

Occupations in Demand: A Consistent and Objective Method to Support Demand-Driven Workforce Development

Overview

The [occupations in demand \(OID\)](#) method pulls together all of the available labor market information (LMI) to target workforce development activities at the skill gaps in high-growth industries. It includes all of the excellent LMI that is currently in use, but also synthesizes it and focuses it to identify the critical needs in local areas. It is truly the intelligence needed to implement demand-driven workforce development.

The OID method involves five steps:

- (1) **Perform occupational analysis** to discover the shortage and potential shortage occupations in the region.
- (2) **Identify high growth industries** in the local labor market as well as industries that are vital to existing regional economic development strategy.
- (3) **Synthesize industry and occupational analyses** into a list of specific occupations in demand.
- (4) **Determine training needs** by linking the occupations in demand to the training and education required for workers in these occupations.
- (5) **Apply expert knowledge** of the local workforce investment board (LWIB) membership, business leaders in the targeted industries, economic development professionals, education officials, and others in order to verify results and incorporate additional useful knowledge.

The end result of OID is a list of occupation targets that are shortage or potential shortage occupations in the region and are also common to high-growth industries in local labor markets. (Table 1 provides an example of OID analysis results for three industry sectors in the Brainerd area.) The bottom line: OID synthesizes all of the available objective information to identify the occupations in demand in labor markets. The remainder of this attachment describes the five steps in detail and provides example applications of OID results.

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The OID method was developed as a team effort by the regional analysis unit as well as LMI office analysts in JVS, OES, and UI programs. In addition, the efforts, support, and leadership of the WSA1 Private Industry Council and the WSA2 Workforce Council in commissioning and implementing OID analyses are recognized.

Step 1: Determine the shortage occupations and potential shortage occupations in the region.

DEED produces a wealth of statistics on labor market conditions of occupations in the regions of Minnesota. (The regions are MN Planning regions defined at: <http://www.positivelyminnesota.com/apps/lmi/jvs/ChooseAreaMap.aspx>.)

These current demand indicators are updated every six months, so the information is very current. (See the sidebar for a description of these indicators of potential shortages and surpluses.)

All the indicators are scored and ranked to identify the current shortage occupations; businesses in the region need qualified workers in these occupations, but they are not readily available. The scoring scheme also identifies the surplus occupations: more workers in these occupations are available than the region's businesses need and these workers have difficulty finding jobs.

Tables 2 and 3 demonstrate the scoring and ranking of occupations for Northwest MN.

Examples of the indicators will clarify their reasoning and workings. (Refer to Table 2.) There are many more job vacancies for "material moving workers" (e.g., freight and stock laborers and material handlers) than there are for engineers. Yet engineers are ranked higher. This demonstrates the indicator job vacancy rate ("JV rate"). Relative to the number of engineer jobs in the region, 88 vacancies are a much bigger deal than the 155 vacancies out of over 6,000 filled material moving worker jobs. "JV Cut" scores the occupations based on number of vacancies and JV rate.

Current Occupational Supply-and-Demand Indicators

Job Vacancies (JVs) and Job Vacancy Rate (JVR)

A high JVR is consistent with a shortage-the occupation is in high demand relative to the number of people employed in these jobs. However, very low numbers of JVs can inflate a JVR in rare occupations.

Wage Offer

Wage offers that approach or exceed wages of filled positions indicate potential shortages. Wages may be bid up by a shortage-or workers with greater experience or specialized skills may be in high demand. Conversely, if wage offers are low, vacancies may remain unfilled.

Wages of Filled Jobs

Wages and turnover are correlated: high-wage jobs experience less turnover. A high JVR for a high-wage job is a stronger indicator of a shortage than a high JVR for a low-wage job. Health technologists and technicians, for example, are in higher demand than miscellaneous food preparation and serving workers, even though their JVR is much lower.

Duration

The length of time employers have been trying to fill open positions is a supply indicator because if employers can fill open positions quickly, there probably is not a shortage.

JV-UI Comparison

JVRs are compared to Unemployment Insurance (UI) activity. The UI statistic used, so called "insured unemployment," is the average number of UI weeks claimed as a share of workers in an occupation. This supply measure is incomplete, but still useful. A greater share of workers receiving UI benefits for a longer time indicates an occupation with sufficient labor, whereas a lesser share of workers receiving UI benefits for a shorter time indicates an occupation with less supply. The combination of high job vacancy rates and low insured unemployment indicates a potential shortage occupation.

Wages also tell us something about occupational supply and demand. For example, “financial specialists” and “building cleaning and pest control workers” have the same JV rate of 3.7%. But a 3.7% JV rate for a high median wage occupation like financial specialist is a much stronger indicator of a shortage than for a lower paid occupation. The correlation of wages and turnover is well documented. Lower-paid jobs experience higher turnover than higher-paid jobs. People in higher paid jobs tend to hold onto those jobs. Conversely, turnover would raise the JV rate for a low wage job, but this would not be due to shortage conditions. Scoring “Median Wage (Filled)” incorporates this.

Another wage indicator relies on the fact that wages of filled jobs tend to be higher than the wage offered to a new hire to fill a vacancy. As a worker gains experience that is of particular value to her employer, the worker gets raised on the wage scale. So, one would expect the median wage of filled jobs to be higher than the median wage offered to fill a vacancy. But for post-secondary teachers, the median wage offers exceed the median wages for filled jobs. This can indicate higher demand for certain knowledge, skills, or experience in an occupation.

For example, nursing programs have been added and expanded in Northwest Minnesota, and perhaps this is bidding up wages for nursing instructors. Conversely, if a wage offer is particularly low compared to the wages of filled positions, then vacancies may go unfilled or turnover may be high, creating a “phantom shortage” in the job vacancy statistics. The indicator “Pay Premium” incorporates this concept into the ranking.

The indicator “Duration” is straight forward: If businesses have been trying to fill the vacancy for a long time, this can be due to a shortage. Conversely, if vacancies can be filled quickly there probably is not a shortage. For example, personal appearance workers have a high JV Rate, but the fact that these openings are being filled quickly indicates that a sufficient supply probably exists.

The “JV-UI Compare” indicator is the most difficult to explain by example, but this should not detract from its utmost usefulness as an indicator. The number of Unemployment Insurance (UI) claimants in an occupation relative to the number employed in that occupation and the duration that they receive UI benefits informs us about occupational supply. While this is an incomplete measure of supply, a relatively larger number of UI claimants and a relatively longer duration of receiving benefits is an indicator of the reemployment difficulty faced by workers in the occupation, especially if JV rates are low. This is the comparison that results in a negative score on the JV-UI indicator. Note that no potential shortage occupation has a negative score on this indicator and no potential surplus occupation has a positive score.

These supply and demand indicators are not full-proof determinations of shortage and surplus occupations. However, scoring and ranking all of the indicators makes the chances of a misleading result very slight. Just as the chances of getting two heads in a row on two consecutive coin flips is half the chance of getting heads on each of the flips, by using a number of indicators the chance of error is greatly reduced.

In addition to the current demand indicators above, long-term (ten-year) projected occupational growth and demand is also incorporated. Occupations identified as either (A) “high-growth, high-pay” or (B) “high-demand, high-pay” using projections and wage data are added to the list of shortage or potential shortage occupations. (See text box for definitions of high-growth, high-demand, and high-wage.) Almost all of these will already be on the list, but it is possible that a shortage has not yet developed or that a shortage is in some locations within a region and not others due to varying supply conditions such as a local higher education program or a local layoff event.

Step 2: Identify the high-growth industries in the local labor market.

As indicated above, occupational supply and demand conditions can differ from labor market to labor market within a region. For example, the Northwest Planning Area encompasses 26 counties, and conditions in the Brainerd labor market, for instance, often differ from those in East Grand Forks. Labor markets are defined by commuting areas, yet our best data on occupational supply and demand is produced by region via sample surveys.* However, while it is unfeasible to produce occupational data for smaller areas, industry data is available from administrative records for any geographic area.

The limitation of these so-called “Quarterly Census of Employment and Wages” (QCEW) data is that data privacy law prevents us from reporting data that would reveal quantitative information about an individual business.

Fortunately, for the purposes of OID all we need to do is identify the high-growth industries in the geographic area of interest. It is unnecessary to report employment and wage numbers. So, these QCEW data can be used to connect and refine the occupational supply and demand data to labor market areas. This is accomplished in step 3.

Step 3: Synthesize steps 1 and 2 to identify the specific shortage occupations in demand in the local high-growth industries.

Step 3 combines what we know about occupational shortages (step 1) with what we know about job growth by industry in labor market areas (step 2). To this point, we have identified the shortage and potential shortage occupations by region and the high-growth

High Growth/High Pay Occupations are those that are projected to have net employment growth between 2002 and 2012 that is higher than the area’s average, that have an annual median salary higher than the area’s median salary, and that comprise at least 0.1% of total area employment.

High Demand/High Pay Occupations are those that are projected to have more openings as a share of employment between 2002 and 2012 than the area’s average, that have an annual median salary higher than the area’s median salary, and that comprise at least 0.1% of total area employment.

Occupational opportunities can arise through net growth or through turnover. High growth reflects the incidence of opportunities due to the net growth of an occupation only. High Demand reflects the incidence of opportunities due to both net growth and the replacement needs resulting from turnover within an occupation.

*The sample size needed to obtain reliable results declines very little as the population becomes smaller. For example, estimates of a population of 40,000 with a plus or minus 5% “margin of error” require a random sample of 381, while estimates of a population of 4,000 require a sample of 351. Thus, it is unfeasible to produce sample survey results for every local labor market.

industries by local labor market. We also have statistics on which industries employ which occupations. This so-called “industry-by-occupation matrix” identifies the occupations in the growth industries. Step 3 identifies the shortage and potential shortage occupations that are common to the growing industries in each particular labor market.

For example, the QCEW tells us that “architectural and structural metals” is a high-growth industry in the nine-county labor market area that includes Moorhead and Alexandria, but not in the other labor market areas within the 26-County Northwest Planning Area. The shortage occupations (identified in Step 1) that are common to the architectural and structural metals industry are identified using the industry-by-occupation matrix.

For instance, “metal workers and plastic workers” is a shortage occupation identified in step 1 for the 26-county Northwest Planning Area, and “welders, cutters, solderers, and brazers” is a specific occupation common to the high-growth architectural and structural metals industry in this nine-county labor market. Thus, welders, cutters, solderers and brazers is an occupation in demand in the labor market, but may not be an occupation in demand in other labor markets within the Northwest Planning Area, depending on whether or not it is common to a growing industry in those labor markets.

The results of step 3 are the list of occupations in demand. In other words these are the targeted, high-growth, high-wage occupations that provide focus for workforce investments and workforce services activities.

Step 4: Link the occupations in demand list developed in step 3 to the education, training, knowledge and skills required in these occupations.

The Bureau of Labor Statistics conducts extensive occupational studies that identify the training and education required for occupations. The resulting data is called the “Most Significant Single Source of Education or Training.” Modifications have been made to this national system to more accurately reflect Minnesota’s job markets.† These data are used to identify the training and education requirements of occupations in demand. (See Table 1.)

If more detail on the types of formal training programs is desired, a crosswalk between the Classification of Instructional Programs (CIP) and the Standard Occupational Classification (SOC) is available. This so-called CIP by SOC matrix can be used to identify post-secondary training programs for occupations in demand.

Additional data are available from the O*NET database on the skills, knowledge, and tasks of occupations. These O*NET data are also linked to SOC occupations in the OID database. Potential applications for these O*NET data are envisioned, but not yet

† Education and training requirements for roughly 15 percent of 775 occupations were modified for Minnesota based on input from researchers at DEED and Minnesota State Colleges and Universities system. For example, the national requirement for police and sheriff’s patrol officer training is long-term-on-the-job training. In Minnesota the most significant single source of postsecondary education or training for newly hired police and sheriff’s patrol officers is an associate degree.

developed.

Step 5: Apply the first-hand knowledge of local and regional business leaders and other experts to modify OID results.

Although OID analysis incorporates all of the objective information available to identify occupations in demand, first-hand knowledge is still useful and welcome. In fact, statistical knowledge and first-hand knowledge become exponentially more useful when they are combined. OID, as implemented by Workforce Service Area Two (WSA 2) included review by the LWIB, as well as inviting other leaders in economic development, business, and education in each labor market to comment on the OID analysis results. Below are a few examples where first-hand knowledge proved useful.

The “Nursing, psychiatric and home health aides” occupation group scored below the cut-off for inclusion as an occupation in demand due to relatively low wages. In particular, the median wage offer for open-for-hire positions was \$8.80 per hour, as estimated by the Job Vacancy Survey. However, one of the LWIB members is an executive in the nursing and residential care facilities industry. She informed us that new hires are paid while training to get a nursing assistant certification (CNA), but these in-training wages are much lower than the new hires that already have CNA credentials. This typical hiring practice of lower wages to train followed by a raise once competence is reached lowers the median wage offer statistic. But this is an indication of high demand not low demand— most jobs do not pay new hires to get a certification. The other supply and demand indicators (job vacancies, job vacancy rate, and duration of vacancies) were consistent with shortage conditions, so these occupations were added to the in-demand list.

In some labor markets, economic development professionals knew of imminent business start-ups or expansions. These are situations where construction had commenced yet hiring had not. Where these would precipitate an additional high-growth industry in a local labor market, they were added to the high-growth industries identified in step 2.

In WSA1, OID is providing much of the information for a regional labor market profile project that has recently commenced. A part of this profile project includes designating target industries. In addition to net job growth, industries with particular economic development importance will also be targeted. For example, one expert reported that the major employer in one vital industry is hiring many replacements just to keep up with retirements. Such gross job changes are not captured by net job growth in the QCEW statistics.

Another data source called Quarterly Workforce Indicators (QWI) provides statistics on gross hiring, and these statistics will be incorporated into step 2 of OID in WSA1. Important industries will thereby be included in determining the occupations in demand in that local labor market. This demonstrates the need to consider first-hand knowledge in implementing OID.

Finally, while WSA1 experts identified the need to include more targeted industries to

include all those that are important to their economy, Twin Cities LWIBs have limited the industries to those paying above average wages. It makes sense to allow this kind of limitation on OID in areas where there are many growing industries. While some industries like retail provide many workers with extra spending money, they provide few workers a primary income.

Applications

In order to provide a complete picture of OID, actual examples of its application are helpful. A few applications in the Northwest Planning Area follow.

Industry targets can be used to inform the Business Outreach Plan. For example, WSA1 will use steps 2 and 5 of OID to direct DEED's Business Services Specialists (BSS) in that region. WSA1 BSS will visit the businesses in the target industries. The BSS will then become an additional source of first-hand knowledge reporting back to the LWIB.

As mentioned above, WSA1 is also in the process of completing a regional labor market profile. The results of this profile will be used to seek partnerships with education and business leaders in the region in order to work together to meet the regions workforce needs. OID is crucial in this effort because it supplies the current and objective occupational demand information just for the seven counties of WSA1, rather than a 26-county Northwest Planning Area. This wider geography is not specific enough to inform these efforts.

WSA2, which serves the other 19 counties of the Northwest Planning Area, has two strategic initiatives that use OID. The first is to emphasize training in shortage occupations for low income or dislocated workers. All 127 staff members of Rural Minnesota Concentrated Employment Program (CEP), which is the workforce services provider for WSA2, have been trained to use OID results in counseling job seekers. Also, in the Brainerd area, CEP staff have used OID in their partnership with Central Lakes Community and Technical College (CLC) to develop additional training programs for MFIP recipients that are CEP clients. OID provided the objective information needed by CLC to determine which additional programs are most needed.

The second initiative of WSA2 that uses OID is to educate secondary school students about demand occupations. The results of OID will be disseminated to students via a website and an "Outreach to Schools" program which includes student peer career counseling (if they are approved for this program). Students hear a lot about national occupational trends, but not about the occupations in demand in their local labor markets.

For example, while manufacturing employment remains down over 16% nationally from its level in 2000, manufacturing employment in West Central MN has returned to its 2000 level. The productivity, innovations, and industry shifts that occurred in this region to achieve this employment level has created occupational demand. Youth that plan to stay in West Central MN might decide on a career in a services career due to the false perception that manufacturing is declining. OID indicates that manufacturing provides

better prospects for well-paying employment than many services-sector jobs in this particular labor market.

Independently of WSA2, school districts in the Brainerd area are considering providing technical training to high-school students by contracting with CLC. OID helped inform public school administrators that workers with training in these technical programs are in high need by area employers.

OID is useful beyond Northwest Minnesota. Note that Twin Cities LWIBS are applying OID, and applications are developing in Southwest, Southeast, and South Central MN. Thus, while a goal of this Planning Guidance document is to provide a consistent method of identifying high-growth, high-wage occupations, it is recognized that many LWIBS already use OID methods. OID has widespread demonstrated ability to inform demand-driven workforce development. Finally, consider that OID has a number of other applications that have been envisioned by regional analysts but not yet implemented. Stay tuned.

Table 1: Occupations in Demand in Brainerd Area Construction, Manufacturing, and Healthcare Industries*
Updated Data Available 3/01/06

SOC Code	Occupation Title	Current Demand Score**	Projected Growth	Median Wage	Typical Training Required
<i>17-2000</i>	<i>Engineers</i>	<i>4</i>	<i>Above Average</i>	<i>\$27.44</i>	
17-2112	Industrial Engineers		Above Average	\$26.86	Bachelor's degree
17-2141	Mechanical Engineers		Above Average	\$25.23	Bachelor's degree
<i>29-1000</i>	<i>Health Diagnosing and Treating Practitioners</i>	<i>1</i>	<i>Above Average</i>	<i>\$29.87</i>	
29-1069	Physicians and Surgeons, All Other		Above Average	NA	
29-1111	Registered Nurses		Above Average	\$28.24	Associate degree
<i>29-2000</i>	<i>Health Technologists and Technicians</i>	<i>3</i>	<i>Above Average</i>	<i>\$15.80</i>	
29-2012	Medical and Clinical Laboratory Technicians		Above Average	\$18.36	Associate degree
29-2034	Radiologic Technologists and Technicians		Above Average	\$23.59	Associate degree
29-2061	Licensed Practical and Licensed Vocational Nurses		Average	\$15.84	Postsecondary vocational award
29-2071	Medical Records and Health Information Technicians		Above Average	\$13.49	Associate degree
<i>31-1000</i>	<i>Nursing, Psychiatric, and Home Health Aides</i>	<i>0***</i>	<i>Above Average</i>	<i>\$10.52</i>	
31-1011	Home Health Aides		Above Average	\$10.34	Short-term on-the-job training, some college
31-1012	Nursing Aides, Orderlies, and Attendants		Average	\$10.64	Short-term on-the-job training, some college
<i>47-2000</i>	<i>Construction Trades Workers</i>	<i>4</i>	<i>Above Average</i>	<i>\$18.87</i>	
47-2031	Carpenters		Average	\$15.69	Long-term on-the-job training, some college
47-2051	Cement Masons and Concrete Finishers		Above Average	\$17.89	Moderate-term on-the-job training
47-2061	Construction Laborers		Average	\$16.64	Moderate-term on-the-job training
47-2071	Paving, Surfacing, and Tamping Equipment Operators		Average	\$19.73	Moderate-term on-the-job training
47-2073	Operating Engineers and Other Construction Equipment Operators		Average	\$16.95	Moderate-term on-the-job training
47-2111	Electricians		Above Average	\$25.11	Long-term on-the-job training, some college
47-2121	Glaziers		Above Average	\$13.05	Long-term on-the-job training, some college
47-2141	Painters, Construction and Maintenance		Average	\$17.11	Moderate-term on-the-job training
47-2152	Plumbers, Pipefitters, and Steamfitters		Above Average	\$27.30	Long-term on-the-job training, some college
47-2181	Roofers		Average	\$15.94	Moderate-term on-the-job training
47-2221	Structural Iron and Steel Workers		Above Average	\$21.11	Long-term on-the-job training, some college
<i>51-2000</i>	<i>Assemblers and Fabricators</i>	<i>1</i>	<i>Average</i>	<i>\$12.25</i>	
51-2022	Electrical and Electronic Equipment Assemblers		Average	\$9.61	Short-term on-the-job training, some college
51-2023	Electromechanical Equipment Assemblers		Average	\$10.24	Short-term on-the-job training, some college
51-2092	Team Assemblers		Average	\$12.31	Moderate-term on-the-job training, some college
51-2099	Assemblers and Fabricators, All Other		Below Average	\$11.49	Moderate-term on-the-job training, some college

Table 1: Occupations in Demand in Brainerd Area Construction, Manufacturing, and Healthcare Industries (Cont.)*

SOC Code	Occupation Title	Current Demand Score**	Projected Growth	Median Wage	Typical Training Required
<i>51-4000</i>	<i>Metal Workers and Plastic Workers</i>	<i>3</i>	<i>Above Average</i>	<i>\$14.73</i>	
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic		Above Average	\$13.48	Moderate-term on-the-job training, some college
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic		Above Average	\$14.18	Moderate-term on-the-job training, some college
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Me		Above Average	\$12.08	Moderate-term on-the-job training
51-4041	Machinists		Above Average	\$17.92	Long-term on-the-job training, some college
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plasti		Average	\$11.54	Moderate-term on-the-job training, some college
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic		Above Average	\$12.81	Moderate-term on-the-job training, some college
51-4111	Tool and Die Makers		Above Average	\$21.42	Long-term on-the-job training, some college
51-4121	Welders, Cutters, Solderers, and Brazers		Above Average	\$13.59	Long-term on-the-job training, some college

* For brevity of presentation, this analysis only includes occupations in demand in the high-growth, high-wage industries within the construction, manufacturing, and healthcare sectors. Complete OID results would include all in-demand occupations in all high-growth high-wage industries.

** "Current Demand Score" summarizes an analysis of occupation group supply and demand indicators that identify shortage and potential shortage occupations. The Job Vacancy Survey, Unemployment Insurance Statistics, and The Minnesota Salary Survey are the sources of the indicators. Contact Anthony Schaffhauser for details.

*** The Nursing, Psychiatric, and Home Health Aides occupation group scored below the cut-off for inclusion as an occupation in demand due to relatively low wages. In particular, the median wage offer for open-for-hire positions was \$8.80 per hour, as estimated by the Job Vacancy Survey. However, given the typical hiring practice of lower wages to train followed by a raise once competence is reached, these occupations were included. Other supply and demand indicators (job vacancies, job vacancy rate, and duration of vacancies) were consistent with shortage conditions.

Table 2: Potential Shortage Occupations: Northwest Planning Region, Fourth Quarter 2004 to Second Quarter 2005

Occupations above the solid line (score greater than 0) have potential shortages.		Supply and Demand Indicators*										Score
SOC Code	Occupation Group Title	Job Vacancies	Employment	JV Rate	JV Cut	Wage Offer (JV)	Median Wage (Filled)	Pay Well	Pay Premium	Duration	JV-UI	
47-2000	Construction Trades Workers	590	6,540	9.0%	1	\$12.73	\$17.84	1	0	1	1	4
17-2000	Engineers	88	990	8.9%	1	\$25.63	\$26.80	1	0	1	1	4
49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	127	3,010	4.2%	1	\$12.00	\$15.04	1	0	1	1	4
39-9000	Other Personal Care and Service Workers	98	2,180	4.5%	1	\$6.70	\$9.32	-1	0	1	1	2
13-2000	Financial Specialists	88	2,350	3.7%	1	\$17.38	\$22.01	1	0	-1	1	2
51-4000	Metal Workers and Plastic Workers	145	4,150	3.5%	1	\$13.79	\$14.33	1	0	0	0	2
53-3000	Motor Vehicle Operators	200	7,190	2.8%	1	\$12.41	\$13.05	0	0	1	0	2
29-2000	Health Technologists and Technicians	142	5,220	2.7%	1	\$13.42	\$14.74	1	0	0	0	2
15-1000	Computer Specialists	36	1,640	2.2%	0	\$15.79	\$21.69	1	0	1	0	2
25-1000	Postsecondary Teachers	30	2,220	1.4%	0	\$26.17	\$23.63	1	1	0	0	2
19-3000	Social Scientists and Related Workers	2	510	0.4%	-1	\$26.44	\$25.83	1	1	1	0	2
35-9000	Other Food Preparation and Serving Related Workers	201	1,790	11.2%	1	\$5.97	\$6.81	-1	0	0	1	1
31-1000	Nursing, Psychiatric, and Home Health Aides	325	6,580	4.9%	1	\$8.94	\$10.18	-1	0	0	1	1
35-3000	Food and Beverage Serving Workers	464	12,190	3.8%	1	\$5.78	\$6.81	-1	0	0	1	1
37-2000	Building Cleaning and Pest Control Workers	216	5,830	3.7%	1	\$7.32	\$9.00	-1	0	0	1	1
53-7000	Material Moving Workers	155	6,050	2.6%	1	\$8.18	\$10.36	-1	0	1	0	1
41-4000	Sales Representatives, Wholesale and Manufacturing	28	1,600	1.8%	0	\$15.58	\$19.42	1	0	0	0	1
29-1000	Health Diagnosing and Treating Practitioners	80	5,400	1.5%	0	\$20.88	\$27.16	1	0	0	0	1
51-1000	Supervisors, Production Workers	20	1,650	1.2%	0	\$17.31	\$18.28	1	0	0	0	1
25-2000	Primary, Secondary, and Special Education School Teachers	78	10,440	0.7%	-1	\$21.25	\$20.15	1	1	0	0	1
39-5000	Personal Appearance Workers	52	630	8.3%	1	\$9.62	\$9.64	-1	0	-1	1	0
45-2000	Agricultural Workers	36	690	5.2%	1	\$10.00	\$10.38	-1	0	-1	1	0
35-2000	Cooks and Food Preparation Workers	276	5,460	5.1%	1	\$6.35	\$8.95	-1	-1	0	1	0
43-6000	Secretaries and Administrative Assistants	89	2,870	3.1%	1	\$8.88	\$13.63	0	-1	0	0	0
51-2000	Assemblers and Fabricators	130	5,530	2.4%	0	\$9.70	\$12.78	0	0	0	0	0
All Occupations		5,098	206,480	2.5%		\$9.44	\$12.46					

* **JV Cut:** "+" signifies JV rate is over 2.5% and more than 15 Job Vacancies; "-" signifies JV rate is under 1% or less than 15 job vacancies.

Wage Offer (JV): Median of wage offers for open-for-hire positions as reported by employers that respond to the JV Survey.

Median Wage (Filled): Median wages of workers employed in the occupations, as estimated by the Minnesota Salary Survey.

Pay Well: "+" signifies median wage (filled) is 10% higher than the median for all occupations; "-" signifies median wage (filled) is 90% of the median for all occupations.

Pay Premium: "+" signifies wage offer (JV) is greater than the median wage (filled); "-" signifies wage offer (JV) is less than 10th pct wage.

Duration: "+" signifies greater than 50% of JVs open for 60 days or more or "always open; "-" signifies all JVs open less than 60 days.

JV-UI: Compares the JV Rate to the so-called "insured unemployment rate," (that is, the average duration of Unemployment Insurance as a share of all workers in the occupation). "+" signifies JV Rate exceeds insured unemployment by more than 2.5 percentage points, "-" signifies insured unemployment exceeds JV Rate.

Table 3: Potential Excess Supply Occupations: Northwest Planning Region, Fourth Quarter 2004 to Second Quarter 2005

Occupations below the solid line (score less than 0) have potential surpluses.		Supply and Demand Indicators*										
SOC Code	Occupation Group Title	Job Vacancies	Employment	JV Rate	JV Cut	Wage Offer (JV)	Median Wage (Filled)	Pay Well	Pay Premium	Duration	JV-UI	Score
31-9000	Other Healthcare Support Occupations	36	1,540	2.3%	0	\$8.03	\$12.39	0	-1	1	0	0
51-9000	Other Production Occupations	77	5,290	1.5%	0	\$8.15	\$11.61	0	0	0	0	0
49-9000	Other Installation, Maintenance, and Repair Occupations	46	3,510	1.3%	0	\$8.19	\$15.28	1	-1	0	0	0
11-9000	Other Management Occupations	39	3,000	1.3%	0	\$21.25	\$28.47	1	0	0	-1	0
35-1000	Supervisors, Food Preparation and Serving Workers	23	1,940	1.2%	0	\$12.98	\$10.40	-1	1	0	0	0
17-3000	Drafters, Engineering, and Mapping Technicians	18	1,500	1.2%	0	\$14.49	\$18.46	1	0	0	-1	0
19-4000	Life, Physical, and Social Science Technicians	6	680	0.9%	-1	\$8.78	\$14.55	1	-1	1	0	0
33-3000	Law Enforcement Workers	14	1,660	0.8%	-1	\$13.96	\$18.15	1	0	0	0	0
25-4000	Librarians, Curators, and Archivists	2	260	0.8%	-1	\$0.00	\$15.51	1	0	0	0	0
43-4000	Information and Record Clerks	140	6,130	2.3%	0	\$10.13	\$11.39	-1	0	0	0	-1
41-2000	Retail Sales Workers	304	15,390	2.0%	0	\$7.38	\$7.88	-1	0	0	0	-1
43-9000	Other Office and Administrative Support Workers	121	7,450	1.6%	0	\$9.88	\$11.09	-1	0	0	0	-1
11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	6	380	1.6%	-1	\$24.04	\$32.09	1	0	0	-1	-1
27-3000	Media and Communication Workers	7	550	1.3%	-1	\$11.66	\$14.80	1	0	-1	0	-1
43-3000	Financial Clerks	71	5,890	1.2%	0	\$9.12	\$12.18	0	0	-1	0	-1
13-1000	Business Operations Specialists	38	4,120	0.9%	-1	\$14.90	\$20.09	1	0	-1	0	-1
49-2000	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	5	580	0.9%	-1	\$17.55	\$22.38	1	0	0	-1	-1
33-9000	Other Protective Service Workers	12	1,630	0.7%	-1	\$11.00	\$9.83	-1	1	1	-1	-1
21-1000	Counselors, Social Workers, and Other Community and Social Service Specialis	12	4,530	0.3%	-1	\$13.60	\$14.79	1	0	0	-1	-1
11-3000	Operations Specialties Managers	2	1,260	0.2%	-1	\$0.00	\$32.67	1	0	0	-1	-1
51-8000	Plant and System Operators	4	730	0.5%	-1	\$11.52	\$20.05	1	-1	-1	0	-2
39-3000	Entertainment Attendants and Related Workers	7	1,230	0.6%	-1	\$7.21	\$7.80	-1	0	-1	0	-3
All Occupations		5,098	206,480	2.5%		\$9.44	\$12.46					

* **JV Cut:** "+" signifies JV rate is over 2.5% and more than 15 Job Vacancies; "-" signifies JV rate is under 1% or less than 15 job vacancies.

Wage Offer (JV): Median of wage offers for open-for-hire positions as reported by employers that respond to the JV Survey.

Median Wage (Filled): Median wages of workers employed in the occupations, as estimated by the Minnesota Salary Survey.

Pay Well: "+" signifies median wage (filled) is 10% higher than the median for all occupations; "-" signifies median wage (filled) is 90% of the median for all occupations.

Pay Premium: "+" signifies wage offer (JV) is greater than the median wage (filled); "-" signifies wage offer (JV) is less than 10th pct wage.

Duration: "+" signifies greater than 50% of JVs open for 60 days or more or "always open; "-" signifies all JVs open less than 60 days.

JV-UI: Compares the JV Rate to the so-called "insured unemployment rate," (that is, the average duration of Unemployment Insurance as a share of all workers in the occupation). "+" signifies JV Rate exceeds insured unemployment by more than 2.5 percentage points, "-" signifies insured unemployment exceeds JV Rate.