate for all workers in the West Central WIA decreased from 11.6 percent to 10.2 percent between 2001 and 2003. Similarly, older workers in the area also experienced decreases in turnover. Overall, because of decreases in turnover, the local economy may be leaning towards jobs that require specific skills, employment is becoming more stable, and/or a contracted economy offering fewer employment opportunities is causing people to stay in jobs from which they may have otherwise separated.

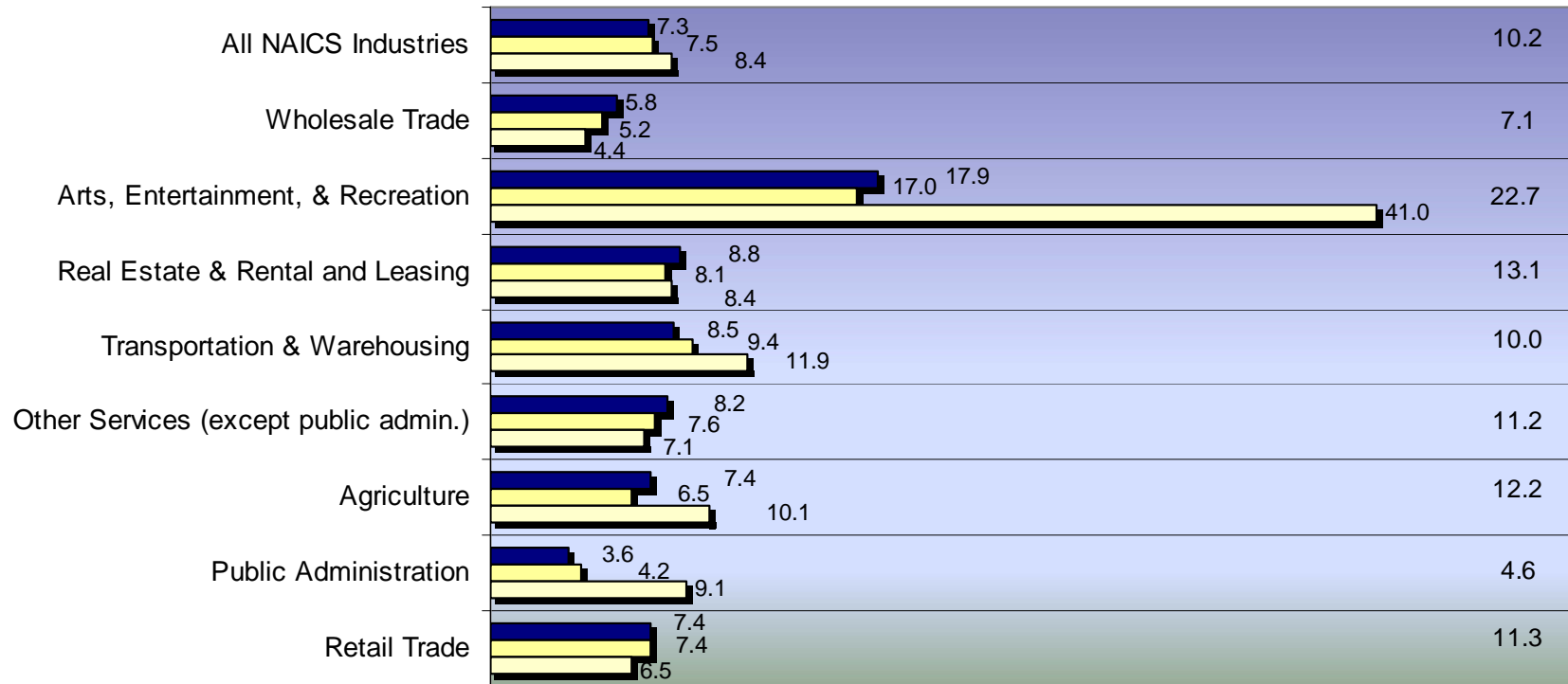
Because turnover includes retirement, it is expected for turnover to be higher for the 55-64 and 65+ age groups. It is important to note, though, that these age groups still have lower-than-average turnover rates.

The following chart identifies the turnover rates for industries in the West Central WIA that have the highest employment proportions for workers ages 65+ as of 2003:

**Average Turnover Rate (%) (2003)  
Top Industries Employing Workers 65+  
West Central WIA**

■ 45-54 ■ 55-64 ■ 65+

Average Turnover Rate (%) Provided for Each Industry



Data provided by the Census  
Calculations performed by CPWDC

*Most industries with high proportions of workers over the age of 65 demonstrate lower turnover for older workers compared to all workers in that industry in the West Central WIA.*

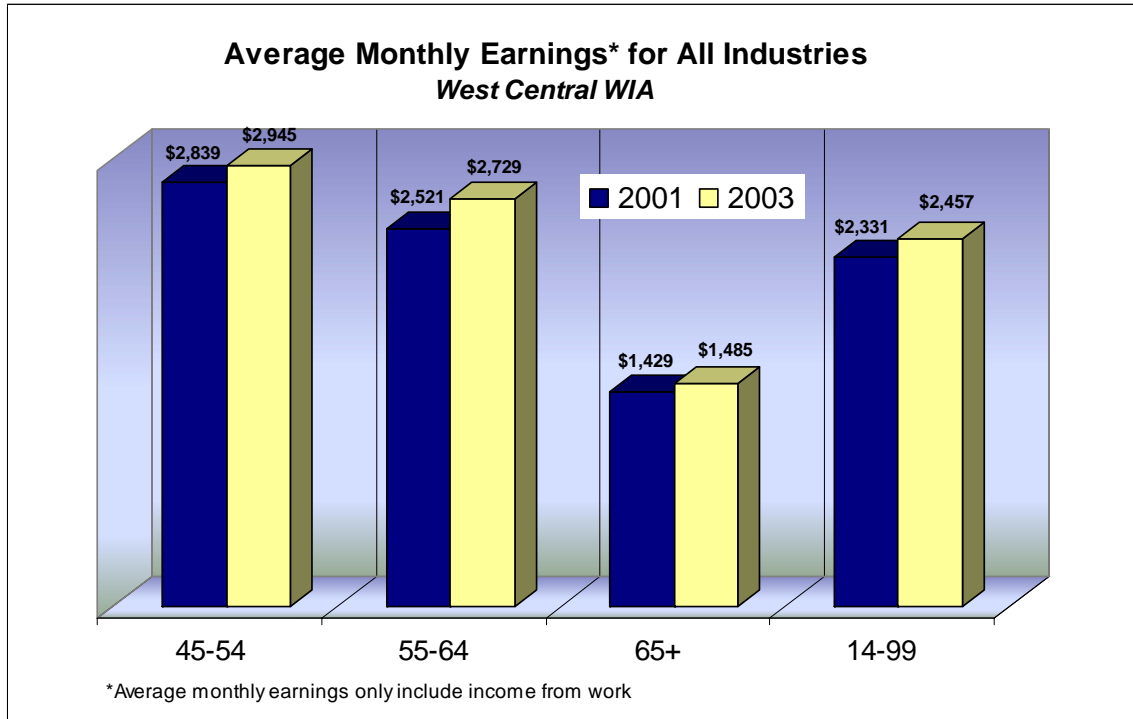
A majority of these industries have higher than average turnover rates for workers in each age group compared to all NAICS industries. Within each industry, though, the turnover rate for older workers is typically lower than the average turnover for all employees (ages 14-99). Because of this, older workers may not have to do any type of training for these industries and they may not have to spend time looking for other jobs. The lower turnover suggests that these industries offer fairly stable employment for older workers and the types of jobs held by these individuals require skills that can be attained only through experience. Businesses with low turnover may retain older workers longer because younger employees may not be fully prepared to replace those who retire or sever employment.

Low turnover is also an important aspect to consider when analyzing the aging workforce. **Businesses with low turnover rates, which may result from the relative complexity of certain jobs, may experience the most trouble in replacing older workers when they leave the labor force.** Industries with relatively lower turnover may also provide the most stable work environments for older workers. (Refer to Appendix F for turnover values)

#### **Earnings for Older Workers:**

Average monthly earnings is another important Quarterly Workforce Indicator to consider when analyzing the aging workforce in the West Central WIA. It has been suggested that in the coming decades older workers may “retire” in the sense of collecting pensions but continuing to work in another job on a less than full-time status. How much older workers in the West Central WIA can expect to earn is simply revealed by comparing average monthly earnings across all industries. The following chart demonstrates the average monthly wage for workers in the West Central WIA by age group in 2001 and 2003:

***See Appendix G for average monthly earnings by age group and by industry***



Data provided by the Census  
Calculations performed by CPWDC

*Average monthly earnings are increasing in the West Central WIA. Workers of the age 45-54 and 55-64 receive higher-than-average monthly wages. **NOTE:** Average monthly earnings only include income from work.*

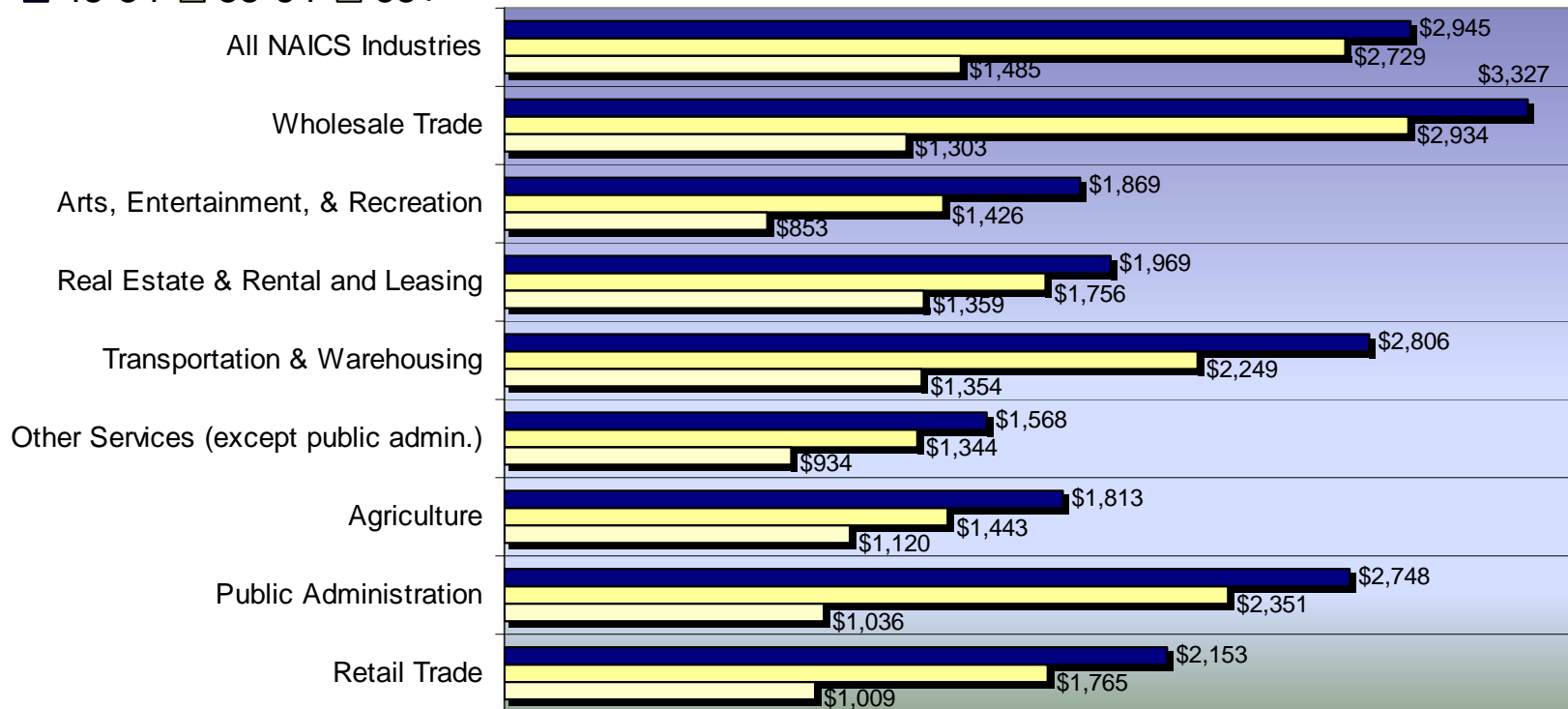
Due to inflation, it is not uncharacteristic for wages to have increased between 2001 and 2003 for all age groups. In addition, workers in the 45-54 and 55-64 age groups receive average monthly wages greater than the average monthly wages for all workers in the West Central WIA. This also is not surprising, since workers who have more experience in a particular industry typically receive greater wages than workers who have less experience. Workers of the age 45-54 earn about 20 percent more in average monthly wages than all workers in the West Central WIA, while the 55-64 age group receives approximately 11 percent more.

The important aspect of this chart is that workers of the age 65+ receive average monthly wages of \$1,485 as of 2003, which is approximately 60 percent of the average monthly wage for all workers in the West Central WIA. Many of these individuals may already receive pension income but choose to work to supplement this income.

In order to focus on specific industries, the following chart identifies the average monthly earnings for industries in the West Central WIA that have the highest proportions of the oldest workers as of 2003:

### Average Monthly Earnings (2003) Top Industries Employing Workers 65+ West Central WIA

■ 45-54 ■ 55-64 ■ 65+



Data provided by the Census  
Calculations performed by CPWDC

*Individuals who choose to work beyond retirement receive significantly lower average monthly earnings than workers of the age 55-64 in the West Central WIA. Earning amounts do not include pension or social security, only wages earned through employment. There is no distinction between part- and full-time workers.*

For workers in the retirement group (ages 65+), the Management industry has the highest average monthly wage of \$4,003, but this industry is not one of the top employing industries for this age group. Less than three percent of the Management industry's employment comes from workers over the age of 65. The Utilities industry, which also does not have a high concentration of workers over the age of 65 (less than two percent), has the lowest value of \$715. Of course, these statistics are for the entire industry, and individual companies may offer varying salary structures. Nonetheless, workers who continue to work beyond retirement might expect these levels of wages.

### **Employment Dynamics-Underlying Changes in the Workforce:**

#### ***Job Creations:***

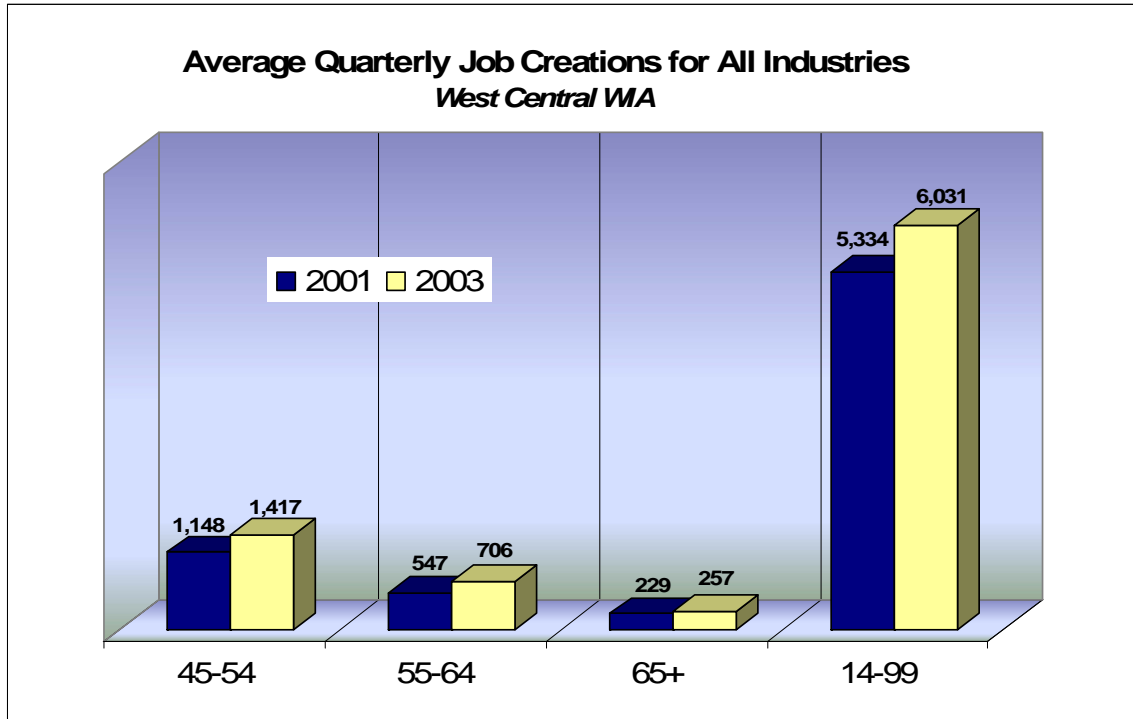
Economic developers need to look beyond employment levels to understand how the local economy is changing. The employment levels described in an earlier section revealed only one aspect of the labor force in the West Central WIA. Dynamic changes in an industry could be happening even though employment has remained fairly stable. Decisionmakers must be aware that enormous change can actually be occurring in the underlying numbers. These underlying changes are referred to as "job creations" and "job separations."

Job creations are new jobs created in the West Central WIA either by new businesses opening or by existing firms adding new jobs. By focusing on this Quarterly Workforce Indicator, it can be determined which industries are creating job opportunities and how those jobs are being filled by different age groups, specifically the older age groups.

It is important to distinguish between jobs created for specific age groups and job creations filled by specific age groups. This analysis looks at the latter and in no way suggests that industries are engaged in any discriminatory practices by focusing on hiring certain age groups.

The following chart demonstrates the average number of jobs created for all workers in the West Central WIA by age group:

***See Appendix H for job creations by industry and by age group***



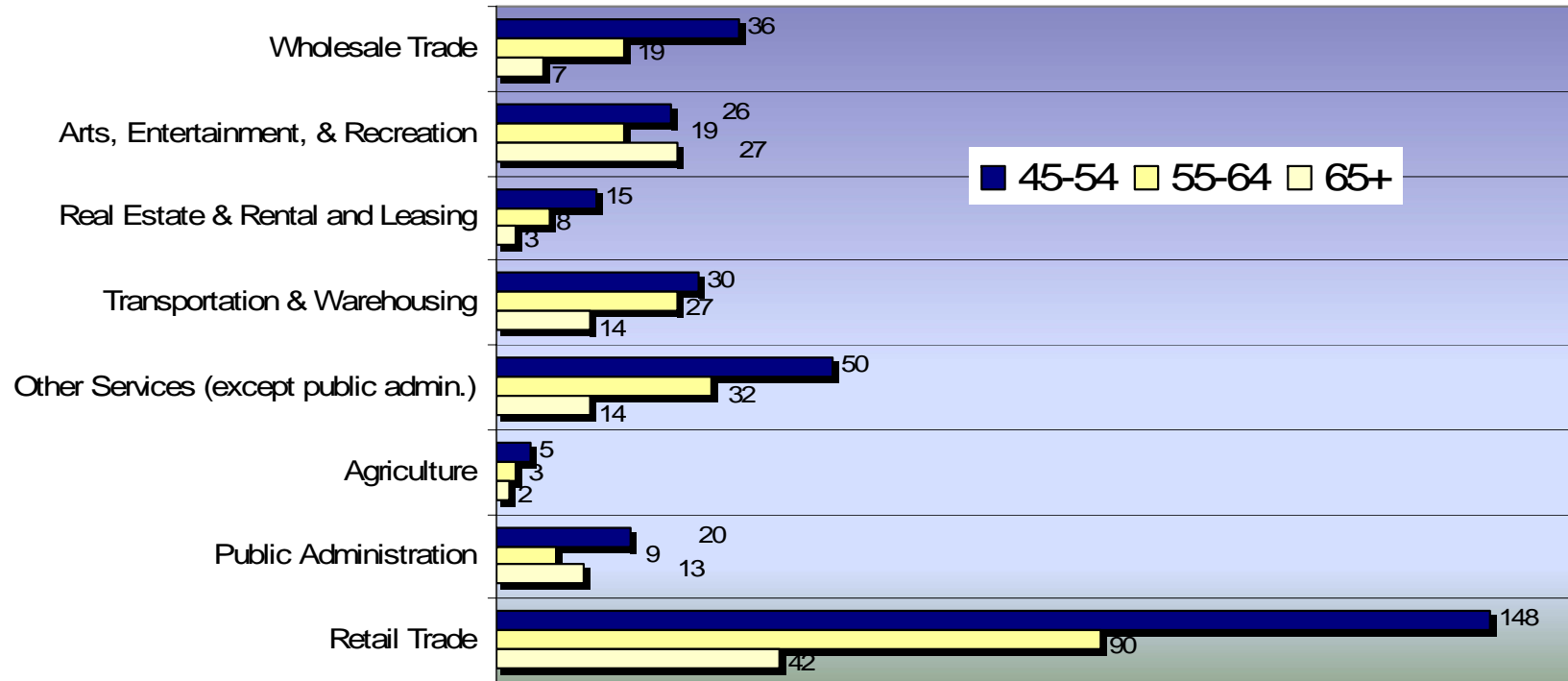
Data provided by the Census  
Calculations performed by CPWDC

*Job creations are new jobs created either by new businesses opening or existing firms adding new jobs. The number of job creations in the West Central WIA has increased between 2001 and 2003 for all workers. All older age groups demonstrated increased placements in newly created jobs. The trend indicates that the number of individuals hired for job creations decreases as age increases.*

Overall, the new jobs created in the West Central WIA are filled by workers in each age group. It is evident age increases there is less likelihood that a new job will be filled by that age group. For 2003, about 23 percent of all job creations are filled by workers ages 45-54, 12 percent by the 55-64 age group, and only about 4 percent by the oldest workers. Who fills the new job may be a function of the type of job it is, the industry in which it is, pay, etc. as well as the interest, need and motivation of an individual to accept employment.

The following chart shows the job creations for the industries employing the greatest proportions of older workers (65+) in the West Central Region as of 2003:

**Average Quarterly Job Creations (2003)**  
**Top Industries Employing Workers 65+**  
**West Central MA**



Data provided by the Census  
 Calculations performed by CPWDC

*Industries that have high proportions of employment by workers over the age of 65 and high levels of job creations may offer the most job opportunities for individuals who choose to work beyond retirement. **Retail Trade** has the highest levels of job creations for each older age group.*

Individuals who wish to work beyond retirement may consider these industries for employment. Not only do these industries already have a high proportion of workers beyond the typical retirement age, but they also there is also a demonstrated trend of new job openings being filled with older workers. This is most evident by the Retail Trade industry, which has the highest values for each age category.

***Job Separations:***

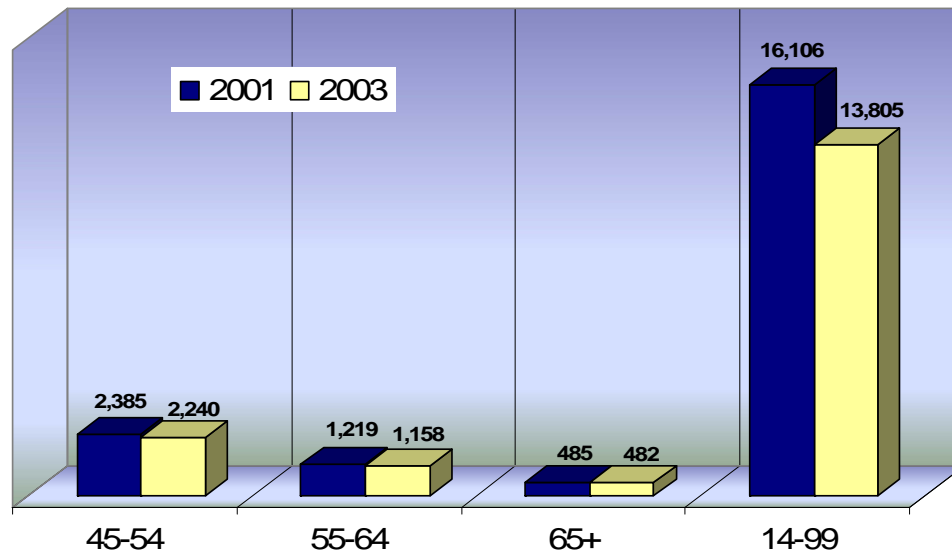
Job separations represent the total number of workers employed by a company within an industry in the current quarter, but not in the following quarter. This Quarterly Workforce Indicator determines which workers (i.e., younger or older) are leaving jobs and which industries workers are leaving. Job separations may occur for a variety of reasons, including retirement, transition to other employment or the actual elimination of a job by a company within the specified industry.

This analysis looks at job separations in general, regardless of the cause, and in no way suggests that industries are engaged in any discriminatory practices by focusing on reducing employment for workers in certain age groups.

The following chart identifies the average number of job separations in the West Central WIA for all workers by age group:

***See Appendix I for separations by industry and by age group***

### Average Quarterly Separations for All Industries West Central WIA



Data provided by the Census  
Calculations performed by CPWDC

*Job separations represent the total number of workers employed by a company within an industry in the current quarter, but not in the following quarter. For all workers in the West Central WIA, the number of job separations has decreased between 2001 and 2003. This trend is present in all older age groups, with the greatest decrease occurring in the 45-54 age bracket.*

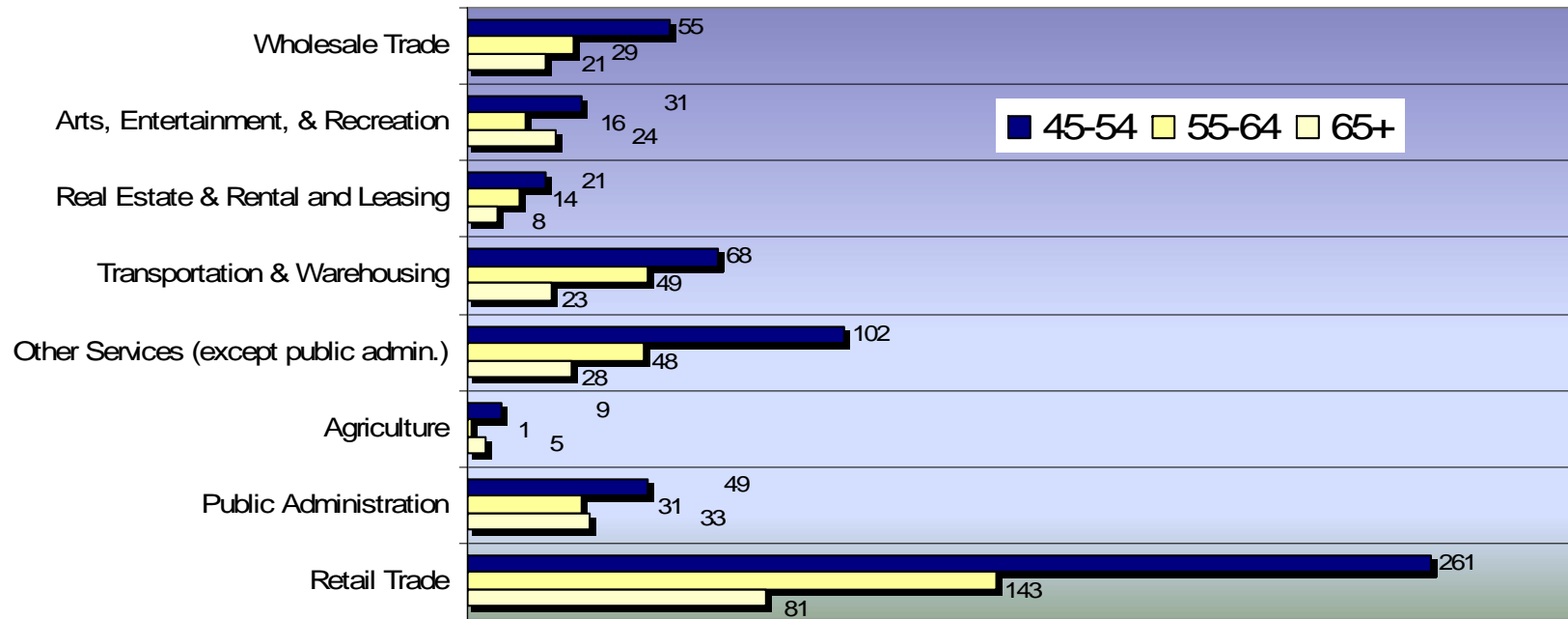
Job separations are decreasing for all three age groups. All workers (ages 14-99) have demonstrated a decrease in job separations, indicating that younger workers also share this trend because of the slight decreases seen in the older groups.

It is not surprising that the 45-54 group has higher job separation levels than the 55-64 and 65+ groups. Because this age group comprises a larger percentage of employment in the West Central WIA, when a company decides to cut a job is eliminated, there is a higher probability of that job being occupied by a person within the 45-54 age group than the other older age groups.

Similar to the job creations, the number of job destructions decreases as age increases. For 2003, about 16 percent of all job separations are in the 45-54 age group, 8 percent are in the 55-64 age group, and about 3 percent are in the oldest age group in the West Central WIA.

The following chart shows the jobs separations for the industries employing the greatest proportions of older workers (65+) in the West Central Region as of 2003:

**Average Quarterly Separations (2003)**  
**Top Industries Employing Workers 65+**  
**West Central WIA**



Data provided by the Census  
 Calculations performed by CPWDC

*Retail Trade has relatively high levels of job separations for older workers in the West Central WIA. Many older individuals may supplement existing forms of income by working in this industry, especially during holiday seasons and other times of the year when extra money is needed. The fact that this industry has the highest nominal value of workers 65+ (633) also contributes to the high levels of job separations.*

Among the industries that have the highest proportions of workers ages 65+, Retail Trade also contributes heavily to job separations (and job creations) for older workers in the West Central WIA. Conversely, the Agriculture industry has little influence on these statistics in the West Central WIA. With the forthcoming shortage in older workers, industries with high levels of job separations will struggle to maintain their current levels of employment. This is due to the fact that there will be an overall deficit in the workforce, and older workers have a tendency not to remain in industries with high levels of separations.

### **Net Job Flow:**

Net job flow<sup>6</sup> is another Quarterly Workforce Indicator that can be used to study the aging workforce. Net job flow is calculated as the difference between current and previous employment in an area and determines which industries are expanding or contracting employment. By looking at net job flows, it can be determined which industries in the West Central WIA are creating new opportunities or restricting job possibilities and then look at how those activities influence various age groups, specifically older workers. Job creations and job separations influence the level of this statistic.

While net job flow for all workers is simply the change in employment, it cannot be distinguished if any decreases in employment (i.e. negative net job flows) are due to companies reducing employment or workers leaving for various reasons (e.g. retirement, another job, et cetera), or if increases in employment (i.e. positive net job flows) are due to companies expanding employment or new individuals entering employment. It is important to note, though, which industries demonstrate positive net job flows, especially for individuals in older age groups. A positive net job flow for older workers indicates an increase in employment over a certain time period, which may be the result of incumbent workers advancing into a new age bracket or the industry hiring older workers. In either case, these industries may offer stable employment for older workers and/or possible job opportunities.

In the West Central WIA for 2003, net job flows represented an average increase of 353 jobs for workers ages 45-54, an average gain of 57 jobs for workers ages 55-64, and an average loss of 38 jobs for workers ages 65+. This negative value could be solely a reflection of normal retirement activity or older workers in the West Central WIA may not possess the educational skills necessary to compete for the types of new jobs being offered by various companies, thus causing negative net job flow for older individuals or.

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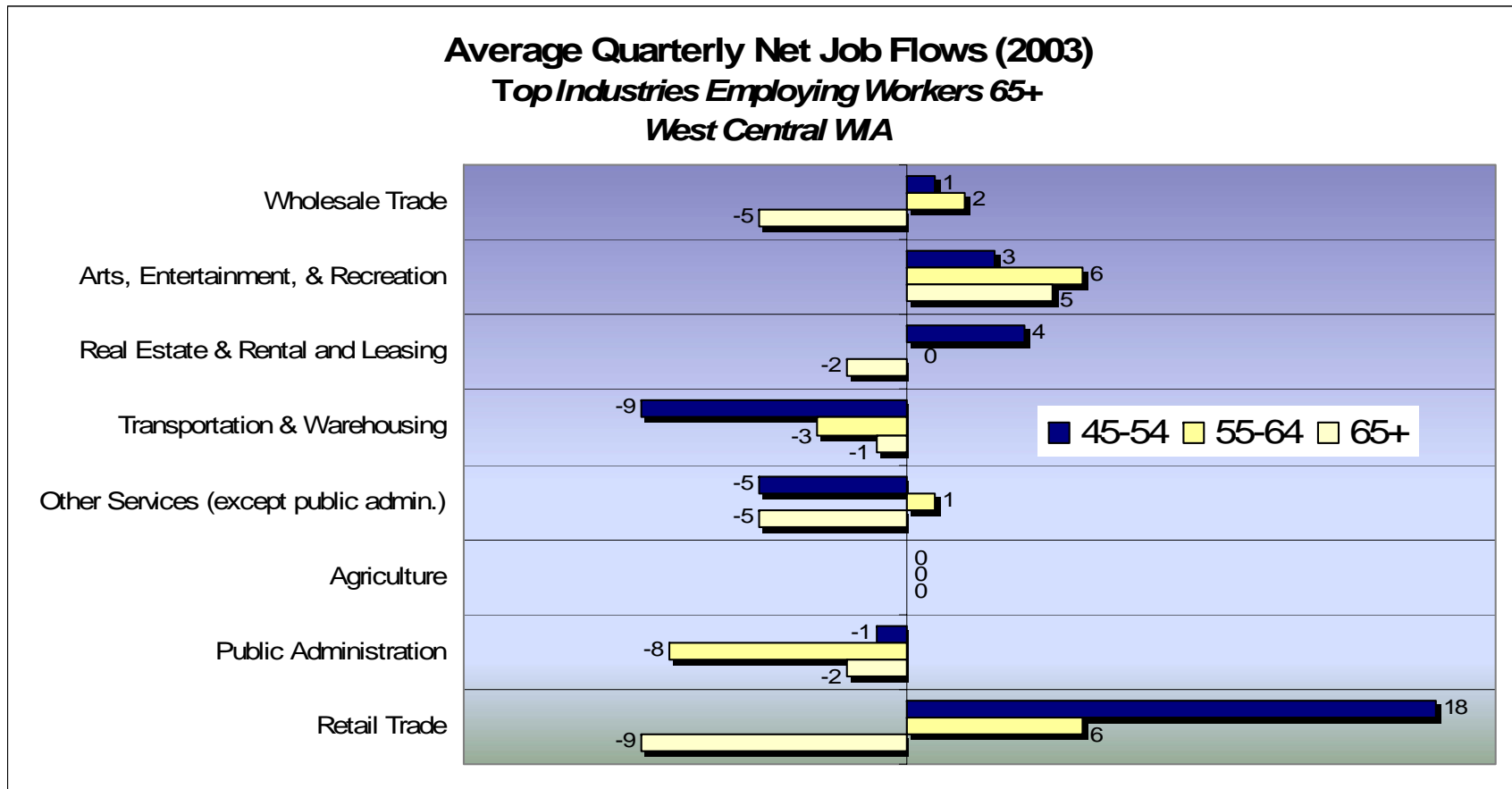
<sup>6</sup> Because job creations and job separations are presented as average quarterly estimates, these values do not sum exactly to the value of the provided net job flow.

Overall, net job flow represented an average increase of 1,512 jobs for all workers in the West Central WIA.

It is important to distinguish between the net job flow resulting from individuals belonging to specific age groups and the net job flow resulting from the nature of the job even if the job is typically held by individuals in certain age groups. This analysis looks at the latter and in no way suggests that industries are engaged in any discriminatory practices by focusing on hiring certain age groups.

The following chart identifies the average net job flows in the West Central WIA for industries that have the highest proportions of workers ages 65+ in 2003:

See Appendix J for net job flows by industry and by age group



Data provided by the Census  
Calculations performed by CPWDC

*While net job flow was positive for all workers in the West Central WIA in 2003, it was negative for the retirement group (ages 65+). This indicates that the region is restricting job opportunities for these older workers, which may be the result of increased retirements. The **Retail Trade** industry, which has demonstrated relatively higher levels of job creations and job separations, follows a similar pattern, where only workers over the age of 65 have negative net job flows.*

Retail Trade, an industry shown to have high levels for both job creations and job destructions, exhibits a negative net job flow for workers over the age of 65 but positive values for the approaching- and pre-retirement groups (ages 45-54 and 55-64). This indicates that this industry does not maintain its workforce for older workers (i.e. it restricts employment opportunities). It is important to consider the idea, though, that this industry may be seen merely as a transition between jobs for older workers or as limited time supplemental employment and not as a permanent solution. Therefore, the workers themselves may restrict the opportunities.

### **Industries Hiring Older Workers:**

The final Quarterly Workforce Indicator that will be discussed is new hires. New hires represent the total number of workers in a company that were not employed by that employer during the previous four quarters. Of course, the value of this QWI is dependent on all employers reporting new hires promptly. By analyzing new hire data, it can be determined into which industries older workers are not often hired. Industries that traditionally hire higher proportions of older workers may face the problem of having to explore other options to meet hiring needs when the labor force drops in the future. Industries that traditionally hire younger workers may have to consider doing so as a mechanism for maintaining and expanding jobs.

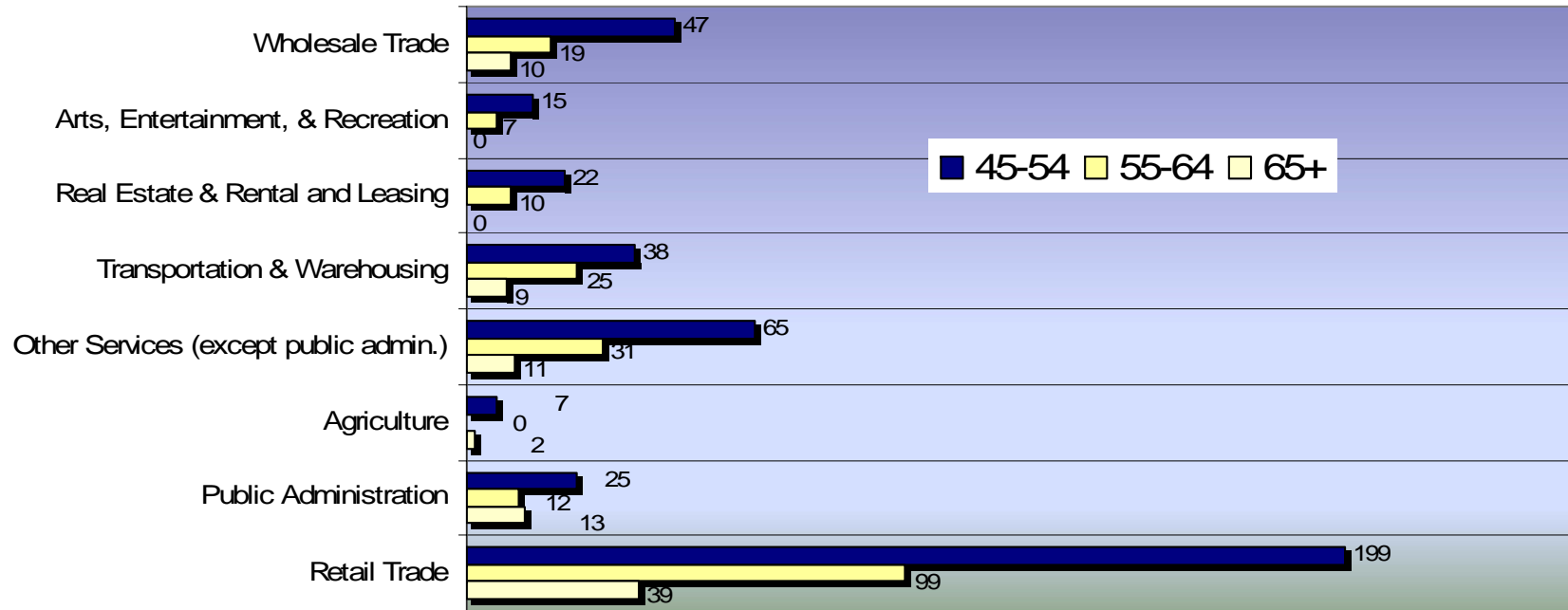
In 2003 for the West Central WIA, there was an average of about 10,000 new hires for all workers. Approximately 13 percent was for workers 45-54, 6 percent for the 55-64 age group, and 2 percent for those over age 65. Age clearly impacts the number of new hires. This does not suggest that age prevents potential new hires from employment, but it may show that there are a lower number of older workers looking to be hired.

It is important to distinguish between hiring individuals belonging to specific age groups and hiring individuals that demonstrate the best qualities for the job even if the individuals are in specific age groups. This analysis looks at the latter and in no way suggests that industries are engaged in any discriminatory practices by focusing on hiring certain age groups.

The following chart demonstrates the average number of new hires for industries having large older employment (65+) percentages in the West Central WIA for 2003:

***See Appendix K for new hires by age group and by industry***

**Average Quarterly New Hires (2003)**  
**Top Industries Employing Workers 65+**  
**West Central MA**



Data provided by the Census  
 Calculations performed by CPWDC

*Industries with high proportions of employment by workers 65+ that have high levels of new hires may be another option for workers to consider when deciding to work beyond retirement. **Retail Trade** has high levels of new hires for each older age group in the West Central WIA, which may be a result of this industry offering temporary employment opportunities for older workers in the region.*

Retail Trade is an industry that hires a large proportion of older workers in the West Central WIA, while Agriculture hires a relatively smaller amount. This is expected because of what has already been presented with job creations, job separations, and net job flows. Overall, the level of new hires has a large influence on these QWIs, and these two industries did in fact have similar levels with these QWIs as they did with new hires.

### **Conclusion:**

The aging workforce in the West Central Workforce Investment Area (WIA) is one of great concern for business executives, decisionmakers, and older workers themselves. Through the analysis of Quarterly Workforce Indicators, data provided by the Local Employment Dynamics program conducted by the Census Bureau, several issues have been resolved. These issues include analyzing the legitimacy of an aging workforce, determining which industries will be most likely affected by the aging workforce and demonstrating how older workers in the West Central WIA could affect current and future aspects of the workforce. It is clear from the data that West Central PA will not escape the consequences of an aging workforce. The factor that is unclear is when exactly the shortage will reach a crisis. Already with decreasing unemployment rates and tight labor markets, some industries are already experiencing difficulty in filling positions (i.e. nursing). It is estimated that the crisis will be upon the West Central WIA before 2011.

Because of high employment proportions of workers ages 55-64 and relatively high total employment, the Education and Manufacturing industries may be the most affected by the aging workforce. Possibly 3,000 employees from such industries will retire within the next decade. These industries must begin preparing immediately to replace large losses in the workforce when these individuals retire. Possible solutions include training programs, increased recruiting efforts, et cetera to prepare younger workers and/or new employees for various jobs. While some vacancies will certainly be filled by younger workers, it can be expected that many openings will remain due to the pending shortage of workers to fill all job openings.

The Wholesale Trade and Retail Trade industries demonstrated large proportions of employment by workers over the retirement age (i.e. 65). As of 2003, nearly 1,000 employees in these industries were 65 or older. Individuals who decide to supplement their retirement or even delay retirement may look to these industries for employment.

Industries with large concentrations of employment by workers over the age of 65 were used to compare various levels of Quarterly Workforce Indicators (QWIs), including turnover, average monthly earnings, job creations, job separations, net job flows, and new hires. While these levels will certainly change over time, economic developers can use current levels of each measure to forecast future conditions in local businesses in creating transitional plans to counteract the aging workforce. Certainly, unforeseen

changes in the local economy, the labor market, technology, et cetera may affect these levels. Improvements in technology may cause many positions in companies to become obsolete, or the region may experience a large influx of younger workers. Such events will alter the workforce and the economy dramatically.

This analysis does not guarantee that historical trends in each Quarterly Workforce Indicator will continue into the future. This report merely provides a snapshot of the West Central WIA's aging workforce using certain statistics to suggest the possibility of specified industries being more affected by retiring baby boomers than other industries.

### **Recommendations:**

The pending crisis in the West Central WIA mirrors the national trend. Edward Gordon, in his book *The 2010 Meltdown*, notes that by 2025, the United States will have 27 "Floridas". He stresses that by the decade following 2010, the "principal talent pool for managers and workers under age 45 will shrink by 6%" (page 13). By 2030 there will be two workers for every social security beneficiary (almost a 90% reduction since 1950). As data in this report suggests, the West Central WIA could begin to see the early phases of this crisis by 2010, when it appears that the rate of retirement exceeds the rate of workforce entrance. There may not be enough new workers entering the labor pool to replace those retiring without even considering the new jobs to be created through business growth.

This report was intended to provide statistical analysis of the situation as a basis for future research and innovative approaches to most effectively using the available workforce. Issues that the West Central WIB, along with its partners and stakeholders, may consider include:

1. **Retraining For Displaced Workers:** In an already tight labor market with low unemployment, it will be critical that workers displaced from jobs are quickly retrained in high demand occupations to return to the workforce.
2. **Flexible Work Schedules:** Gordon (2005) notes that 80% of all baby boomers plan to work part-time after retirement. Given that statistic, it will be important for employers to be educated on the benefits of hiring older workers. Additionally, employers may need to make significant personnel changes to accommodate job sharing and flexible scheduling to encourage as many people to work as possible.
3. **Short-Term Training:** As employers experience a demand for replacement workers, they will not be able to wait for traditional 2 and 4 year degree programs to be completed. The educational community will need to find ways to be more responsive by developing short-term (preferably one year or less) training programs that are industry-recognized, credentialed and articulated for further learning opportunities.
4. **Incumbent Worker Training:** One way to close the gap and minimize the lost knowledge of retirees is to increase opportunities for incumbent worker training. In-house training and mentoring programs can assist in ensuring that core business knowledge is transferred.

5. **Transition the Working Poor:** There is a significant pool of workers that juggle multiple jobs but continue to be below the poverty line. Resources that help these individuals increase their skills sets and eliminate barriers to family sustaining jobs will be important for advancement. At the same time, elevating their skill levels will open a pool of positions for new hires in unskilled and semi-skilled positions.
6. **Increase Innovative Practices:** To the extent possible, employers will need to explore and invest in emerging technologies to reduce their reliance on manpower if there will be a limited supply of labor. However, the reliance on technology increases the demand for high skill workers who can operate, maintain and troubleshoot.

These are only a sampling of the issues that must be considered as the West Central WIA moves forward with an aging population. Those communities and employers that are able to develop creative solutions and respond with flexibility will be best poised to successfully transition in this changing workforce.

For further analysis (i.e. analyzing specific industries at higher NAICS levels), please contact the Central Pennsylvania Workforce Development Corporation.

**Appendix A.**  
**Population Estimates and Population Projections by Age Group**  
**(Data Provided by DemographicsNow)**

<b>Aging Workforce Analysis</b>			
<b>West Central Region</b>			
<b>Population by Age Group</b>			
<b>Age Group</b>	<b>Year</b>		
	<b>1990</b>	<b>2005</b>	<b>2010</b>
0-4	13,493	11,411	11,513
5-9	14,359	12,174	11,310
10-14	14,270	13,651	12,144
15-19	15,827	14,880	13,606
20-24	14,488	15,046	14,786
25-29	13,789	12,046	14,959
30-34	16,610	11,103	11,971
35-39	16,092	12,667	11,036
40-44	14,093	14,781	12,509
45-49	11,705	16,356	14,579
50-54	10,540	15,613	15,947
55-59	10,867	13,193	15,226
60-64	12,563	10,890	12,517
65-69	12,579	9,066	10,340
70-74	10,190	8,480	7,979
75-79	7,678	8,153	7,479
80-84	4,469	6,743	5,857
85+	3,644	6,247	6,393
<b>Total</b>	217,256	212,500	210,151

**Appendix B.**  
**Population Estimates, Population Projections, and Percent Changes in Job**  
**Openings**  
**(Data provided by Economic Modeling Specialists, Incorporated)**

**Aging Workforce Analysis**  
**West Central WIA**  
*Population by Age Group (2002-2015)*

Age Group	Year						
	2002	2003	2004	2005	2006	2007	2008
0-4	11,608	11,476	11,409	11,069	11,147	11,221	11,290
5-9	12,964	12,707	12,427	12,055	12,111	12,146	12,170
10-14	14,489	14,432	14,200	13,651	13,615	13,568	13,516
15-19	15,397	15,243	15,291	14,906	15,002	15,040	15,036
20-24	14,147	14,798	15,330	15,434	15,950	16,348	16,642
25-29	10,123	10,108	10,334	10,338	10,762	11,198	11,624
30-34	12,261	11,826	11,236	10,899	11,013	11,168	11,365
35-39	13,759	13,368	12,928	12,261	12,103	11,979	11,898
40-44	16,414	15,879	15,302	14,647	14,498	14,313	14,113
45-49	16,786	16,930	17,006	16,580	16,679	16,687	16,620
50-54	14,537	15,004	15,503	15,536	16,031	16,423	16,717
55-59	12,060	12,320	12,830	12,987	13,590	14,152	14,664
60-64	9,999	10,344	10,442	10,566	11,081	11,598	12,112
65-69	8,627	8,749	8,747	8,544	8,725	8,960	9,239
70-74	9,343	8,676	8,204	7,843	7,808	7,807	7,848
75-79	9,085	9,117	8,940	8,453	8,278	8,103	7,941
80-84	6,621	6,778	6,967	6,889	6,975	6,991	6,951
85+	5,435	5,707	6,075	6,058	6,251	6,422	6,565
<b>Total</b>	213,655	213,462	213,171	208,716	211,619	214,124	216,311

Age Group	Year						
	2009	2010	2011	2012	2013	2014	2015
0-4	11,353	11,406	11,449	11,488	11,521	11,548	11,569
5-9	12,186	12,187	12,178	12,166	12,150	12,129	12,105
10-14	13,459	13,389	13,311	13,231	13,148	13,063	12,976
15-19	14,998	14,924	14,824	14,709	14,580	14,442	14,296
20-24	16,846	16,959	16,995	16,973	16,899	16,783	16,632
25-29	12,026	12,388	12,702	12,970	13,191	13,370	13,502
30-34	11,596	11,842	12,091	12,343	12,585	12,810	13,014
35-39	11,861	11,859	11,892	11,961	12,057	12,173	12,300
40-44	13,912	13,713	13,526	13,365	13,232	13,127	13,050
45-49	16,494	16,311	16,087	15,842	15,587	15,325	15,070
50-54	16,919	17,025	17,046	16,999	16,891	16,733	16,536
55-59	15,116	15,494	15,795	16,019	16,179	16,267	16,293

60-64	12,614	13,087	13,522	13,919	14,269	14,567	14,811
65-69	9,554	9,889	10,233	10,584	10,930	11,265	11,579
70-74	7,930	8,047	8,196	8,377	8,585	8,806	9,041
75-79	7,798	7,678	7,584	7,523	7,494	7,495	7,523
80-84	6,884	6,785	6,678	6,566	6,464	6,372	6,291
85+	6,674	6,750	6,791	6,807	6,803	6,778	6,740
<b>Total</b>	<b>218,220</b>	<b>219,733</b>	<b>220,900</b>	<b>221,842</b>	<b>222,565</b>	<b>223,053</b>	<b>223,328</b>

**Percent Change in New and Replacement Jobs from 2002**

Jobs	Base Year 2002	Year					
		2003	2004	2005	2006	2007	2008
% New	-	1%	1%	0%	1%	2%	3%
% Rep.	-	3%	5%	8%	10%	13%	15%
<b>Total</b>	<b>-</b>	<b>4%</b>	<b>6%</b>	<b>8%</b>	<b>11%</b>	<b>15%</b>	<b>18%</b>

Jobs	Year						
	2009	2010	2011	2012	2013	2014	2015
% New	5%	5%	6%	7%	7%	8%	8%
% Rep.	18%	20%	23%	25%	28%	30%	33%
<b>Total</b>	<b>23%</b>	<b>25%</b>	<b>29%</b>	<b>32%</b>	<b>35%</b>	<b>38%</b>	<b>41%</b>

**Appendix C.**  
**Quarterly Workforce Indicators for All NAICS Sectors by Age Group**

<b>Aging Workforce Analysis</b>
<b>West Central WIA</b>
<b>Coefficient of Determination (<math>R^2</math>)</b>

\* Values are 2003 average quarterly estimates for all NAICS sectors

<b>Age Group</b>	<b>Employment</b>	<b>Turnover Rate</b>	<b>Earnings</b>	<b>Job Creations</b>	<b>Job Separations</b>	<b>New Hires</b>	<b>Net Job Flows</b>
14-18	2,623	24.60%	\$435	702	1,160	1,276	309
19-21	4,073	22.00%	\$864	799	1,777	1,513	126
22-24	4,245	18.00%	\$1,450	652	1,392	1,161	86
25-34	14,432	11.60%	\$2,320	1,456	2,909	2,186	278
35-44	18,075	8.90%	\$2,771	1,508	2,684	1,854	337
45-54	19,266	7.30%	\$2,945	1,417	2,240	1,368	353
55-64	10,116	7.50%	\$2,729	706	1,158	584	57
65+	3,175	8.40%	\$1,485	257	482	203	-38

R <sup>2</sup> Value (Linear)	0.12	0.85	0.44	0.01	0.04	0.29	0.14
R <sup>2</sup> Value (Quadratic)	0.68	0.97	0.88	0.66	0.76	0.78	0.35

**Appendix D.**  
**Total Employment for All NAICS Sectors by Age Group for the West Central**  
**WIA**  
**(2001Q1-2004Q4)**

<b>Total Employment by Age Group</b>								
<b>Age Group</b>	<b>2001Q1</b>	<b>2001Q2</b>	<b>2001Q3</b>	<b>2001Q4</b>	<b>2002Q1</b>	<b>2002Q2</b>	<b>2002Q3</b>	<b>2002Q4</b>
<b>14-44</b>	47,344	47,109	46,324	46,627	45,492	44,661	45,503	45,037
<b>45-54</b>	18,613	18,496	17,846	19,142	18,632	18,829	18,231	19,491
<b>55-64</b>	8,857	8,820	8,718	9,365	9,194	9,381	9,191	9,869
<b>65+</b>	2,820	2,818	2,851	3,050	2,909	2,925	3,020	3,187
<b>14-99</b>	77,634	77,243	75,739	78,184	76,227	75,796	75,945	77,584

<b>Total Employment by Age Group (continued)</b>								
<b>Age Group</b>	<b>2003Q1</b>	<b>2003Q2</b>	<b>2003Q3</b>	<b>2003Q4</b>	<b>2004Q1</b>	<b>2004Q2</b>	<b>2004Q3</b>	<b>2004Q4</b>
<b>14-44</b>	43,156	43,069	43,440	44,134	42,586	43,252	44,747	43,704
<b>45-54</b>	18,849	19,210	18,701	20,306	19,893	20,430	20,210	20,591
<b>55-64</b>	9,721	10,174	9,909	10,663	10,540	10,920	10,804	11,165
<b>65+</b>	3,023	3,164	3,178	3,335	3,207	3,333	3,382	3,470
<b>14-99</b>	74,749	75,617	75,228	78,438	76,226	77,935	79,143	78,930

**Appendix E.**  
**Average Employment by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

*Employment by Industry*

*\* Note: Values are average quarterly estimates*

NAICS	Industry	Average Employment-2001				Average Employment-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	18,524	8,940	2,884	77,200	19,266	10,116	3,175	76,008
11	Agriculture	78	37	15	350	69	29	20	273
21	Mining	39	15	3	163	77	14	8	256
22	Utilities	203	42	5	458	225	80	8	497
23	Construction	912	360	73	3,896	852	323	91	3,327
31-33	Manufacturing	3,825	1,773	317	14,455	4,019	1,920	304	13,683
42	Wholesale Trade	706	392	269	3,186	759	468	301	3,141
44-45	Retail Trade	2,161	1,228	608	12,098	2,206	1,287	633	11,157
48-49	Transportation & Warehousing	440	287	109	1,675	469	336	126	1,687
51	Information	316	139	31	1,136	279	136	41	1,054
52	Finance & Insurance	707	285	57	2,467	789	376	59	2,764
53	Real Estate & Rental and Leasing	161	100	58	724	160	117	54	718
54	Professional Services	295	149	56	1,340	375	220	62	1,696
55	Management	151	55	12	519	113	53	9	342
56	Administrative Services	444	246	78	2,114	683	375	135	3,129
61	Education	2,345	1,117	244	6,639	2,461	1,395	278	7,216
62	Health Care & Social Assistance	3,529	1,565	365	13,190	3,356	1,689	422	12,433
71	Arts, Entertainment, & Recreation	117	59	68	782	125	75	67	752
72	Accommodation & Food Services	670	342	145	6,570	707	349	149	6,165
81	Other Services (except public admin.)	621	320	174	2,666	655	366	205	2,765
92	Public Administration	797	421	189	2,764	878	500	197	2,948

**Appendix F.**  
**Average Turnover Rate by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

*Turnover Rate (%) by Industry*

\* Note: Values are average quarterly estimates

NAICS	Industry	Average Turnover Rate (%) - 2001				Average Turnover Rate (%) - 2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	8.3	8.5	10.2	11.6	7.3	7.5	8.4	10.2
11	Agriculture	10.2	5.6	10.8	13.0	7.4	6.5	10.1	12.2
21	Mining	9.3	11.4	31.4	13.2	5.1	11.2	N/A	7.7
22	Utilities	5.3	18.7	N/A	7.2	7.0	6.7	N/A	7.8
23	Construction	14.3	15.5	19.4	16.2	13.1	11.1	13.5	14.6
31-33	Manufacturing	6.9	6.9	8.0	9.0	6.2	6.9	8.4	7.9
42	Wholesale Trade	8.1	7.0	6.8	9.2	5.8	5.2	4.4	7.1
44-45	Retail Trade	9.3	8.2	9.5	14.1	7.4	7.4	6.5	11.3
48-49	Transportation & Warehousing	7.0	9.3	10.6	9.2	8.5	9.4	11.9	10.0
51	Information	7.6	7.9	12.0	9.0	5.4	4.5	5.0	7.2
52	Finance & Insurance	6.3	6.8	9.5	8.5	3.5	5.1	9.9	6.1
53	Real Estate & Rental and Leasing	8.2	7.4	9.4	11.4	8.8	8.1	8.4	13.1
54	Professional Services	9.2	7.9	13.1	10.8	10.0	10.8	9.8	12.3
55	Management	12.9	14.0	N/A	15.1	4.1	3.9	N/A	5.9
56	Administrative Services	11.8	10.9	10.5	16.9	14.5	13.0	9.0	17.2
61	Education	6.1	7.6	10.4	8.4	3.5	5.5	7.9	5.7
62	Health Care & Social Assistance	8.4	8.5	9.9	10.7	9.1	8.6	9.1	11.2
71	Arts, Entertainment, & Recreation	19.1	26.5	37.5	25.3	17.9	17.0	41.0	22.7
72	Accommodation & Food Services	12.3	11.4	9.9	19.1	11.0	8.6	9.5	16.9
81	Other Services (except public admin.)	9.9	9.7	9.3	12.7	8.2	7.6	7.1	11.2
92	Public Administration	6.5	6.9	10.4	7.7	3.6	4.2	9.1	4.6

**Appendix G.**  
**Average Monthly Earnings by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

*Monthly Earnings by Industry*

\* Note: Values are average quarterly estimates

NAICS	Industry	Average Monthly Earnings-2001				Average Monthly Earnings-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	\$2,839	\$2,521	\$1,429	\$2,331	\$2,945	\$2,729	\$1,485	\$2,457
11	Agriculture	\$2,109	\$2,375	\$1,112	\$1,840	\$1,813	\$1,443	\$1,120	\$1,423
21	Mining	\$3,356	\$3,157	\$1,633	\$2,891	\$3,256	\$3,837	\$1,527	\$2,912
22	Utilities	\$4,698	\$3,848	\$698	\$4,224	\$5,583	\$6,288	\$704	\$5,288
23	Construction	\$3,282	\$3,059	\$1,737	\$2,829	\$3,278	\$3,190	\$1,848	\$2,838
31-33	Manufacturing	\$3,486	\$3,387	\$2,823	\$3,071	\$3,707	\$3,625	\$2,810	\$3,316
42	Wholesale Trade	\$3,218	\$3,331	\$1,192	\$3,101	\$3,327	\$2,934	\$1,303	\$3,006
44-45	Retail Trade	\$2,032	\$1,612	\$976	\$1,611	\$2,153	\$1,765	\$1,009	\$1,733
48-49	Transportation & Warehousing	\$2,820	\$2,106	\$1,377	\$2,496	\$2,806	\$2,249	\$1,354	\$2,470
51	Information	\$3,342	\$3,239	\$1,472	\$2,895	\$3,165	\$2,872	\$944	\$2,653
52	Finance & Insurance	\$3,193	\$3,080	\$2,045	\$2,745	\$3,255	\$2,994	\$2,743	\$2,888
53	Real Estate & Rental and Leasing	\$1,913	\$1,633	\$917	\$1,684	\$1,969	\$1,756	\$1,359	\$1,878
54	Professional Services	\$3,437	\$3,077	\$2,095	\$2,775	\$3,477	\$3,208	\$1,963	\$3,007
55	Management	\$3,622	\$3,660	\$3,717	\$2,863	\$4,301	\$4,579	\$4,003	\$3,389
56	Administrative Services	\$2,097	\$1,901	\$1,437	\$1,865	\$2,077	\$2,164	\$1,313	\$2,000
61	Education	\$3,219	\$2,939	\$1,443	\$2,768	\$3,133	\$3,151	\$1,554	\$2,839
62	Health Care & Social Assistance	\$2,638	\$2,307	\$1,811	\$2,287	\$2,790	\$2,675	\$1,943	\$2,409
71	Arts, Entertainment, & Recreation	\$1,737	\$1,247	\$791	\$1,221	\$1,869	\$1,426	\$853	\$1,272
72	Accommodation & Food Services	\$1,213	\$1,024	\$627	\$881	\$1,298	\$1,121	\$758	\$916
81	Other Services (except public admin.)	\$1,471	\$1,272	\$996	\$1,357	\$1,568	\$1,344	\$934	\$1,383
92	Public Administration	\$2,609	\$2,190	\$938	\$2,395	\$2,748	\$2,351	\$1,036	\$2,542

**Appendix H.**  
**Average Job Creations by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

*Job Creations by Industry*

*\* Note: Values are average quarterly estimates*

NAICS	Industry	Average Job Creations-2001				Average Job Creations-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	1,148	547	229	5,334	1,417	706	257	6,031
11	Agriculture	4	3	2	29	5	3	2	20
21	Mining	1	N/A	1	10	6	N/A	N/A	15
22	Utilities	N/A	N/A	N/A	11	N/A	N/A	N/A	8
23	Construction	141	54	14	606	104	38	12	446
31-33	Manufacturing	155	56	14	587	209	71	17	732
42	Wholesale Trade	48	24	15	173	36	19	7	151
44-45	Retail Trade	137	64	38	674	148	90	42	759
48-49	Transportation & Warehousing	25	25	11	101	30	27	14	122
51	Information	5	4	1	33	16	6	1	60
52	Finance & Insurance	31	12	N/A	116	22	9	3	98
53	Real Estate & Rental and Leasing	8	4	3	44	15	8	3	66
54	Professional Services	30	18	7	147	35	19	6	152
55	Management	3	2	N/A	15	3	2	N/A	18
56	Administrative Services	32	20	8	180	40	23	5	200
61	Education	100	54	18	403	89	56	20	353
62	Health Care & Social Assistance	233	103	26	878	485	236	50	1,779
71	Arts, Entertainment, & Recreation	30	21	18	219	26	19	27	216
72	Accommodation & Food Services	66	34	17	698	65	27	13	504
81	Other Services (except public admin.)	56	27	14	267	50	32	14	226
92	Public Administration	30	13	12	125	20	9	13	84

**Appendix I.**  
**Average Separations by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

Separations by Industry

\* Note: Values are average quarterly estimates

NAICS	Industry	Average Separations-2001				Average Separations-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	2,385	1,219	485	16,106	2,240	1,158	482	13,805
11	Agriculture	13	4	2	90	9	1	5	63
21	Mining	3	N/A	N/A	21	6	N/A	N/A	29
22	Utilities	17	12	N/A	55	8	4	1	26
23	Construction	293	136	32	1,463	227	75	22	1,010
31-33	Manufacturing	466	219	49	2,359	361	183	40	1,704
42	Wholesale Trade	75	40	24	416	55	29	21	322
44-45	Retail Trade	290	150	84	2,929	261	143	81	2,274
48-49	Transportation & Warehousing	51	35	17	254	68	49	23	296
51	Information	26	14	6	146	17	7	3	103
52	Finance & Insurance	38	19	7	215	38	27	11	239
53	Real Estate & Rental and Leasing	22	13	8	151	21	14	8	143
54	Professional Services	34	19	7	229	52	32	11	309
55	Management	8	N/A	N/A	52	4	1	N/A	28
56	Administrative Services	92	44	16	746	124	56	19	892
61	Education	234	159	50	1,157	172	143	55	885
62	Health Care & Social Assistance	349	161	55	1,871	494	232	63	2,317
71	Arts, Entertainment, & Recreation	41	24	26	373	31	16	24	291
72	Accommodation & Food Services	143	63	25	2,593	135	55	26	2,031
81	Other Services (except public admin.)	106	43	24	590	102	48	28	587
92	Public Administration	77	52	42	387	49	31	33	249

**Appendix J.**  
**Average Net Job Flows by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

*Net Job Flows by Industry*

\* Note: Values are average quarterly estimates

NAICS	Industry	Average Net Job Flows-2001				Average Net Job Flows-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	-182	-210	-82	-507	353	57	-38	1,512
11	Agriculture	-2	-1	N/A	-6	N/A	N/A	N/A	2
21	Mining	-1	N/A	N/A	-1	2	N/A	N/A	3
22	Utilities	-12	-10	N/A	-37	-4	-1	N/A	-6
23	Construction	22	-7	-3	84	11	N/A	N/A	83
31-33	Manufacturing	-143	-101	-21	-633	-43	-57	-10	-175
42	Wholesale Trade	1	-1	-1	7	1	2	-5	35
44-45	Retail Trade	-10	-21	-13	-186	18	6	-9	118
48-49	Transportation & Warehousing	-2	2	N/A	-9	-9	-3	-1	-13
51	Information	-11	-6	-3	-43	9	N/A	-1	26
52	Finance & Insurance	9	N/A	-3	26	2	-11	-4	6
53	Real Estate & Rental and Leasing	-3	-3	-4	-8	4	N/A	-2	14
54	Professional Services	6	5	1	34	2	-4	-3	10
55	Management	N/A	N/A	N/A	1	1	1	N/A	12
56	Administrative Services	-1	-1	-1	N/A	6	N/A	-5	33
61	Education	-46	-43	-10	-102	15	-17	-4	61
62	Health Care & Social Assistance	28	N/A	-8	207	333	143	16	1,197
71	Arts, Entertainment, & Recreation	4	6	-1	34	3	6	5	30
72	Accommodation & Food Services	-4	-6	N/A	117	-3	-5	-3	49
81	Other Services (except public admin.)	5	N/A	N/A	62	-5	1	-5	4
92	Public Administration	-25	-22	-12	-80	-1	-8	-2	148

**Appendix K.  
Average New Hires by Age Group and by Industry, 2001 and 2003**

**Aging Workforce Analysis**

West Central WIA

New Hires by Industry

\* Note: Values are average quarterly estimates

NAICS	Industry	Average New Hires-2001				Average New Hires-2003			
		45-54	55-64	65+	14-99	45-54	55-64	65+	14-99
All	All NAICS Industries	1,459	599	205	11,863	1,368	584	203	10,147
11	Agriculture	7	1	1	61	7	N/A	2	45
21	Mining	N/A	N/A	N/A	10	3	N/A	N/A	21
22	Utilities	N/A	N/A	N/A	16	N/A	N/A	1	17
23	Construction	218	89	17	1,144	171	53	12	799
31-33	Manufacturing	209	70	15	1,244	126	52	12	852
42	Wholesale Trade	52	23	12	322	47	19	10	294
44-45	Retail Trade	217	98	42	2,353	199	99	39	1,916
48-49	Transportation & Warehousing	36	19	7	163	38	25	9	188
51	Information	10	5	N/A	73	12	1	N/A	81
52	Finance & Insurance	38	11	N/A	195	31	10	5	200
53	Real Estate & Rental and Leasing	17	7	2	128	22	10	N/A	131
54	Professional Services	28	12	4	196	38	16	3	245
55	Management	6	N/A	N/A	48	2	2	N/A	23
56	Administrative Services	71	30	11	602	116	46	10	822
61	Education	80	39	11	615	93	53	18	533
62	Health Care & Social Assistance	233	94	26	1,541	244	100	33	1,450
71	Arts, Entertainment, & Recreation	22	N/A	N/A	238	15	7	N/A	166
72	Accommodation & Food Services	110	41	18	2,261	101	35	13	1,763
81	Other Services (except public admin.)	70	26	13	481	65	31	11	445
92	Public Administration	23	12	8	166	25	12	13	148