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Labor Economics Information and Data

By Christine Chmura, Ph.D.

REMOVING THE FEAR OF LOCATING RURAL

Finding the skills and labor needed to run a successful business is at the top of most expanding firms' checklists as they consider new locations. For many economic developers, providing evidence that their region has the number of workers with particular skills needed for the expanding firms is a challenge. It is particularly challenging in rural or remote areas where the labor force is relatively small. In these cases, it is important for economic developers to identify the appropriate labor shed and a full count of workers who could fill positions needed from the pipeline of incumbent workers, the unemployed, and students being trained for the needed skills.

labor economics

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IDENTIFYING THE APPROPRIATE LABOR SHED

Finding the skills and labor needed to run a successful business is at the top of most expanding firms' checklists as they consider new locations. For many economic developers, providing evidence that their region has the number of workers with particular skills needed for the expanding firms is a challenge. It is particularly challenging in rural or remote areas where the labor force is relatively small. In these cases, it is important for economic developers to identify the appropriate labor shed and a full count of workers who could fill positions needed from the pipeline of incumbent workers, the unemployed, and students being trained for the needed skills.

Identifying an appropriate labor shed, which is defined as where a firm will be drawing its workers, is crucial information for expanding firms to ensure that their labor force needs are available and sustainable. Underestimating the size of the labor shed could mean a deal is lost because the prospect won't be confident they can hire enough people.[1] Overestimating the size of the labor force could lead to shortages in staffing the new business and leave the region with the reputation of over promising.

Economic developers in rural areas face unique challenges in demonstrating that their area has a sufficient supply of workers with the skills needed to support an expanding firm. If the labor shed is defined too narrowly, a deal could be lost because the prospect is uncertain that they can hire the people needed to expand successfully. A labor shed defined too broadly, however, could result in the expanding firm being unable to appropriately staff its new operations and the region's economic developers earning a reputation for overpromising and underdelivering.

Typically, using the geographic borders of counties or a specified mile radius around a location to identify the labor shed is inaccurate and leads to costly worker shortages or excluding a location in a rural area that may be ideal. As shown in the examples here, drive-time analysis is needed to prevent such problems.

Consider a computer system design firm that is contemplating an expansion of 87 workers in Lebanon, Virginia, that has a population of 3,386 and is the county seat of Russell County – population nearly 29,000 based on Census 2010 over an area of 477 square miles.

Russell County is an obvious starting point for the labor shed but it is clearly too narrow so adding in the contiguous counties makes sense. The larger region of eight counties and one city has a population of nearly 270,000 based on Census 2010 over an area of 3,802.5 square miles.

Based on the typical computer system design firm, the new firm will hire 12 applications software developers, eight computer systems analysts,

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Finding the skills and labor needed to run a successful business is at the top of most expanding firms' checklists as they consider new locations. For many economic developers, providing evidence that their region has the number of workers with particular skills needed for the expanding firms is a challenge. It is particularly challenging in rural or remote areas where the labor force is relatively small. In these cases, it is important for economic developers to identify the appropriate labor shed and a full count of workers who could fill positions needed from the pipeline of incumbent workers, the unemployed, and students being trained for the needed skills.

TABLE 1: OCCUPATION REQUIREMENT FOR COMPUTER SYSTEMS DESIGN AND RELATED SERVICES

Title	Russell County				Russell Contiguous Counties		
	New Employer Demand	Current Employed	Current Unemployed	Potential Candidate/ Opening Ratio	Current Employed	Current Unemployed	Potential Candidate/ Opening Ratio
Software Developers, Applications	12	63	2	5	274	9	24
Computer Systems Analysts	8	45	2	6	228	10	30
Computer Programmers	6	30	2	5	120	6	21
Computer User Support Specialists	6	46	4	8	269	20	48
Software Developers, Systems Software	6	30	1	5	132	4	23
Computer and Information Systems Managers	4	25	1	6	145	5	38
Network and Computer Systems Administrators	3	27	1	9	176	6	61
Sales Representatives, Services, All Other	3	64	7	24	400	39	147
Computer Network Architects	2	12	0	6	61	1	31
Computer Network Support Specialists	2	16	1	8	83	6	45

Source: JobsEQ®

TABLE 2: 60-MINUTE DRIVE TIME LABOR SHED FOR COMPUTER SYSTEMS DESIGN AND RELATED SERVICES

Title	New Employer Demand	Current Employed	Current Unemployed	Potential Candidate/ Opening Ratio
Software Developers, Applications	12	460	14	40
Computer Systems Analysts	8	458	19	60
Computer Programmers	6	213	11	37
Computer User Support Specialists	6	529	37	94
Software Developers, Systems Software	6	238	7	41
Computer and Information Systems Managers	4	280	9	72
Network and Computer Systems Administrators	3	356	12	123
Sales Representatives, Services, All Other	3	845	80	309
Computer Network Architects	2	117	2	59
Computer Network Support Specialists	2	172	12	92

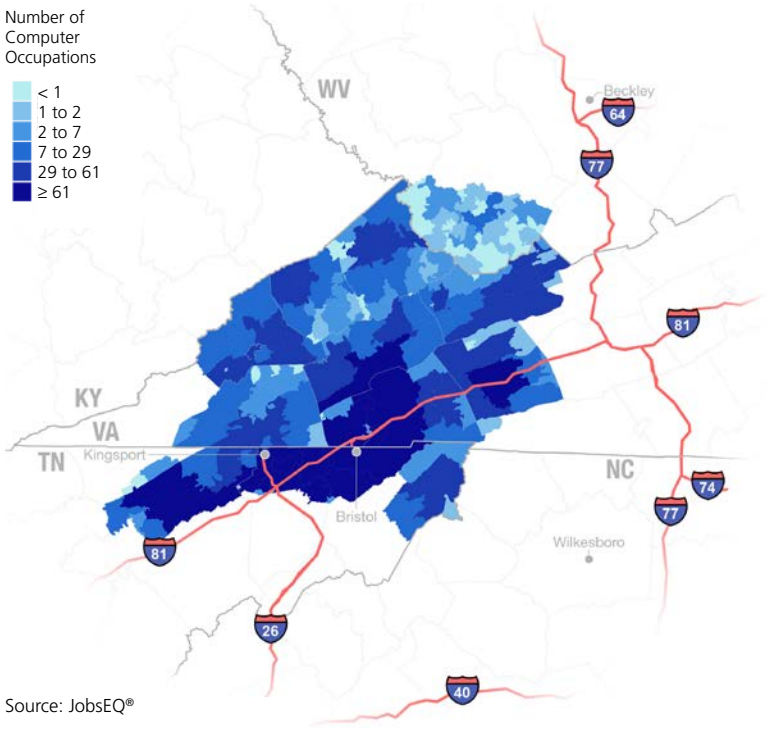
Source: JobsEQ®

and six computer programmers. Table 1 shows additional occupations that fill out the top ten skills needed as well as the number of people in the region who are either employed or unemployed with the necessary skills.

Firms or site selectors that we have worked with say they like to see at least 50 people, on average,[2] either working or unemployed, in the occupations they will need to fill to ensure success. The potential candidate-to-opening ratio[3] in Table 1 is green when the ratio meets or exceeds what is required and is shaded from yellow to orange to red when the ratio is so low that an expansion to the region is predicted to result in the inability to hire enough workers with the needed skills. Not surprisingly, expanding the labor shed from Russell County to the Russell + Contiguous Counties region shows more promise that enough workers will be available. However, the potential candidate-to-opening ratio remains orange for most of the top ten occupations needed.

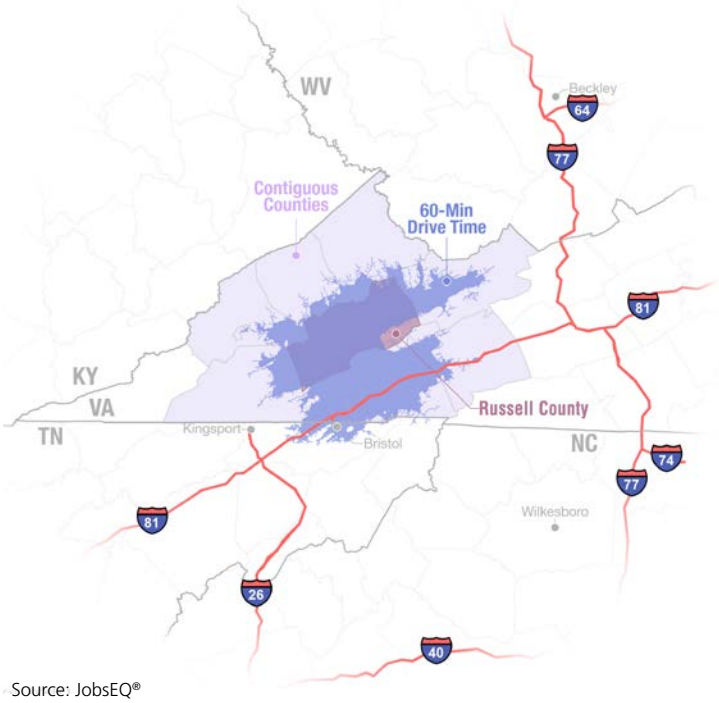
Labor sheds do not stop at state or county lines. This is particularly relevant for Lebanon that is located in the southwest corner of Virginia with interstate access to Tennessee and West Virginia. Although the willingness of workers to travel a long distance is dependent to some

TECHNOLOGY PARK DRIVE 60-MINUTE DRIVE TIME, COMPUTER OCCUPATIONS BY PLACE OF RESIDENCE



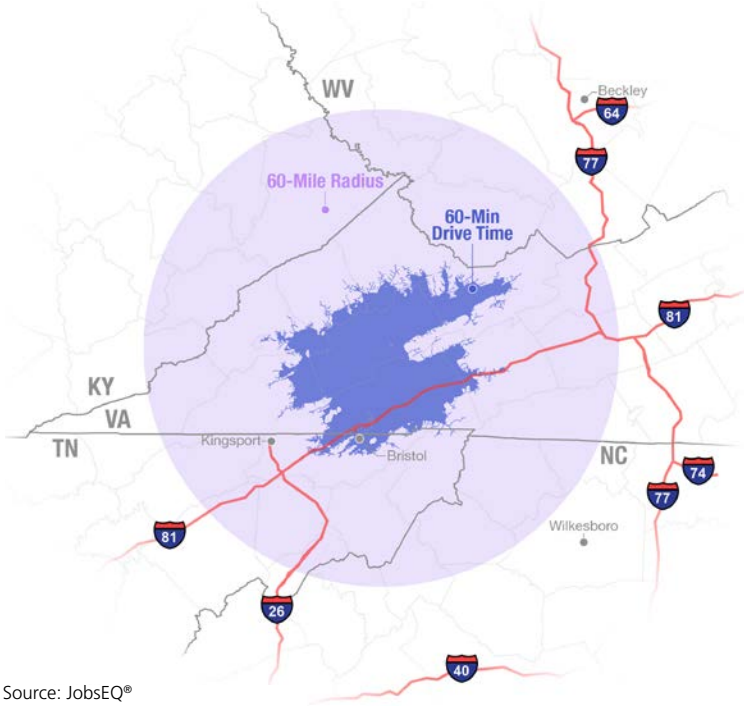
Source: JobsEQ®

COMPARING TECHNOLOGY PARK DRIVE 60-MINUTE DRIVE TIME TO CONTIGUOUS COUNTIES



Source: JobsEQ®

COMPARING TECHNOLOGY PARK DRIVE 60-MINUTE DRIVE TIME TO A 60-MILE RADIUS



Source: JobsEQ®

degree on the wages and salaries earned as well as gasoline prices, a 60-minute drive time is a good starting point to estimate a labor shed because some people will drive that distance to work.

A map showing the residence by zip code tabulation area (ZCTA)[4] of people with computer occupations indicates some promising concentrations of people with the skills needed by the expanding firm just across the border in Tennessee. Drilling down to the detailed occupations shown in Table 2 indicates a sufficient number of candidates for most but not all of the occupations. The second part of this article deals with how rural areas can measure the pipeline of potential candidates that will fill out the number of workers needed by the expanding firm.

It is also important not to overestimate the size of the labor shed because it could lead to a failed expansion. Using a 60-mile radius instead of a drive time puts rural areas at risk of overestimating the potential labor force especially if nearby mountains, lakes, or rivers slow down travel time. As shown in the map of the radius versus drive time from Lebanon, the mountains limit the driving distance in some directions from Lebanon, which suggests the labor force shown in Table 3 will not materialize.

TABLE 3: 60-MILE RADIUS LABOR SHED FOR COMPUTER SYSTEMS DESIGN AND RELATED SERVICES

Title	New Employer Demand	Current Employed	Current Unemployed	Potential Candidate/ Opening Ratio
Software Developers, Applications	12	1,124	36	97
Computer Systems Analysts	8	1,170	50	153
Computer Programmers	6	549	28	96
Computer User Support Specialists	6	1,466	105	262
Software Developers, Systems Software	6	569	18	98
Computer and Information Systems Managers	4	754	26	195
Network and Computer Systems Administrators	3	979	35	338
Sales Representatives, Services, All Other	3	2,332	232	855
Computer Network Architects	2	311	5	158
Computer Network Support Specialists	2	463	34	249

Source: JobsEQ®

TABLE 4: NUMBER OF PEOPLE WITH RELATED OCCUPATIONS FOR SOFTWARE DEVELOPERS, APPLICATIONS (SOC CODE 15-1132)

SOC Code	Occ Description	Employed	Unemployed	Regional Average Wage
15-1121	Computer Systems Analysts	474	19	$74,700
15-1142	Network and Computer Systems Administrators	364	13	$68,900
15-1133	Software Developers, Systems Software	238	7	$84,100
15-1131	Computer Programmers	226	11	$53,800
15-1199	Computer Occupations, All Other	160	7	$70,600
15-1134	Web Developers	113	4	$57,700
15-1141	Database Administrators	106	3	$81,000
17-2061	Computer Hardware Engineers	34	1	$101,400
15-1111	Computer and Information Research Scientists	12	0	$89,000
	-Total-	**1,728**	**67**	

Numbers do not sum to total due to rounding.
Source: JobsEQ

TABLE 5: REGIONAL POSTSECONDARY PROGRAMS, TECHNOLOGY PARK 60-MINUTE DRIVE TIME

Title/School	Annual Awards		
	Certificates and 2-Year Degrees	4-Year Degrees	Postgraduate Degrees
11.0101 Computer and Information Sciences, General			
Mountain Empire Community College	9	0	0
Northeast State Community College	35	0	0
Southwest Virginia Community College	26	0	0
The University of Virginia's College at Wise	0	3	0
Virginia Highlands Community College	23	0	0
11.0103 Information Technology			
King University	0	36	0
Virginia Highlands Community College	0	0	0
52.1201 Management Information Systems, General			
Bluefield College	0	0	0
The University of Virginia's College at Wise	0	2	0
Total	**93**	**41**	**0**

Data as of the 2013-2014 academic year
Source: JobsEQ and National Center for Education Statistics

MEASURING THE PIPELINE OF WORKERS

When the potential candidate-to-opening ratio falls short of the needed workers, measuring the pipeline of potential workers in a rural area becomes very important to win a prospect firm. In this case, rural areas can point to the number of people who have similar skills and can be upskilled, or are currently in school and will be graduating with the skills needed by the prospect.

The 60-minute drive time potential candidate-to-opening ratio for "software developers, applications" with a Standard Occupation Classification (SOC) system code of 15-1132 is somewhat below the threshold of 50 that would make a prospect comfortable with an expansion (Table 2). However, as shown in Table 4, there are 1,728 individuals within a 60-minute drive time that are in occupations with alternative SOC codes that could be upskilled for the software developer job.

In addition to upskilling workers, rural areas can point to the number of graduates that typically enter the workforce on an annual basis as part of the ongoing future pipeline to support the prospect firm's workforce. Table 5, for example, identifies 93 graduates with a certificate or two-year degree and 41 with four-year degrees that graduated within the labor shed of the Technology Park 60-minute drive time in the 2013-2014 academic year.

CONCLUSION

Economic developers in rural areas face unique challenges in demonstrating that their area has a sufficient supply of workers with the skills needed to support an expanding firm. If the labor shed is defined too narrowly, a deal could be lost because the prospect is uncertain that they can hire the people needed to expand successfully. A labor shed defined too broadly, however, could result in the expanding firm being unable to appropriately staff its new operations and the region's economic developers earning a reputation for overpromising and underdelivering. Identifying an area's labor shed using drive time analysis, as opposed to a labor shed defined by a specific radius from the firm's potential location, will help a prospect gain an accurate picture of its potential labor supply. Once the labor shed is properly defined, the pipeline of potential workers should be identified; this may include workers who have similar skills and can be upskilled, or are currently in school and will be graduating with the skills needed by the prospect. With a sound understanding of how to define the local labor shed and identify the pipeline of potential workers, economic developers in rural areas will be properly equipped to provide critical labor market data to prospects.

Identifying an area's labor shed using drive time analysis, as opposed to a labor shed defined by a specific radius from the firm's potential location, will help a prospect gain an accurate picture of its potential labor supply.

ENDNOTES

1. Another issue that rural areas often face is nondisclosed data because one firm makes up 80 percent or more of the area's employment or there are fewer than three firms in an industry grouping. In these cases, it is important to obtain estimates of the number of employees in those firms as well as their occupations. Commercially available labor data software tools, such as JobsEQ, provide such estimates.
2. The number of workers required often varies by occupation.
3. The candidate-to-opening ratio is derived by summing the number of people currently employed or unemployed in a particular occupation and dividing it by the new employer demand.
4. ZCTAs is a trademark of the U.S. Census Bureau. Additional information can be found here: https://www.census.gov/geo/maps-data/data/zcta_rel_download.html