



**Graying South Central Kansas:
Estimating the Separation and Growth Rates for Occupations
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Graying South Central Kansas: Estimating the Separation and Growth Rates for Occupations Implications for Training and Knowledge Management Issues

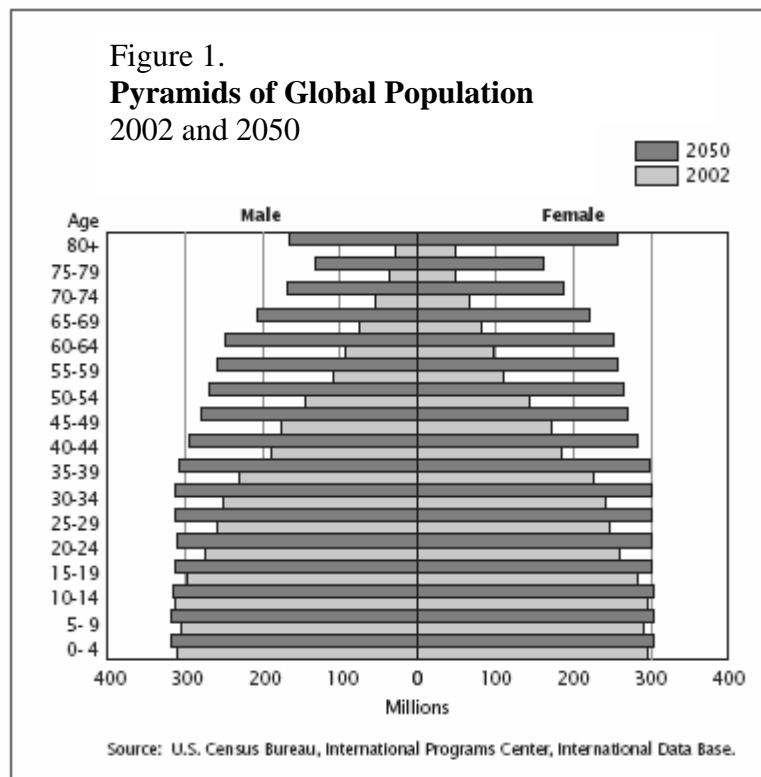
Considering the strategic impacts of changing workforce demographics has been the subject of much research. This paper will apply the results of these studies to South Central Kansas to estimate the separation rate and forecast the implications of a graying workforce and the dynamics for economic growth on selected occupations.

The focus of this report is to examine the changing population parameters in the South Central Region and the effects these changes will have on the occupational structure of the Region's economy. The likely implications these changes will have for training and knowledge management will also be considered.

General Overview of Population Demographic Shifts

Global population is projected to increase by 25.3 percent from 6 billion in 2000 to 7.6 billion in 2020. The world's population will continue to increase and exceed 9 billion people in 2050 with a dramatic shift in age distribution.

In 2050, the population ages 80 and older is projected to make up a progressively higher proportion of the global total.¹ Currently 7 percent of the world's population is over age 65; in 2050 the percentage of the world's population over age 65 is projected to be 16.5 percent.



¹ U.S. Census Bureau, Global Population Profile: 2002, <http://www.census.gov/ipc/www/wp02.html>.

The rate of population growth in the United States is less than the world average with a 19.3 percent increase projected between 2000 and 2020. The population of Kansas is also projected to increase but at a slower rate with a projected increase of 7.5 percent over the 20-year study period. South Central Kansas includes seven counties; Butler, Cowley, Harper, Harvey, Kingman, Sedgwick, and Sumner, and it is projected to grow at a greater rate than the state with a projected rate of change of 13.5 percent from 2000-2020.

Table 1. Population Estimates and Projections, 2000-2020

Region	Census 2000	Projection 2010	Projection 2020	2000-2020 Change	
				Number	Percent
World	6,073,265,234	6,868,220,183	7,608,075,253	152,4810,019	25.3
United States	281,421,906	308,935,581	335,804,546	54,382,640	19.3
Kansas	2,688,418	2,805,470	2,890,566	202,148	7.5
South Central KS	623,386	665,219	707,329	83,943	13.5
Sedgwick County	453,428	481,730	515,403	61,975	13.7

Source: U.S. Census Bureau and Kansas Department of Administration

The relative percentage of United States residents who live in Kansas will decrease over the study period, and the percentage of Kansans that live in the South Central Region will increase. These changes are a result of population mobility and the effects of birth and mortality rates of the population.

Table 2. United States Population Distribution

	2000	2010	2020
Kansas	0.96%	0.91%	0.86%

Source: U.S. Census Bureau and Kansas Department of Administration

Table 3. Kansas Regional Population Distribution

	2000	2010	2020
South Central KS	23.19%	23.71%	24.47%
Sedgwick County KS	16.87%	17.17%	17.83%

Source: U.S. Census Bureau and Kansas Department of Administration

Table 4. Population Estimates and Projections by Age, 2000 - 2020

Age Group	Census 2000			Projection 2010			Projection 2020			2000-2020 Change	
	Total	% Total	Old Age Dependency Ratio*	Total	% Total	Old Age Dependency Ratio	Total	% Total	Old Age Dependency Ratio	Number	Percent
United States	All	281,421,906	100.0	308,935,581	100.0		335,804,546	100.0		54,382,640	19.3
	0-19	80,473,265	28.6	83,235,774	26.9		88,887,540	26.5		8,414,275	10.5
	20-64	165,956,888	59.0	185,456,094	60.0		192,285,115	57.3		26,328,227	15.9
	65+	34,991,753	12.4	40,243,713	13.0	21.7	54,631,891	16.3	28.4	19,640,138	56.1
Kansas	All	2,688,418	100.0	2,805,470	100.0		2,890,566	100.0		202,148	7.5
	0-19	798,418	29.7	779,503	27.8		791,168	27.4		-7,250	-0.9
	20-64	1,533,771	57.1	1,650,652	58.8		1,619,479	56.0		85,708	5.6
	65+	356,229	13.3	375,315	13.4	22.7	479,919	16.6	29.6	123,690	34.7
South Central Kansas	All	623,386	100.0	665,219	100.0		707,329	100.0		83,943	13.5
	0-19	191,721	30.8	202,445	30.4		213,785	30.2		22,064	11.5
	20-64	353,937	56.8	376,688	56.6		393,816	55.7		39,879	11.3
	65+	77,698	12.5	86,086	12.9	22.9	99,728	14.1	25.3	22,030	28.4
Sedgwick County	All	453,428	100.0	481,730	100.0		515,403	100.0		61,975	13.7
	0-19	140,005	30.9	147,191	30.6		156,377	30.3		16,372	11.7
	20-64	261,752	57.7	276,960	57.5		291,247	56.5		29,495	11.3
	65+	51,671	11.4	57,579	12.0	20.8	67,779	13.2	23.3	16,108	31.2

* The number of working age persons (age 15 - 64 years) per older person (65 years or older)

Source: U.S. Census Bureau, Population Division, Interim State Population Projections, 2005 and Kansas Department of Administration.
www.da.ks.gov/budget/files/FY2006/Kansas_Population_Projections_through_2027.xls

General Overview of Economic Outlook

Economic growth projections reflect the interaction of many economic variables and underlying relationships, both in the short-term and in the medium-term to long-term. In the short-term, households and businesses make spending decisions based on their expectations of future movements of interest rates, prices, employment, income, wealth, fiscal and monetary policy, exchange rates, and world developments. In the long-run, it is the ability to produce goods and services that ultimately determine the growth potential of any country's economy.

Demographic and expected productivity trends influence the medium-term to long-term economic outlook. Population growth, labor force participation rates, development of human capital, physical capital accumulation and political stability are major determinants in forecasting potential growth.

According to the International Energy Outlook 2006, world real gross domestic product (GDP) growth is expected to average 3.8 percent annually through 2030 and the United States is projected to have a 3.1 percent average annual growth rate. Long-term projections of real GDP for smaller geographies are unavailable.

Table 5. Average Annual Growth in World and US Gross Domestic Product, 1978-2030

Region	History				Projections		
	1978-2003	2003	2004	2005	2005-2015	2015-2030	2003-2030
Purchasing Power Parity Rates							
Total World	3.1%	4.0%	5.1%	4.6%	4.0%	3.6%	3.8%
United States	2.9%	2.5%	4.1%	3.5%	3.1%	2.9%	3.1%

Source: International Energy Outlook, Global Insights, Inc <http://www.eia.doe.gov/oiaf/ieo/world.html>

South Central Kansas Occupational Outlook

Labor market/employment analysis can be viewed either through occupational categories or through industry categories. Information about projected job openings results from (1) the need to replace workers who leave an occupation and (2) net employment growth or decline.

1. Separation from Occupations

The need to replace workers (net separation) can be estimated by summarizing the movements of workers into and out of an occupation over time. If employment is not declining, net separations quantify the need for new entrants and if training is required, identify minimum training requirements.² In addition to the net separations, the U.S. Department of Labor, Bureau of Labor Statistics has developed measures of *total separations*, the flow of individuals leaving an occupation for any reason, without regard to persons entering the occupation.

In order to apply the net separation rate, employment estimates for appropriate age groups for each occupation must be acquired. The forecasting technique ages each age cohort over the forecasting period and applies the net separation rate to estimate the future employment levels.

Census data is available for Sedgwick County for many occupational categories and some age distribution within occupational categories. Using this Sedgwick County data and applying the U.S. Department of Labor, Bureau of Labor Statistics (BLS) separation rates, yield projections of the number of workers who will remain in the occupation over five and 10-year periods.

To demonstrate this analysis, this study examines two occupational groups, registered nurses and waiters and waitresses. The available census data for these occupations are from the 2000 census and provide occupational cohort information for age groups 16-39, 40-49, 50-59, and 60 years and older. BLS separation rates are available for five year cohorts between ages 16-19, 20-24, 25-29 . . . 70-74, and ages 75 and older.

This study uses a simplifying assumption that employees are evenly distributed within each age group. This assumption enables the analysis to age subsections of Sedgwick County's expanded cohorts over time. For example, the 2000 census data identify 1,947 registered nurses between the ages of 16 and 39. These ages cover five of the BLS cohorts. As the analysis is extended into 2005, 20 percent of the 1,947 nurses will age out of this cohort into the 40-44 age cohort. Therefore, in 2005, 1,558 registered

² *Occupational Outlook Handbook*. Chapter VI. Estimating Occupational Replacement Needs. Bureau of Labor Statistics, p 147-154. www.bls.gov/emp/optd/optd006.pdf.

nurses remain in the aged cohort of 21-39 and 389 registered nurses age into the 40-44 age cohort. The 40-49 age cohort in 2000 is aged into two separate cohorts in 2005; 50 percent of the employees are aged into the 45-49 cohort and 50 percent are aged into the 50-54 cohort.

After employees are aged, BLS separation rates are applied to determine the number of registered nurses remaining in the occupation in 2005. The BLS estimates that the separation rate for registered nurses between the ages of 45-49 is 3.70 percent. Therefore it is estimated that a net of 30 nurses will separate from this occupational group and 777 of the original 807 registered nurses will remain in the occupation. A zero separation rate is applied by the BLS when there are more entrants into an occupation than employees exiting within a given age cohort.

Table 6. Net Separations for Registered Nurses and for Waiters and Waitresses, by Age Group, 2000-2010 Sedgwick County Estimates

2000 Employment		2005 Employment					2010 Employment				
Age in 2000	Number of Employees	Age in 2005	Number of Aged Employees	Estimated Separation Rate (1997-2002)	Number Remaining in Occupation	Number Separating from Occupation	Age in 2010	Number of Aged Employees	Estimated Separation Rate (1997-2002)	Number Remaining in Occupation	Number Separating from Occupation
Registered Nurses											
16-99	4,711	21-99	4,711		4,267	444	26-99	4,267		3,704	563
16-39	1,947	21-39	1,558	0.00	1,558	0	26-39	1,246	0.00	1,246	0
		40-44	389	0.00	389	0	40-44	312	0.00	312	0
40-49	1,613	45-49	807	3.70	777	30	45-49	389	3.70	375	14
		50-54	807	8.30	740	67	50-54	777	8.30	712	64
50-59	888	55-59	444	17.20	368	76	55-59	740	17.20	612	127
		60-64	444	28.70	317	127	60-64	368	28.70	262	106
60+	263	65+	263	54.70	119	144	65-69	317	59.60	128	189
							70+	119	52.25	57	62
Waiter and Waitresses											
16-99	3,113	21-99	3,113		2,186	927	26-99	2,186		1,558	628
16-39	2,723	21-39	2,178	31.38	1,495	684	26-39	1,196	31.38	821	375
		40-44	545	27.80	393	151	40-44	299	27.80	216	83
40-49	272	45-49	136	21.00	107	29	45-49	393	21.00	311	83
		50-54	136	16.80	113	23	50-54	107	16.80	89	18
50-59	65	55-59	33	34.80	21	11	55-59	113	34.80	74	39
		60-64	33	20.10	26	7	60-64	21	20.10	17	4
60+	53	65+	53	42.90	30	23	65-69	26	56.50	11	15
							70+	30	36.10	19	11

Italicized numbers are composite separation rate³

In the 2000 census, the seven county South Central Kansas region had an estimated population of 623,386; approximately 72.74 percent of the population resided in Sedgwick County. By applying this

³ The BLS separation rates are estimated for five year cohorts. In order to apply this analysis to the larger age cohorts provided by the census for Sedgwick County, composite separation rates were calculated by averaging the BLS separation rates for the age cohorts available in local data.

weighted population distribution to the data in the preceding table, estimates for South Central Kansas can be estimated. The resulting data are found below.

Table 7. Net Separations for Registered Nurses and for Waiters and Waitresses, by Age Group, 2000-2010 South Central Kansas Estimates

2000 Employment		2005 Employment					2010 Employment				
Age in 2000	Number of Employees	Age in 2005	Number of Aged Employees	Estimated Separation Rate (1997-2002)	Number Remaining in Occupation	Number Separating from Occupation	Age in 2010	Number of Aged Employees	Estimated Separation Rate (1997-2002)	Number Remaining in Occupation	Number Separating from Occupation
Registered Nurses											
16-99	6,477	21-99	6,477		5,866	611	26-99	5,866		5,092	773
16-39	2,677	21-39	2,141	0.00	2,141	0	26-39	1,713	0.00	1,713	0
		40-44	535	0.00	535	0	40-44	428	0.00	428	0
40-49	2,218	45-49	1,109	3.70	1,068	41	45-49	535	3.70	516	20
		50-54	1,109	8.30	1,017	92	50-54	1,068	8.30	979	89
50-59	1,221	55-59	610	17.20	505	105	55-59	1,017	17.20	842	175
		60-64	610	28.70	435	175	60-64	505	28.70	360	145
60+	362	65+	362	54.70	164	198	65-69	435	59.60	176	259
							70+	164	52.25	78	86
Waiter and Waitresses											
16-99	4,280	21-99	4,280		3,005	1,274	26-99	3,005		2,142	864
16-39	3,744	21-39	2,995	31.38	2,055	940	26-39	1,644	31.38	1,128	516
		40-44	749	27.80	541	208	40-44	411	27.80	297	114
40-49	374	45-49	187	21.00	148	39	45-49	541	21.00	427	114
		50-54	187	16.80	156	31	50-54	148	16.80	123	25
50-59	89	55-59	45	34.80	29	16	55-59	156	34.80	101	54
		60-64	45	20.10	36	9	60-64	29	20.10	23	6
60+	73	65+	73	42.90	42	31	65-69	36	56.50	16	20
							70+	42	36.10	27	15
Italicized numbers are composite separation rate											

From this analysis, it is estimated that 6,477 registered nurses were employed in South Central Kansas and approximately 5,092 of these registered nurses were employed in 2010. The model assumes that migration into and out of the region will be balanced. If there is no growth in the demand for registered nurses, there will be a need for 1,384 replacement registered nurses over the 10-year period. On average, 138.4 replacement registered nurses will be demanded each year for the South Central Kansas.

Similarly, from this analysis, it is estimated that 4,280 waiters and waitresses were employed in South Central Kansas and approximately 2,142 of these waiters and waitresses remained in the occupation in 2010. This is a greater rate of separation in the waiter and waitresses occupation with a larger concentration of separation in the younger age groups. If there is no growth in demand for waiters and waitresses, there will be a need for 2,138 replacement waiters and waitresses over the 10-year period.

On average, 213.8 replacement waiters and waitresses will be demanded each year for South Central Kansas.

Table 8. Estimated Separations, 2000-2010

	Estimated Number of Employees 2000	Projected Number of Employees 2010	2000 - 2010 Estimated Separations - Demand for Employees	Yearly Estimated Separations - Demand for Employees
Registered Nurses				
South Central Kansas	6,477	5,092	1,384	138.4
Sedgwick County Kansas	4,711	3,704	1,007	100.7
Waiters and Waitresses				
South Central Kansas	4,280	2,142	2,138	213.8
Sedgwick County Kansas	3,113	1,558	1,555	155.5

This data are useful in determining the estimated need for replacement employees and demand for training programs.

2. Economic Growth

Another factor in determining the occupational outlook would be to consider growth net of turnover within an occupation. The Kansas Department of Labor (KDOL) *2012 Occupational Outlook* provided data for assessing South Central Kansas and Sedgwick County’s occupational forecast. KDOL states:

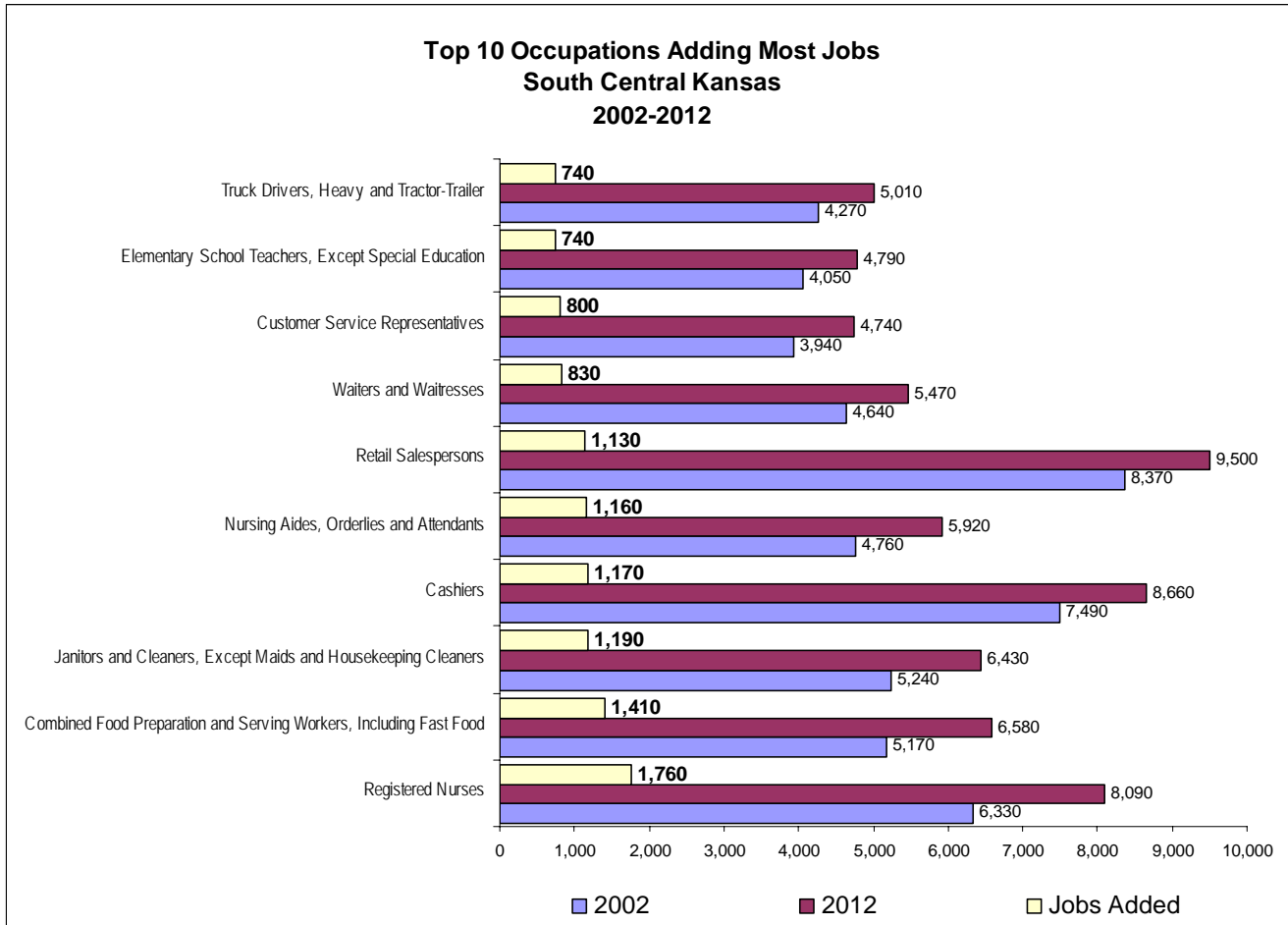
“Occupational projections are the result of applying industry specific staffing patterns to long-term industry projections. With this structure in place, industry specific staffing patterns are applied to the base-year industry totals. Occupational staffing patterns arise from survey data collected from approximately 15,000 Kansas employers over a three-year cycle through the Occupational Employment Statistics (OES) program. Surveyed employers from all sectors of the economy indicate the number of persons they employ in individual occupations, resulting in a comprehensive snapshot of worker utilization. Occupational staffing patterns are created for each industry and their application to industry totals result in base-year occupational projections.”⁴

According to the KDOL, the top three occupations projected to add the most jobs in the South Central Region of Kansas are Registered Nurses, Combined Food Preparation and Serving Workers [Including Fast Food] and, Janitors and Cleaners, Except Maids and Housekeeping Cleaners. These three occupations combined to represent approximately 39.9 percent of the total employment increase in this region for 2002-2012.⁵

⁴ Kansas Department of Labor, [2012 Kansas Occupational Outlook - Kansas Statewide Report](#), page 2.

⁵ Kansas Department of Labor, [2012 Kansas Occupational Outlook - Executive Summary](#), page 32.

Figure 2.



Source: Kansas Department of Labor, 2012 Kansas Occupational Outlook, Executive Summary

Continuing to evaluate the two occupational categories – Registered Nurses and Waiters and Waitresses – the KDOL estimates that both occupations are expected to expand in South Central Kansas. During the study period, 2002-2012, there is a predicted growth of 1,760 Registered Nursing jobs and there is a predicted growth of 830 Waiter and Waitresses jobs.

Table 9. Estimated Occupational Growth, 2002-2012

	Estimated Number of Employees 2002	Projected Number of Employees 2012	2002 - 2012 Estimated Job Growth - Demand for Employees	Yearly Estimated Job Growth - Demand for Employees
Registered Nurses				
South Central Kansas	6,330	8,090	1,760	176.0
Sedgwick County Kansas	4,604	5,884	1,280	128.0
Waiters and Waitresses				
South Central Kansas	4,640	5,470	830	83.0
Sedgwick County Kansas	3,375	3,979	604	60.4

Total Occupational Demand

The total annual projected occupational demand is the sum of positions becoming available due to net separations plus the expected growth within an occupational group.

Table 10. Annual Projected Demand, 2000-2010

	Yearly Estimated Separations - Demand for Employees	Yearly Estimated Job Growth - Demand for Employees	Yearly Estimated Change in Demand for Employees 2000 - 2010
	Registered Nurses		
South Central Kansas	138.4	176.0	314.4
Sedgwick County Kansas	100.7	128.0	228.7
	Waiters and Waitresses		
South Central Kansas	213.8	83.0	296.8
Sedgwick County Kansas	155.5	60.4	215.9

The yearly estimated total demand for registered nurses is 228.7 positions per year in Sedgwick County and in the seven-county South Central Kansas' labor basin the yearly estimated total demand for registered nurses is 314.4 positions per year.

The yearly estimated total demand for waiters and waitresses is 215.9 positions per year in Sedgwick County and in the seven-county South Central Region of Kansas' labor basin the yearly estimated total demand for waiters and waitresses is 296.8 positions per year.

Training lags vary among occupations. For example, training for registered nurses can be accomplished through baccalaureate programs and associate programs. According to the Kansas State Board of Nursing, there were 1,227 graduates of Kansas Professional Nursing Programs in 2005.⁶ South Central Kansas contains 23 percent of the state's population; therefore, approximately 282 of the nursing graduates are likely to reside in South Central Kansas. Nursing graduates are required to be tested prior to certification and the pass rate for the National Council Licensure Examination (NCLEX) for all RN candidates is 73 percent. A good estimate for newly registered nurses in South Central Kansas would be 206 potential employees in 2005, far short of the 314 yearly estimated total demand for employees.

Table 11. Projected Additional Demand and Supply of Registered Nurses, 2000-2010

	Yearly Estimated Separations - Demand for Registered Nurses	Yearly Estimated Job Growth - Demand for Registered Nurses	Yearly Estimated Change in Demand for Registered Nurses 2000 - 2010	Yearly Estimated Additional Supply of Registered Nurses
South Central Kansas	138.4	176.0	314.4	206
Sedgwick County Kansas	100.7	128.0	228.7	151

⁶ Kansas State Board of Nursing, Annual Report FY 2005, <http://www.ksbn.org/annualreport/annualrptfy05.htm>

Alternate Approach

Frequently, the necessary data are not available to calculate separation rate and growth for county and regional level occupational changes in the methodology outlined above. An alternate approach to calculating yearly estimated occupational demand due to separation and growth is available using the Bureau of Labor Statistics replacement rate percentages and the employment projection percentages. These are both national rates that can be applied to local markets to estimate occupational projections. The results closely approximate the methodology outlined above.

**Table 12. Estimating Yearly Replacement Needs and Occupational Growth
Applying Bureau of Labor Statistics Calculations**

Region	Total Employment 2000	Replacement Rate (percent) Net, 2004-2014	10 Year Estimate Replacement Needs	Yearly Estimate Replacement Needs	Employment Projection (percent) 2002-2012	10 Year Projected Employment Growth	Yearly Projected Employment Growth	Yearly Estimated Job Growth - Demand for Employees 2000 - 2010	
Registered Nurses									
Sedgwick County	4,711	20.9	984.60	98.46	27.3	1,286.10	128.61	227.07	Sedgwick County
South Central Region	6,477	20.9	1,353.69	135.37	27.3	1,768.22	176.82	312.19	South Central Region
Waiters and Waitresses									
Sedgwick County	3,113	51.5	1,603.20	160.32	17.5	544.78	54.48	214.80	Sedgwick County
South Central Region	4,280	51.5	2,204.20	220.42	17.5	749.00	74.90	295.32	South Central Region

Comparing the results using local population data and the BLS calculations demonstrates that the two methodologies yield similar approximations for future demand.

Table 13. Projected Annual Demand 2000-2010, Age Cohort Approach

	Yearly Estimated Separations - Demand for Employees	Yearly Estimated Job Growth - Demand for Employees	Yearly Estimated Total Demand for Employees 2000 - 2010
Registered Nurses			
South Central Kansas	138.4	176.0	314.4
Sedgwick County Kansas	100.7	128.0	228.7
Waiters and Waitresses			
South Central Kansas	213.8	83.0	296.8
Sedgwick County Kansas	155.5	60.4	215.9

Projected Annual Demand 2000-2010, Alternate BLS Percentages Applied

	Yearly Estimated Separations - Demand for Employees	Yearly Estimated Job Growth - Demand for Employees	Yearly Estimated Total Demand for Employees 2000 - 2010
Registered Nurses			
South Central Kansas	135.4	176.8	312.2
Sedgwick County Kansas	98.5	128.6	227.1
Waiters and Waitresses			
South Central Kansas	220.4	74.9	295.3
Sedgwick County Kansas	160.3	54.5	214.8

One concern regarding use of the BLS calculations is the possibility that the local population's demographic profile might significantly vary from the national demographic profile and thereby misinterpret the estimated changes in actual separations or occupational growth. There are three sources of demographic variances. First, the distribution of the local population varies somewhat from the national distribution.

Table 14. Ranking of States by Projected Percent of Population Age 65 and Older, 2000-2030

2000 State	2000 (percent)	2000 Rank	2010 State	2010 (percent)	2010 Rank	2030 State	2030 (percent)	2030 Rank
US	12.4		US	13.0		US	19.7	
FL	17.6	1	FL	17.8	1	FL	27.1	1
KS	31.3	17	KS	13.4	28	KS	20.2	27
AL	5.7	51	AL	8.1	51	UT	13.2	51

U.S. Census Bureau, Population Division, Interim State Population Projections, 2005. Internet Release Date: April 21, 2005

The second consideration is that occupational age distributions in local markets may vary significantly from national norms. If the concentration of local workers in a specific occupation is older than the national average, separation rates will significantly underestimate the need for replacement workers.

Table 15. Change in Total Population and Population and Population 65 and Older, 2000-2030

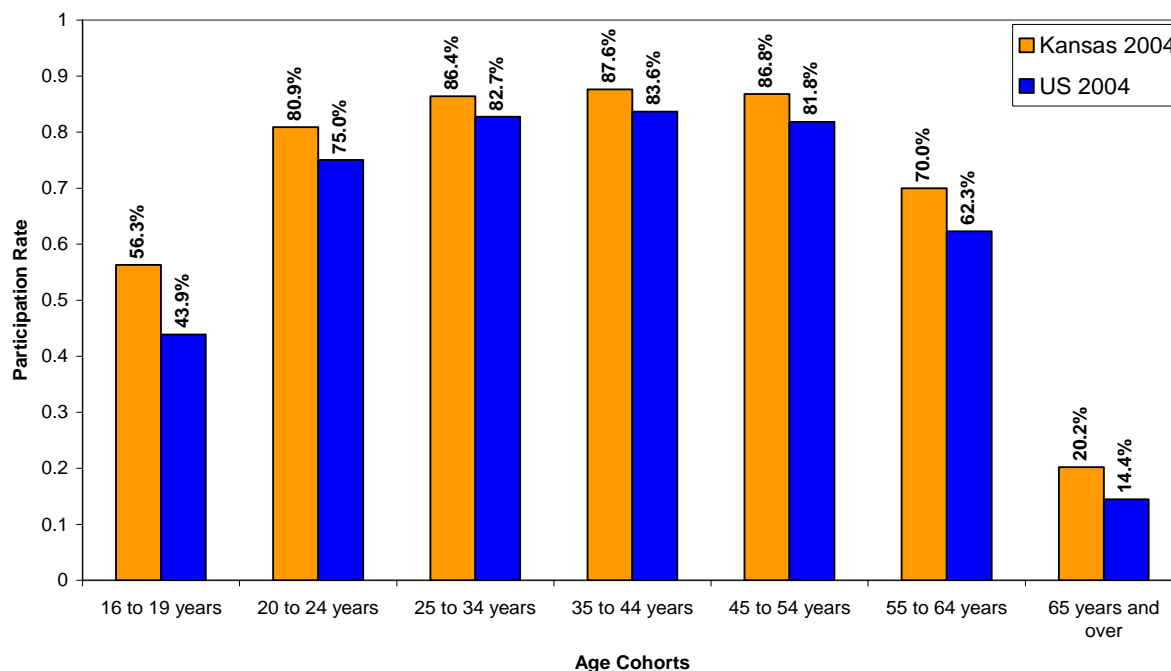
Region	Change in total population number	Change in total population (percent)	Change in age 65+ number	Change in age 65+ (percent)
US	82,162,529	29.2	36,461,718	104.2
Kansas	251,666	9.4	236,862	66.5

U.S. Census Bureau, Population Division, Interim State population Projections, 2005. Internet Release Date: April 21, 2005

Labor force participation rates are a third area that may add to variances in projected separation rates between the U.S. averages and local labor markets. Kansas citizens participate in the labor market at elevated rates in all age cohorts. As the U.S. population ages, longer life expectancy and the good health of America's older age cohort are projected to increase their labor force participation rate. The 2004 U.S. labor force participation rate for persons over age 65 is 14.4 percent. The U.S. Department of Labor projects that the labor force participation rate for persons over age 65 in 2014 will be 19.7 percent.⁷ The change in the national labor force participation rate is factored into the BLS statistics, but the variance in KS labor force trends slightly affects the estimates.

Figure 3.

**Labor Force Participation Rate Within Age Groups
Kansas vs. US
2004**



⁷ U.S. Department of Labor, Bureau of Labor Statistics, Civilian labor force participation rates by sex, age, race and Hispanic origin, <http://www.bls.gov/emp/emplab05.htm>

Due to these variances (local demographics, occupational age distribution, and changing labor force participation rate), detailed projections of employment demand are subject to greater error over longer time periods.

Additional Application and Benefits of Methodology

This study focuses on two occupational groups to estimate separations for South Central Kansas and Sedgwick County. This methodology can also be applied to an individual firm to estimate separations for various occupational groups employed at the firm.

Results of the analysis can be used by the community or private enterprises to create strategies to maintain employees, plan recruitment efforts, forecast the need for occupational training programs, and assist in knowledge management and succession planning.