

Indonesia's Occupational Employment Outlook

2020
Short-Term
Occupational
Prospects

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Acknowledgments

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Abbreviations

BPS	Statistics Indonesia
JOLTS	Jobs Openings and Labor Turnover Survey
KBJI-2014	Indonesian Standard Classification of Occupations (Klasifikasi Baku Jenis Pekerjaan Indonesia 2014)
OES	Occupational Employment Statistics
OEVS	Occupational Employment and Vacancy Survey
RSE	Relative standard Error

Users' Guide

Indonesia's Occupational Employment Outlook 2020 analyzes the results of a pilot survey designed to retrieve detailed information on Indonesia's short-term occupational dynamics with the objective of informing workforce development policy and the population in general about the future demand for occupations and skills. The pilot Occupational Employment and Vacancy Survey (OEVS) was designed based on lessons learned from best practices in high-income countries as a proof of concept before institutionalizing a full-scale survey in the country.

The analysis is presented in two companion reports: the Technical Report and the Short-Term Occupational Prospects Report. Depending on the need, the reports can be used jointly or separately. The reports include cross-references for users who would benefit from the information in both of them. The OEVS is planned to be used mainly to feed an online labor market information platform to be developed by the government of Indonesia, with multiple search functions and in combination with other data sources currently being developed. These reports provide the methodological description and a preview of results that could later inform the platform.

The Technical Report is directed to policy makers and researchers. It describes the contribution of the data to evidence-based workforce development policy, best practices used as a reference in design of the OEVS instrument, and technical features of the survey. It describes the data and the overall results in a highly aggregated manner to summarize the main findings, including a short quality assessment drawn from the comparison of selected variables with other official data sources. Finally, it illustrates the underlying channels that could generate the observed patterns, explored

through a combination of theory and qualitative analysis.

The Short-Term Occupational Prospects Report, presented here, is directed to a wider audience of policy makers and practitioners involved in career guidance and job search counseling. It is intended to help these practitioners to inform end users such as students and job seekers about which jobs have more auspicious prospects in the short term. It presents the complete list of occupations with the indicators that led to the conclusion about their short-term prospects. The indicators are presented in absolute numbers and in rankings for each occupation to allow practitioners to grasp quickly the short-term dynamics of an occupation. The objective is to provide this audience with the inputs needed to advise end users in making informed decisions regarding investments in education and training. The report includes a short technical description on how to make sense of the wealth of information provided.

To allow end users eventually to consume information directly, results are presented in an easily digestible manner. Figure 1.2 lists the 42 occupations identified as bright—occupations with good short-term prospects based on all computed indicators—and the 90 occupations identified as dim—occupations with poor short-term prospects. Individuals can consult these reports to inform their educational investments, to choose a field of study associated with an occupation, and to discuss with their counselors the education courses associated with it. More generally, the results presented here and, more specifically, in table 4.1 and appendix C aim to facilitate the counseling task of practitioners and to inform the design of the online platform for labor market information. Box 1 provides suggestions for how to consult the two reports, depending on the user's interests and needs.

Policy makers

- Policy makers interested in evidence-based workforce development policy should consult both reports.
- Policy makers interested in understanding the design of the OEVS and its uses for policy making in other countries should consult sections 1 (introduction) and 2 (methodology) and appendixes A and H in the Technical Report.
- Policy makers interested in understanding the methodology for classifying occupations as bright or dim should consult section 4 (main messages) and appendix B in the Technical Report and sections 1 (main messages), 3 (indicators) and 4 (Short-Term Occupational Prospects) in the Short-Term Occupational Prospects Report.
- Policy makers interested in knowing which occupations have better short-term prospects should consult section 1 (main messages) and appendix C in the Short-Term Occupational Prospects Report.

Practitioners

- Practitioners should consult section 1 (main messages) and 4 (indicators) in the Short-Term Occupational Prospects Report, which provide background information, and table 4.1, which summarizes the profile of each occupation sorted by KBJI. Such information will help them to answer questions about whether an occupation has good or poor prospects and what are the potential risks of investing in it, based on observed short-term dynamics.
- Practitioners interested in knowing the rankings in terms of job creation should consult appendix C in the Short-Term Occupational Prospects Report.
- The Ministry of Manpower and Ministry of Education and Culture should disseminate these reports among practitioners and provide further training, if necessary.

Students and parents

- Students should consult figure 1.1 and table 4.1 in the Short-Term Occupational Prospects Report or companion infographics.
- All students should talk to a career counselor to gather information on the fields of study associated with the occupations that have bright career prospects.

Job seekers and workers

- Job seekers and workers interested in investing further in education should consult figure 1.1 and table 4.1 in the Short-Term Occupational Prospects Report or companion infographics.
- All job seekers and workers should consult with a job counselor to gather information on the training opportunities associated with the occupations that have bright career prospects.

It is very important to recognize that the data collection for the OEVS was completed just before the COVID-19 outbreak. The crisis triggered by the pandemic is creating a break in trends, which may affect the validity of the assumptions and estimates.

1. Main Messages

The Occupational Employment and Vacancy Survey (OEVS) is a pilot designed to inform job prospects in all occupations in selected sectors and regions of Indonesia. Policy makers and practitioners (career guidance and job counselors) can use the information to make informed decisions about their investments in education and training and—if presented in a more digestible fashion—to support end users (students and job seekers) to do the same. It complements the information provided by other workforce development tools like the Critical Occupation List 2018 and operational manuals used by practitioners (World Bank and Coordinating Ministry of Economic Affairs 2020).

This report shows results from the first pilot of the OEVS survey, which was implemented to test the survey concept with a limited sample size. It presents 10 indicators of occupational demand using the Indonesian Standard Classification of Occupations (Klasifikasi Baku Jenis Pekerjaan Indonesia 2014 [KBJI-2014]) at different levels of specificity (1-, 2-, 3-, and 4-digit levels). These indicators have been carefully selected to assess the current state of occupations in Indonesia and must be interpreted holistically.¹ The report produces a short-term occupational prospects score that synthesizes the information stemming from various indicators. The score is presented for occupations at the 4-digit level and it should be interpreted as the short-term projections of occupational demand. Under the assumption that the demand for occupations changes relatively slowly over time,² the indicators described below can be thought of as short-term projections. However, the level of precision varies due to the pilot nature of the survey. Further details are explained in the methodological section. Finally, it is important to recognize that the data collection was completed right before the COVID-19 outbreak, and the break in trend triggered by the ensuing crisis may affect the validity of the assumptions and projections.

The 10 indicators used to produce the short-term occupational prospects score are grouped in three dimensions:

Short-term occupational dynamics. Occupations with good short-term dynamics are those that have been increasingly demanded by employers within the last year and are assumed to be in demand in the next two to three years—unless there is a structural break in the trend like COVID-19. The trend can be measured by net increases in employment levels (positive and large net change in employment, measured in persons) or growth in employment (positive and large growth of net employment, measured in percentages). Instead, occupations that are not in demand by employers and are declining are said to have poor short-term dynamics.

Job opportunities. Occupations have promising job opportunities if there are a large number of job openings (vacancies) and a large number of firms hiring at the same time, since job matching is more likely to occur. Job opportunities can be measured by the number of vacancies and by the number of vacancies relative to the employment level (vacancy rate, measured in percentages). In addition, job seekers are more likely to find a job when many firms are hiring. Irrespective of firm size, vacancies are more likely to be available all year round and in multiple locations if multiple firms are hiring than if only a few are. If only a few firms employ a certain occupation, it is more difficult for laid-off job seekers to find another job. In addition, job turnover (or churning) also needs to be considered since occupations with high churning tend to have more firms hiring and more open vacancies but do not necessarily offer promising job opportunities.

Skills shortages. Although no single indicator can measure skills shortages, analyzing the following ones can help to detect them: (a) percent of vacancies that are hard to fill, identified as vacancies that have been opened for longer than average; (b) percent of firms that have tried to hire workers but found it difficult to do so because of a lack of applicants or a lack of applicants with the appropriate skills; and (c) occupations where employers are not opening a vacancy because they think that they will not find workers with the needed skills.³

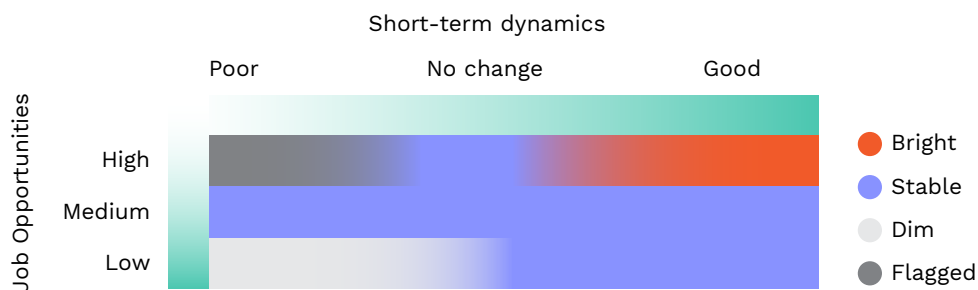
Short-term occupational prospects. Given that no single indicator can describe the state of an occupation, the short-term occupational prospects score carefully evaluates indicators in a holistic manner to assess the prospects at the 4-digit KBJI level. Indicators used to make the assessment include total employment, employment growth, total vacancies, total number of firms that tried to hire, turnover rate, and identification of a skills shortage. The occupational score categorizes occupations as bright, dim, flagged, and

stable occupations. Appendix B describes the formula used to determine the score.

To have good short-term occupational prospects, the occupation needs to be in short supply (a third dimension) or have a high level of employment (baseline) and needs to have auspicious job opportunities and short-term dynamics, as indicated in figure 1.1. The blurred areas are the result of the two dimensions not shown in the double-entry representation.

Fig. 1.1

Short-Term Occupational Prospects Score



Bright

These are occupations with high demand for employment for which firms are expressing interest in hiring workers and have either high growth of employment with low turnover or skills shortages that are limiting their occupational growth.



Stable

These are occupations that have normal trends of employment growth or some skills shortages but that do not have high enough demand to be considered bright.



Dim

These are occupations that either have no demand or are shrinking.



Flagged

These are occupations for which there is no sufficient data with which to make an accurate assessment and that, therefore, should be monitored. They may include occupations that have seasonal employment, occupations that are undergoing structural changes, or occupations for which the data are inconsistent and a larger sample is needed with which to make an accurate assessment.

Source: Based on OEVS data.

Note: See appendix B for a precise definition of the boundaries.

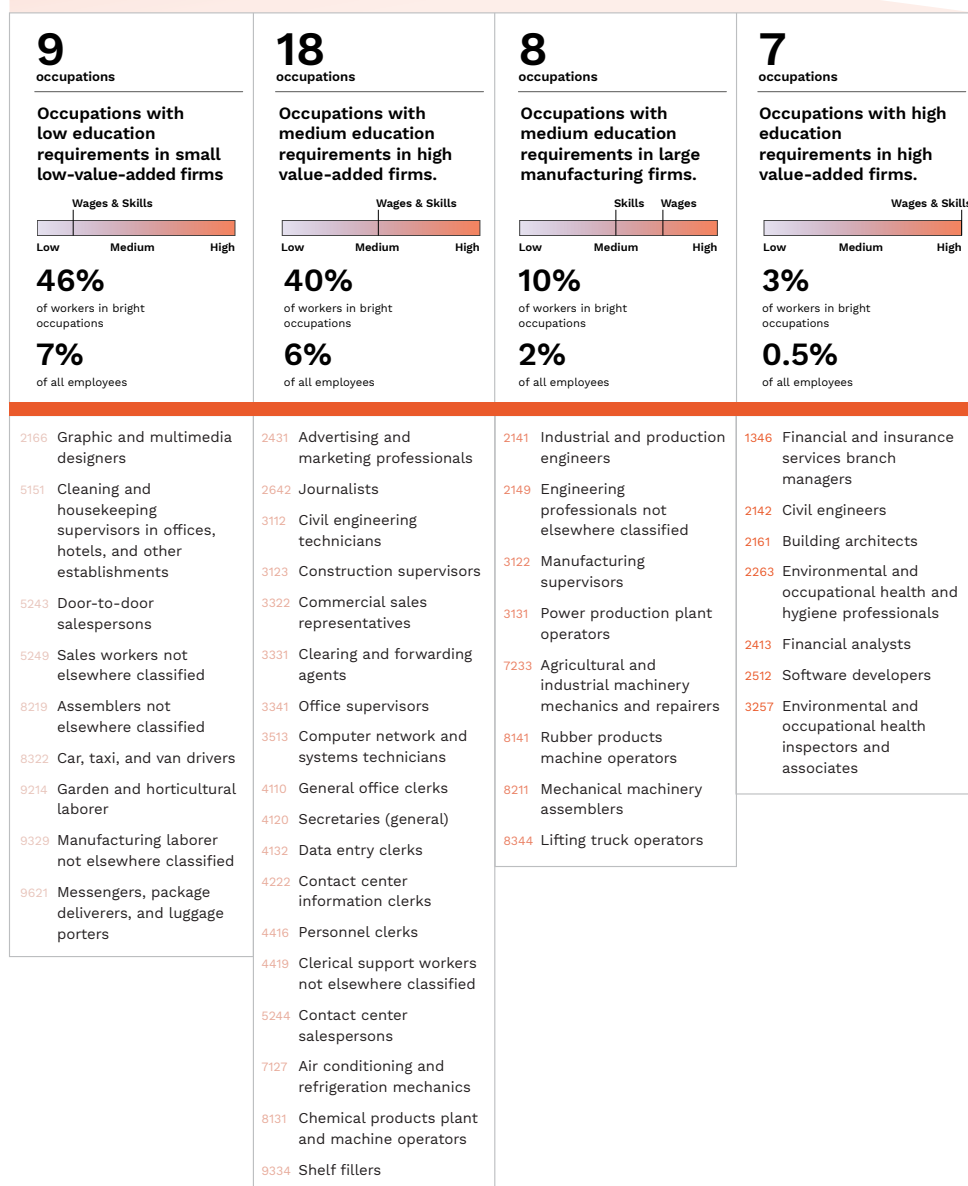
The main result of the analysis is the identification of bright and dim occupations. Bright occupations are those with better prospects in the short term. For these occupations, the population should invest in relevant education and the government should ensure an adequate supply of good-quality training and education. Bright occupations are divided into four clusters according to expected characteristics of the job at those occupations: educational requirements,

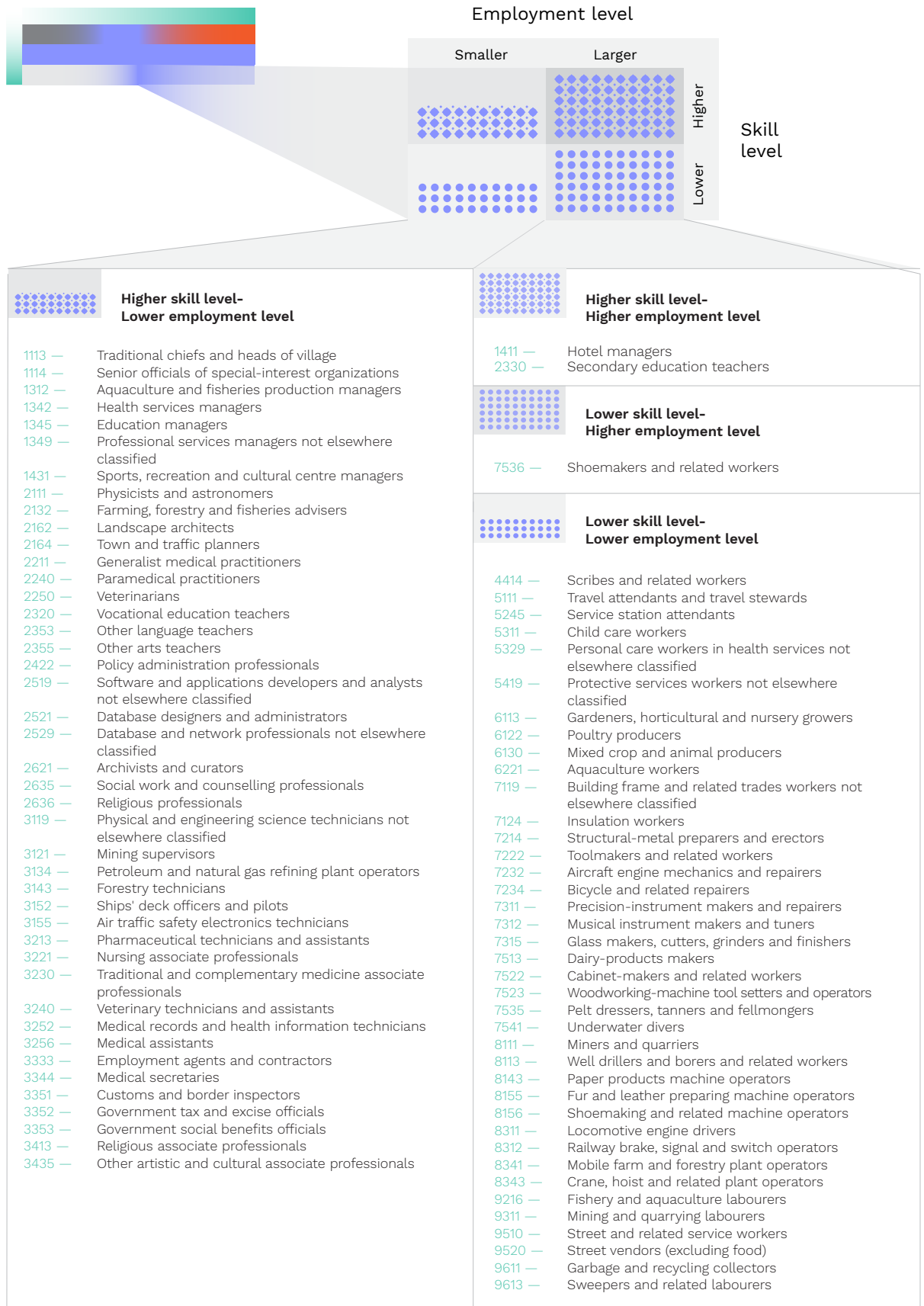
median wages, firm size and economic sector. Dim occupations also need attention, as workers in those occupations will need to skill up, reskill, or both to maintain employment. Dim occupations are divided into four groups differentiating those that absorb a large number of workers in the labor market from those that employ a small number of them as well as differentiating between high- and low-skilled occupations based on the skill level they usually require.

Fig. 1.2



List of Bright and Dim occupations





Only 15 percent of Indonesia’s workforce is employed in bright occupations and another 2 percent is employed in dim occupations. As expected, the majority of the workforce is employed in stable occupations, as the changes in occupations are gradual because the pace of structural transformation—although more accelerated with the megatrends—is not dramatically swift.⁴

While bright occupations tend to require mostly high-skilled workers, Indonesia is at a point in the structural transformation where many low- and semi-skilled occupations also have good job prospects. Through cluster analysis, section 4 (making sense of bright occupations) in the Technical Report groups occupations by four main characteristics. Almost a quarter of the bright occupations are in the low-value-added economic group, with micro and small firms that require minimal levels of education and pay lower wages. Almost half of the bright occupations demand upper-secondary education and are in the manufacturing economic group. These

occupations are in medium-size firms offering wages that are good enough to support middle-class consumption. Less than a quarter of the occupations are associated with high-skilled, high-value-added firms, either in manufacturing or in services. The firms demanding these occupations tend to be large if they are manufacturing firms and to be medium and large if they are high-value-added service firms.

This analysis brings up another very important point: the return of the occupation will depend considerably on the characteristics of the firm. This result is not unique to Indonesia (Abowd and Kramarz 1999); it is observed globally. The analysis confirms that a low-skilled worker with a secondary education or less working for a high-value large firm in Indonesia will earn on average as much as a college graduate working in a micro or small low-value-added firm. Hence, workforce development policy needs to be developed in sync with incentives to promote productivity gains on the labor demand side.

2. Methodological Note

The OEVS was designed to track shifts in occupational demand, identify occupations that are major sources of employment, and observe occupational growth or contraction. The survey aims to be comprehensive and to cover all occupations in the labor market with a high level of detail. It is useful for making short-term projections about occupational prospects under the assumption that changes in the demand for occupations—which mostly respond to structural transformations—are relatively gradual.⁵ In order to make long-term projections, this type of survey should be carried out on a regular basis, should cover the whole economy with a larger sample for accuracy, and should be combined with macrosector growth projections. The design of the questionnaire is based on two well-established surveys carried

out by the United States Department of Labor: the Occupational Employment Statistics (OES)⁶ and the Jobs Openings and Labor Turnover Survey (JOLTS).⁷ Given their level of effort and detail, these surveys are usually fielded as rotating panels over a period of three to five years or every four or five years. The OEVS collects information on the firm, structure of employment, roster of occupations in the firm using the KBJI-2014, and occupational dynamics, including shortages, hiring attempts and constraints, current and expected vacancies, and planned occupational growth and declines.

This OEVS pilot has a representative sample of three economic groups in the economy: (a) selected high-value-added services, (b) low-value-added services strategic for Indonesia’s growth,

and (c) selected activities of the manufacturing industry. Table 2.1 presents OEVS coverage by economic groups, subgroups, and geographic area. The sample frame was constructed using the 2016 Economic Census Listing Directory for the services group and the 2017 Medium and Large Manufacturing Survey Directory for the manufacturing group. The sample was designed to be representative at the subgroup level, with stratification based on economic activity, geographic coverage, and business scale.⁸

Because the OEVS is a pilot, results presented in this statistical report are short term and based on a substantially smaller sample than the size recommended for obtaining robust estimations of occupational employment

and vacancies at the 4-digit KBJI. Occupational dynamics observed in this report should be interpreted as short term (current to two- to three-years) and should be updated with the results from future, larger-scale rounds of data collection.⁹ To have an idea of the scale of the pilot, the Indonesian OEVS can be compared with the OES run in the United States. The former covers 31 percent of employment in the sampled subsectors, while the latter covers approximately 58 percent of total national employment (unweighted sum of employment).¹⁰ Therefore, in this pilot phase, the survey will not allow for a full accounting of all occupations or allow detailed geographically disaggregated analysis, but it will reveal trends for the most prominent occupations in the included subsectors.¹¹

Tab. 2.1

OEVS Sample Coverage

Economic group	Subgroups	Geographic coverage	Firm size*	Total firms surveyed
High-value-added services	Information and communication technology, transport and logistics, construction related to infrastructure, and finance and other business activities	Java and Bali	Medium and Large	1,459
Low-value-added services	Tourism and creative economy	Java and Bali	Micro, Small, Medium, and Large	1,540
Manufacturing industry	Textiles and textile products, food and beverages, automotive, electronics, and chemicals	North Sumatra, West Java, Banten, Central Java, East Java, and South Sulawesi	Medium and Large	840

* According to BPS firm size definition: micro firms employ less than 5 workers, small firms employ 5 to 19 workers, medium firms employ 20 to 99 workers, and large firms employ more than 100 workers.

3. Indicators

Occupations are identified using the 4-digit level of the KBJI-2014 classification, resulting in 353 occupations.¹² Indicators are also computed at 1-, 2-, and 3-digit levels of KBJI-2014, resulting in 9, 39, and 119 occupation categories, respectively.¹³ Indicators are computed using firms' weights to make statistics representative of the subsectors sampled. This section describes the 10 indicators and the summary score that are presented in Section 4 Table 4.1.

TABLE 4.1

Short-Term Occupational Dynamics

1. Net change in employment (persons) is the change in employment by occupation measured at 1-, 2-, 3-, and 4-digit KBJIs level during the last 12 months. Firms list occupations in which employment increased (decreased). This change is computed as the firm-weighted sum of the answers to two questions: “By how many persons is employment higher in this occupation than it was 12 months ago?” and “By how many persons is employment lower in this occupation than it was 12 months ago?” It is computed using the following formula:

$$Net\ change\ in\ employment_o = \sum_i Net\ employment\ increase_{io} - \sum_j Net\ employment\ decrease_{jo}, \quad (3.1)$$

where o is the occupation, i are the firms with an increase in net employment, and j are the firms with a decrease in net employment.

2. Net employment growth (percent) is the percentage change in employment during the last 12 months in an occupation measured at 1-, 2-, 3-, and 4-digit KBJI levels. It is computed according to the following formula:

$$Employment\ growth_o = \frac{Net\ change\ in\ employment\ (persons)}{Total\ employment\ (persons)_o - Net\ change\ in\ employment\ (persons)_o} \times 100, \quad (3.2)$$

where o is the occupation, $Total\ employment_o$ is the weighted sum of all employment in occupation o (calculated as indicator 10 below), and $Net\ change\ in\ employment_o$ is indicator 1, calculated above.

TABLE 4.1

Job Opportunities

3. Vacancies (number) is the number of job openings in an occupation that were available at the firm when the survey was carried out, measured at 1-, 2-, 3-, and 4-digit KBJI levels. It is computed as the firm-weighted sum of vacancies reported by employers based on the question, “What is the number of vacancies in this occupation?”

4. Vacancy rate (percent) is the percentage of vacancies among the total number of jobs filled and to be filled, measured at 1-, 2-, 3-, and 4-digit KBJI levels. Using vacancies (number) and total employment (persons), it is computed according to the following formula:

$$Vacancy\ rate_o = \frac{Vacancies\ (number)_o}{Total\ employment\ (persons)_o + Vacancies\ (number)_o} \times 100, \quad (3.3)$$

where o is the occupation.

5. Number of firms hiring (number) is the number of firms that reported trying to hire workers during the last 12 months in an occupation measured at 1-, 2-, 3-, and 4-digit KBJI levels. It is calculated as the firm-weighted sum of positive responses to the question, “Did your firm try to hire workers in the last 12 months?”

6. Turnover rate (percent) is the percentage of employees moving in and out of jobs within the last year, measured at 1-, 2-, 3-, and 4-digit KBJI levels. It is computed according to the following formula:

$$\text{Turnover}_o = \frac{\sum_j \text{Net employment increase}_{jo} + \sum_j \text{Net employment decrease}_{jo}}{\text{Average employment (persons)}} \times 100, \quad (3.4)$$

where o is the occupation, *Net employment increase_{jo}* and *Net employment decrease_{jo}* are calculated as in indicator 1, and *Average employment_o* is the weighted average of total employment in (t) and total employment 12 months ago ($t-1$) in occupation o .

TABLE 4.1

Skills Shortages

7. Hard-to-fill vacancies (indicator) is a binary indicator. The value is 1 if on average vacancies for the occupation have been opened for a long time when compared to all occupations, measured at the 1- and 4-digit KBJI levels. Long time is identified when the average number of days opened for a certain occupation is more than 67, which is the value corresponding to the 75th percentile of the distribution of opened days for all occupations within the corresponding digit level.¹⁴ Otherwise, the value for the indicator is 0, meaning that vacancies for the occupation are not hard to fill in terms of average number of days opened.

8. Difficult to hire (percent) is the percentage of firms that tried to hire within the last year and found it difficult to do so because there were either no or too few applicants or no or too few applicants with the appropriate skills. The indicator is measured at 1-, 2-, 3-, and 4-digit KBJI levels and constructed by combining answers to the following questions: (a) “Did this business/company try to hire workers in the last 12 months?” (b) “Was it difficult to hire workers for this occupation?” and (c) the “main reason why hiring was difficult” was that there were “no or few applicants” or “applicants lacked required skills.”

9. Unopened vacancies (number) is the total number of firms that thought about opening a vacancy but did not do so due to lack of certainty in finding candidates with appropriate skills. The indicator is measured at 1-, 2-, 3-, and 4-digit KBJI levels and calculated as the firm-weighted sum of positive responses to the question, “Has this business/company thought about opening a vacancy during the last 12 months but ended up not doing so because it was afraid that it would not find the skills needed?”¹⁵

TABLE 4.1

Occupational Prospects

10. Total employment (persons) is the total number of workers employed in each occupation, measured at 1-, 2-, 3-, and 4-digit KBJI levels. This is calculated as the firm-weighted sum of employment by occupation reported by employers answering the question, “How many employees work in each occupation?”

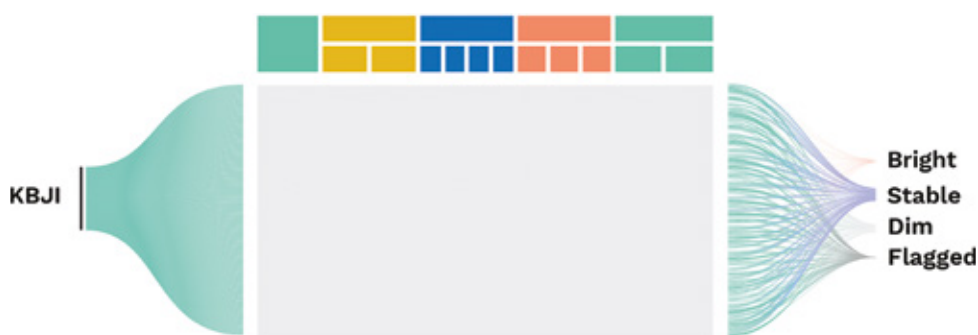
Short-term occupational prospects are a synthesis assessment of the state of the occupation at the 4-digit KBJI level based on multiple indicators included in the report (see appendix B for technical details on how the score is constructed).¹⁶ Occupations at the 4-digit KBJI level are categorized as follows:

- **Bright occupations** are occupations with a high demand for employment in which firms are expressing an interest in continuing to hire workers and have either high employment growth with low turnover or skills shortages that limit the growth of occupational employment.

- **Stable occupations** are occupations with normal trends of employment growth or some skills shortages, but with demand that is not high enough to consider them bright.
- **Dim occupations are occupations** that have either no or shrinking demand.
- **Flagged occupations are occupations** for which there are insufficient data to make an accurate assessment and that, therefore, should be monitored. They may include occupations that have seasonal employment or are undergoing structural changes, or the data may present some inconsistencies and a larger sample is needed to make an accurate assessment.

This classification does not aim to capture whether labor supply is responding to the signals coming from labor demand. The supply of and demand for an occupation can be considered aligned if the occupation does not present skills shortages. Hence, some occupations could be growing but still be classified as stable if supply is not aligned with demand. On the contrary, supply of and demand for an occupation can be considered not aligned if there are clear signs of skills shortages.¹⁷ For example, occupation 7413, “electrical line installers and repairers,” has a positive growth rate, has a relatively high number of vacancies and firms have tried to hire workers, has a relatively low turnover rate, and does not present clear signs of skills shortages. Thus, this occupation can be considered bright and aligned, as labor supply is responding to labor demand. However, occupation 3513, “computer network and systems technicians,” has similar values for employment, vacancies, and turnover indicators, but its vacancies are taking a long time to fill, and firms have not opened vacancies due to their lack of trust in finding applicants with the right skills. Thus, this occupation can be classified as bright, but demand and supply are not fully aligned (the supply of workers is not responding fast enough to the demand for them). Similarly, stable and dim occupations can be aligned or not aligned with labor market needs. Flagged occupations all have skills shortages and labor demand and supply are not aligned.

The outlook of an occupation comprises the summary results for short-term occupational prospects and the 10 indicators described above. Table 4.1 presents the prospects for all occupations at 1-, 2-, 3-, and 4-digit KBJI levels. Appendix C ranks occupations for the six indicators related to short-term dynamics and job opportunities (skills shortages are omitted).



The information is organized in various way to facilitate quick access by different users depending on their interests. More specifically,

- **For practitioners.** Practitioners advise students, job seekers, and workers interested in continuing their education and training. They are usually familiar with the classification of occupations and the level and type of education associated with each job. Career guidance and job search counselors interested in knowing the prospects of a certain occupation should consult table 3.1 directly. Each row represents an occupation, and occupations are sorted by KBJI code for easy access. Each column includes the 10 indicators both in values and in ranking, as well as the category of prospect: bright, dim, stable, and flagged. The table makes it easy for practitioners to access the full description of the occupation quickly. Occupations with good prospects are indicated as bright, and the rest of the indicators complete the profile, showing whether there are usually many vacancies opened, many people employed, and so forth. Given that the majority of occupations are in stable, the ranking also indicates the relative position of the occupation within this group. Practitioners interested in understanding general patterns of occupational growth and contraction are advised to consult the summary list in figure 1.2 and the ranking tables in appendix C.
- **For policy makers.** Policy makers are interested in knowing general patterns and which occupations are expanding and contracting. They should consult the summary list in figure 1.2 and the ranking tables in appendix C. Policy makers with a specific need such as the design plan or budget for a certain training related to a certain occupation should consult table 4.1, which provides the detailed prospects for each occupation and table A.1 in appendix A for reliability of the estimates. Policy makers are encouraged to go through all of the methodological sections and appendixes.

4. Short-Term Occupational Prospects

Table 4.1 Short-Term Occupational Prospects

Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
1	Managers	-3,488		-0.004		6,205		0.007		8,563		0.008		0		6,514		890,554		
11	Chief executives, senior officials, and legislators	-305		-0.003		19		0.000		677		0.005		0		0		100,327		
111	Legislators and senior officials	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	4,721	165	
1113	Traditional chiefs and heads of village	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	3,218	189	Dim
1114	Senior officials of special-interest organizations	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,504	236	Dim
112	Managing directors and chief executives	-305	272	-0.003	223	19	138	0.000	160	677	81	0.005	208	0		0	114	95,606	22	
1120	Managing directors and chief executives	-305	273	-0.003	224	19	138	0.000	161	677	82	0.005	209	0	0.115	0	114	95,606	23	Stable
12	Administrative and commercial managers	-2,440		-0.013		5,091		0.026		5,228		0.018		0		2,629		190,757		
121	Business services and administration managers	-992	305	-0.009	237	512	58	0.005	124	971	70	0.015	188	1		26	78	110,228	22	
1211	Finance managers	-122	254	-0.003	219	162	85	0.003	134	295	119	0.007	205	0	0.205	21	80	48,597	45	Flagged
1212	Human resource managers	-497	287	-0.015	255	258	78	0.008	112	348	110	0.021	171	0	0.286	0	114	32,272	64	Stable
1213	Policy and planning managers	-330	276	-0.023	268	5	161	0.000	159	13	236	0.024	166	0	0.479	5	104	14,351	101	Flagged
1219	Business services and administration managers not elsewhere classified	-42	231	-0.003	222	87	105	0.006	122	316	114	0.019	175	1	0.275	0	114	15,009	97	Flagged
122	Sales, marketing, and development managers	-1,448	315	-0.018	260	4,578	19	0.054	41	4,257	21	0.022	170	0		2,603	14	80,529	30	
1221	Sales and marketing managers	-1,445	315	-0.019	265	1,978	30	0.026	66	2,501	36	0.024	165	1	0.205	2,603	15	73,000	33	Flagged
1222	Advertising and public relations managers	0	74	0.000	74	2,573	25	0.340	10	1,715	48	0.000	216	0	0.000	0	114	4,991	159	Stable
1223	Research and development managers	-3	214	-0.001	216	28	133	0.011	96	41	204	0.009	202	0	0.115	0	114	2,538	205	Stable
13	Production and specialized services managers	-236		-0.002		621		0.004		1,746		0.016		0		99		142,727		
131	Production managers in agriculture, forestry, and fisheries	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	278	288	
1311	Agricultural and forestry production managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	183	299	Dim
1312	Aquaculture and fisheries production managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	94	313	Dim
132	Manufacturing, mining, construction, and distribution managers	-291	272	-0.003	222	216	81	0.002	140	726	79	0.013	190	0		99	53	96,555	22	
1321	Manufacturing managers	0	73	0.000	73	31	129	0.001	153	74	172	0.002	211	0	0.137	0	114	29,102	68	Stable
1322	Mining managers	0	74	0.000	74	0	164	0.000	164	51	189	0.000	216		1.000	0	114	249	290	Stable
1323	Construction managers	-415	280	-0.012	248	64	110	0.002	146	213	131	0.030	150	0	0.599	99	54	34,433	62	Flagged

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352			#	Rank out of 114	#	Rank out of 351	
1324	Supply, distribution, and related managers	124	47	0.004	68	121	98	0.004	131	388	107	0.006	206	0	0.314	0	114	32,770	63	Stable
133	Information and communication technology service managers	11	69	0.002	69	0	164	0.000	164	97	160	0.014	189			0	114	5,121	156	
1330	Information and communication technology service managers	11	70	0.002	70	0	164	0.000	164	97	163	0.014	189		0.797	0	114	5,121	156	Stable
134	Professional services managers	44	60	0.001	71	405	65	0.010	98	923	73	0.024	166	1		0	114	40,773	57	
1342	Health services managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	51	322	Dim
1345	Education managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	6,964	143	Dim
1346	Financial and insurance services branch managers	44	60	0.002	71	405	66	0.014	84	923	73	0.034	142	1	0.212	0	114	27,966	71	Bright
1349	Professional services managers not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	5,793	150	Dim
14	Hospitality, retail, and other services managers	-506		-0.001		475		0.001		912		0.001		0		3,786		456,743		
141	Hotel and restaurant managers	-456	283	-0.002	216	456	59	0.002	149	456	94	0.002	213	0		3,786	12	282,340	5	
1411	Hotel managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	14,772	99	Dim
1412	Restaurant managers	-456	283	-0.002	217	456	59	0.002	148	456	95	0.002	213	0	0.000	3,786	13	267,568	6	Flagged
142	Retail and wholesale trade managers	0	74	0.000	74	19	137	0.001	149	0	252	0.000	216	0		0	114	13,839	104	
1420	Retail and wholesale trade managers	0	74	0.000	74	19	138	0.001	150	0	252	0.000	216	0		0	114	13,839	105	Stable
143	Other services managers	-51	232	0.000	211	0	164	0.000	164	456	95	0.000	215			0	114	160,564	15	
1431	Sports, recreation, and cultural center managers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	3,528	186	Dim
1439	Services managers not elsewhere classified	-51	232	0.000	212	0	164	0.000	164	456	95	0.000	215		0.000	0	114	157,036	17	Stable
2	Professionals	17,793		0.041		22,278		0.047		25,821		0.160		0		6,777		447,523		
21	Science and engineering professionals	3,293		0.052		1,071		0.016		6,595		0.090		0		1,459		66,104		
211	Physical and earth science professionals	-265	272	-0.123	315	19	136	0.010	97	340	111	0.136	64	0		21	78	1,880	226	
2111	Physicists and astronomers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	5	347	Dim
2112	Meteorologists	-208	269	-1.000	351	0	164		351	208	132	2.000	1		0.500	0	114	0	351	Flagged
2113	Chemists	-56	239	-0.054	292	19	137	0.019	77	81	169	0.065	113	0	0.194	0	114	991	252	Stable
2114	Geologists and geophysicists	0	74	0.000	74	0	164	0.000	164	51	189	0.000	216		1.000	21	80	883	257	Stable
212	Mathematicians, actuaries, and statisticians	-51	231	-0.201	329	0	164	0.000	164	0	252	0.224	44			0	114	201	295	
2120	Mathematicians, actuaries, and statisticians	-51	232	-0.201	330	0	164	0.000	164	0	252	0.224	45			0	114	201	295	Dim
213	Life science professionals	-224	270	-0.219	331	0	164	0.000	164	161	142	0.246	42			0	114	798	259	
2131	Biologists, botanists, zoologists, and related professionals	-205	268	-0.542	344	0	164	0.000	164	155	144	0.743	8		0.000	0	114	174	301	Stable
2132	Farming, forestry, and fisheries advisers	-19	223	-0.045	289	0	164	0.000	164	0	252	0.046	131			0	114	401	279	Dim
2133	Environmental protection professionals	0	74	0.000	74	0	164	0.000	164	6	238	0.000	216		0.000	0	114	223	293	Stable
214	Engineering professionals (excluding electrotechnology)	-155	262	-0.012	247	176	84	0.013	84	678	81	0.020	172	0		31	78	13,009	106	

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
2141	Industrial and production engineers	0	74	0.000	74	14	144	0.005	123	23	223	0.000	216	0	0.521	0	114	2,818	200	Bright
2142	Civil engineers	0	74	0.000	74	120	99	0.037	56	243	122	0.000	216	0	0.318	21	80	3,134	192	Bright
2143	Environmental engineers	-155	262	-0.171	326	0	164	0.000	164	155	144	0.186	52	0.000	5	108	753	261	Flagged	
2144	Mechanical engineers	-36	230	-0.008	233	32	128	0.007	116	105	157	0.015	187	1	0.254	5	100	4,309	170	Flagged
2145	Chemical engineers	10	72	0.024	40	0	164	0.000	164	55	186	0.024	163	0.000	0	114	403	278	Stable	
2146	Mining engineers, metallurgists, and related professionals	0	74	0.000	74	0	164	0.000	164	72	173	0.000	216	0.702	0	114	415	277	Stable	
2149	Engineering professionals not elsewhere classified	26	65	0.023	41	10	151	0.008	106	26	222	0.031	148	0	0.207	0	114	1,178	246	Bright
215	Electrotechnology engineers	-72	240	-0.012	249	110	99	0.018	78	173	141	0.012	193	0		72	58	5,896	149	
2151	Electrical engineers	-51	232	-0.028	275	51	113	0.028	64	146	148	0.029	153	0	0.000	0	114	1,723	231	Stable
2152	Electronics engineers	0	74	0.000	74	6	154	0.002	149	0	252	0.000	216	0		36	72	3,654	181	Stable
2153	Telecommunications engineers	-21	224	-0.040	284	53	112	0.093	22	27	220	0.040	137	0	0.199	36	72	519	271	Flagged
216	Architects, planners, surveyors, and designers	4,060	6	0.101	16	766	52	0.017	79	5,243	18	0.116	77	0		1,334	23	44,320	49	
2161	Building architects	14	69	0.004	66	352	70	0.090	24	234	125	0.032	146	0	0.307	21	80	3,575	185	Bright
2162	Landscape architects	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	152	306	Dim
2163	Product and garment designers	-113	252	-0.006	228	155	86	0.008	110	131	151	0.006	207	0	0.367	0	114	19,080	84	Stable
2164	Town and traffic planners	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	152	306	Dim
2165	Cartographers and surveyors	-51	232	-0.010	240	202	82	0.039	50	350	109	0.010	198	1	0.000	0	114	4,921	163	Flagged
2166	Graphic and multimedia designers	4,210	6	0.344	5	56	111	0.003	133	4,527	21	0.323	25	0	0.982	1,313	24	16,441	91	Bright
22	Health professionals	196		0.061		55		0.016		134		0.097		0		0		3,415		
221	Medical doctors	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	28	331	
2211	Generalist medical practitioners	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	28	331	Dim
222	Nursing and midwifery professionals	152	46	0.322	5	0	164	0.000	164	57	184	0.277	33			0	114	623	266	
2221	Nursing professionals	152	46	0.322	6	0	164	0.000	164	57	184	0.277	34	0.000	0	114	623	266	Stable	
224	Paramedical practitioners	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	31	330	
2240	Paramedical practitioners	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	31	330	Dim
225	Veterinarians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	51	322	
2250	Veterinarians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	51	322	Dim
226	Other health professionals	45	59	0.017	46	55	111	0.020	76	77	171	0.064	114	0		0	114	2,683	201	
2262	Pharmacists	0	74	0.000	74	5	157	0.013	87	0	252	0.000	216	0		0	114	370	281	Stable
2263	Environmental and occupational health and hygiene professionals	45	59	0.020	46	51	113	0.021	76	77	171	0.074	101	0	0.000	0	114	2,313	216	Bright
23	Teaching professionals	-5,048		-0.061		5,048		0.061		4,440		0.156		0		0		78,301		
232	Vocational education teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,524	207	
2320	Vocational education teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,524	207	Dim

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352			#	Rank out of 114	#	Rank out of 351	
233	Secondary education teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	25,192	77	
2330	Secondary education teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	25,192	78	Dim
234	Primary school and early childhood teachers	-6,310	337	-0.197	329	0	164	0.000	164	4,440	21	0.306	28			0	114	25,671	74	
2341	Primary school teachers	-7,573	339	-0.311	338	0	164	0.000	164	1,262	61	0.369	20	0.000		0	114	16,756	90	Stable
2342	Early childhood educators	1,262	13	0.165	13	0	164	0.000	164	3,178	28	0.152	61	1.000		0	114	8,915	129	Stable
235	Other teaching professionals	1,262	13	0.053	31	5,048	16	0.168	14	0	252	0.156	60	0		0	114	24,913	78	
2351	Education methods specialists	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	3,602	184	Dim
2353	Other language teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,313	242	Dim
2354	Other music teachers	1,262	13	0.143	15	0	164	0.000	164	0	252	0.400	16			0	114	10,097	124	Stable
2355	Other arts teachers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,279	217	Dim
2359	Teaching professionals not elsewhere classified	0	74	0.000	74	5,048	17	0.398	9	0	252	0.000	216	0		0	114	7,623	138	Stable
24	Business and administration professionals	29,885		0.141		9,380		0.037		5,172		0.158		0		1,380		242,553		
241	Finance professionals	-852	301	-0.018	260	3,385	21	0.067	34	1,034	68	0.049	128	0		21	80	46,834	47	
2411	Accountants	-841	301	-0.019	264	3,349	23	0.072	32	977	70	0.053	123	0	0.608	21	80	43,125	51	Flagged
2412	Financial and investment advisers	-21	224	-0.009	234	0	164	0.000	164	5	246	0.009	203	0.000		0	114	2,490	209	Stable
2413	Financial analysts	11	71	0.009	54	36	124	0.029	63	52	188	0.009	201	0	0.801	0	114	1,220	244	Bright
242	Administration professionals	-98	246	-0.010	237	0	164	0.000	164	141	149	0.029	152			0	114	10,154	122	
2421	Management and organization analysts	101	49	0.094	17	0	164	0.000	164	51	189	0.090	89	0.000		0	114	1,177	247	Stable
2422	Policy administration professionals	-98	247	-0.026	273	0	164	0.000	164	0	252	0.027	157			0	114	3,617	183	Dim
2423	Personnel and careers professionals	0	74	0.000	74	0	164	0.000	164	64	178	0.000	216	0.080		0	114	4,019	175	Stable
2424	Training and staff development professionals	-101	248	-0.070	302	0	164	0.000	164	26	221	0.073	103	0.820		0	114	1,341	241	Flagged
243	Sales, marketing, and public relations professionals	30,835	1	0.199	9	5,995	14	0.031	59	3,997	22	0.196	48	1		1,358	21	185,564	13	
2431	Advertising and marketing professionals	30,797	1	0.206	9	5,545	16	0.030	61	3,838	23	0.202	48	1	0.171	1,354	23	180,124	14	Bright
2432	Public relations professionals	0	74	0.000	74	0	164	0.000	164	51	189	0.000	216	1.000		0	114	1,763	230	Stable
2433	Technical and medical sales professionals (excluding information and communication technology)	38	62	0.012	51	0	164	0.000	164	43	200	0.017	180	0.778		5	104	3,302	188	Stable
2434	Information and communication technology sales professionals	0	74	0.000	74	450	61	0.545	5	65	176	0.000	216	1	1.000	0	114	375	280	Stable
25	Information and communication technology professionals	-2,226		-0.067		202		0.006		2,726		0.092		0		1,313		31,134		
251	Software and applications developers and analysts	-2,176	318	-0.079	304	172	84	0.007	120	2,657	32	0.110	77	0		1,262	27	25,459	75	
2511	Systems analysts	0	74	0.000	74	30	130	0.007	117	15	230	0.000	216	0	0.000	0	114	4,150	174	Stable
2512	Software developers	339	35	0.138	16	136	92	0.046	44	82	168	0.140	63	0	1.000	0	114	2,801	201	Bright

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
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2513	Web and multimedia developers	-2,529	321	-0.125	317	0	164	0.000	164	2,524	33	0.133	65		1.000	1,262	28	17,780	87	Flagged
2514	Applications programmers	15	67	0.023	43	6	154	0.009	104	36	213	0.022	170	1	0.586	0	114	676	263	Stable
2519	Software and applications developers and analysts not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	53	320	Dim
252	Database and network professionals	-51	231	-0.009	236	30	130	0.005	122	69	173	0.009	199	0		51	63	5,674	150	
2521	Database designers and administrators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,379	239	Dim
2522	Systems administrators	-51	232	-0.030	278	0	164	0.000	164	69	175	0.030	149		0.197	51	63	1,635	233	Flagged
2523	Computer network professionals	0	74	0.000	74	30	130	0.012	92	0	252	0.000	216	0		0	114	2,422	214	Stable
2529	Database and network professionals not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	238	291	Dim
26	Legal, social, and cultural professionals	-8,306		-0.242		6,522		0.200		6,754		0.423		0		2,625		26,015		
261	Legal professionals	-51	232	-0.015	255	152	87	0.044	45	202	134	0.015	187	1		101	51	3,273	188	
2611	Lawyers	-51	232	-0.059	295	152	88	0.158	15	101	160	0.061	116	1	1.000	101	52	808	258	Flagged
2619	Legal professionals not elsewhere classified	0	74	0.000	74	0	164	0.000	164	101	160	0.000	216		0.000	0	114	2,465	212	Stable
262	Librarians, archivists, and curators	0	74	0.000	74	30	130	0.086	24	0	252	0.000	216	0		0	114	315	286	
2621	Archivists and curators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	300	287	Dim
2622	Librarians and related information professionals	0	74	0.000	74	30	130	0.667	2	0	252	0.000	216	0		0	114	15	339	Stable
263	Social and religious professionals	-51	231	-0.012	247	0	164	0.000	164	101	160	0.035	141			0	114	4,285	171	
2631	Economists	51	55	0.017	47	0	164	0.000	164	51	189	0.016	182		1.000	0	114	3,097	193	Stable
2632	Sociologists, anthropologists and related professionals	-101	248	-0.500	341	0	164	0.000	164	51	189	0.667	10		0.000	0	114	101	310	Stable
2635	Social work and counseling professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,078	249	Dim
2636	Religious professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	10	341	Dim
264	Authors, journalists, and linguists	0	74	0.000	74	6,326	14	0.424	7	3,806	23	0.293	29	1		2,524	16	8,611	130	
2641	Authors and related writers	0	74	0.000	74	3,786	21	0.422	8	2,524	33	0.486	13	1	0.500	1,262	28	5,193	155	Stable
2642	Journalists	0	74	0.000	74	2,524	26	0.441	7	1,277	56	0.000	216	1	0.988	1,262	28	3,194	190	Bright
2643	Translators, interpreters, and other linguists	0	74	0.000	74	15	143	0.063	36	5	242	0.000	216	0	1.000	0	114	223	294	Stable
265	Creative and performing artists	-8,205	339	-0.463	340	15	144	0.002	149	2,645	32	0.736	8	0		0	114	9,531	126	
2651	Visual artists	0	74	0.000	74	0	164	0.000	164	1,262	61	0.000	216		0.000	0	114	6,310	147	Stable
2652	Musicians, singers, and composers	-4,103	326	-0.692	346	0	164	0.000	164	912	77	1.529	5		1.000	0	114	1,823	227	Flagged
2653	Dancers and choreographers	-4,103	326	-0.900	348	0	164	0.000	164	456	95	1.636	4		1.000	0	114	456	275	Flagged
2654	Film, stage, and related directors and producers	0	74	0.000	74	15	144	0.016	82	15	230	0.000	216	0	0.000	0	114	942	253	Stable
3	Technicians and associate professionals	-1,825		-0.004		65,510		0.113		18,866		0.095		0		6,230		512,969		
31	Science and engineering associate professionals	5,454		0.032		2,029		0.011		4,230		0.119		0		184		178,278		

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
311	Physical and engineering science technicians	-584	290	-0.009	237	640	54	0.010	97	1,123	66	0.141	62	0		65	58	62,498	39	
3111	Chemical and physical science technicians	-594	291	-0.193	329	11	148	0.004	127	28	219	0.294	29	0	0.220	5	104	2,476	210	Flagged
3112	Civil engineering technicians	3,306	8	0.398	4	290	76	0.024	71	187	137	0.362	21	0	0.500	0	114	11,616	113	Bright
3113	Electrical engineering technicians	-196	266	-0.017	259	0	164	0.000	164	142	149	0.026	158		0.221	0	114	11,245	118	Stable
3114	Electronics engineering technicians	-694	294	-0.140	322	68	109	0.016	81	163	142	0.260	39	0	0.207	34	78	4,264	172	Flagged
3115	Mechanical engineering technicians	-2,227	319	-0.072	303	77	107	0.003	139	228	128	0.089	90	0	0.318	5	108	28,820	69	Flagged
3116	Chemical engineering technicians	-14	220	-0.010	239	152	88	0.095	21	57	185	0.017	181	0	0.576	0	114	1,444	237	Flagged
3117	Mining and metallurgical technicians	36	63	0.059	27	0	164	0.000	164	87	165	0.057	118		0.583	0	114	648	265	Stable
3118	Draughtspersons	-200	267	-0.094	311	43	120	0.022	74	232	127	0.098	83	0	0.113	21	80	1,934	224	Flagged
3119	Physical and engineering science technicians not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	50	324	Dim
312	Mining, manufacturing, and construction supervisors	5,835	2	0.062	25	1,319	35	0.013	85	2,893	28	0.097	84	1		114	50	99,345	22	
3121	Mining supervisors	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	161	303	Dim
3122	Manufacturing supervisors	65	52	0.001	72	283	77	0.004	128	1,829	47	0.013	191	1	0.110	21	88	72,379	34	Bright
3123	Construction supervisors	5,770	3	0.274	8	1,036	46	0.037	54	1,063	67	0.350	23	1	0.168	93	56	26,805	74	Bright
313	Process control technicians	816	18	0.073	22	44	118	0.004	130	169	141	0.110	77	0		5	100	12,006	112	
3131	Power production plant operators	0	74	0.000	74	9	153	0.004	130	19	226	0.000	216	0	0.505	0	114	2,532	206	Bright
3132	Incinerator and water treatment plant operators	-148	260	-0.038	280	5	161	0.001	152	36	214	0.042	133	0	0.279	0	114	3,751	180	Stable
3133	Chemical processing plant controllers	14	68	0.007	62	5	161	0.002	141	60	181	0.011	195	0	0.160	0	114	2,187	220	Stable
3134	Petroleum and natural gas refining plant operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	24	334	Dim
3135	Metal production process controllers	-31	227	-0.032	279	26	135	0.027	65	10	237	0.088	91	0	0.000	5	100	920	255	Flagged
3139	Process control technicians not elsewhere classified	980	17	0.608	1	0	164	0.000	164	43	199	0.480	14		0.143	0	114	2,592	203	Stable
314	Life science technicians and related associate professionals	-577	289	-0.178	326	26	133	0.010	98	9	237	0.478	14	1		0	114	2,675	202	
3141	Life science technicians (excluding medical)	0	74	0.000	74	26	134	0.155	16	5	246	0.000	216	1	1.000	0	114	142	308	Stable
3142	Agricultural technicians	-577	290	-0.192	327	0	164	0.000	164	5	246	0.520	12		0.000	0	114	2,432	213	Stable
3143	Forestry technicians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	101	310	Dim
315	Ship and aircraft controllers and technicians	-36	228	-0.020	266	0	164	0.000	164	36	206	0.020	172			0	114	1,754	230	
3151	Ship engineers	-36	229	-0.029	277	0	164	0.000	164	36	207	0.030	152		0.000	0	114	1,203	245	Stable
3152	Ship deck officers and pilots	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	542	269	Dim
3155	Air traffic safety electronics technicians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	9	342	Dim
32	Health associate professionals	642		0.024		1,496		0.052		1,516		0.158		0		36		27,511		
321	Medical and pharmaceutical technicians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	19	336	

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
3213	Pharmaceutical technicians and assistants	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	19	337	Dim
322	Nursing and midwifery associate professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	24	332	
3221	Nursing associate professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	24	332	Dim
323	Traditional and complementary medicine associate professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,524	207	
3230	Traditional and complementary medicine associate professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,524	207	Dim
324	Veterinary technicians and assistants	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	69	317	
3240	Veterinary technicians and assistants	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	69	317	Dim
325	Other health associate professionals	642	23	0.026	38	1,496	33	0.057	40	1,516	49	0.175	53	0		36	72	24,874	78	
3252	Medical records and health information technicians	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	5	349	Dim
3255	Physiotherapy technicians and assistants	456	28	0.022	44	1,368	35	0.061	38	1,368	53	0.195	50	0	0.000	0	114	21,218	80	Stable
3256	Medical assistants	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	9	342	Dim
3257	Environmental and occupational health inspectors and associates	186	44	0.054	30	128	95	0.034	59	148	147	0.052	124	0	0.035	36	72	3,642	182	Bright
33	Business and administration associate professionals	-3,861		-0.015		61,158		0.198		11,016		0.058		0		2,615		248,093		
331	Financial and mathematical associate professionals	-2,332	319	-0.032	278	5,001	17	0.066	34	5,088	19	0.102	82	0		2,275	16	70,981	34	
3311	Securities and finance dealers and brokers	0	74	0.000	74	0	164	0.000	164	149	146	0.000	216		0.000	98	55	1,890	225	Stable
3312	Credit and loans officers	-746	297	-0.017	258	4,874	18	0.100	20	2,877	29	0.124	73	0	0.068	766	39	43,776	50	Flagged
3313	Accounting associate professionals	-1,115	309	-0.056	293	127	96	0.007	120	1,848	46	0.074	102	0	0.025	1,262	28	18,725	85	Flagged
3314	Statistical, mathematical, and related associate professionals	0	74	0.000	74	0	164	0.000	164	15	230	0.000	216		0.000	0	114	167	302	Stable
3315	Valuers and loss assessors	-470	286	-0.068	300	0	164	0.000	164	199	135	0.071	106		0.254	149	47	6,424	146	Flagged
332	Sales and purchasing agents and brokers	-1,999	317	-0.022	267	54,389	1	0.384	9	1,882	45	0.053	121	1		127	48	87,162	29	
3321	Insurance representatives	-1,617	317	-0.056	294	52,949	1	0.661	3	505	92	0.127	71	1	0.200	51	63	27,118	72	Flagged
3322	Commercial sales representatives	121	48	0.008	57	1,286	38	0.078	26	603	84	0.016	183	0	0.759	0	114	15,275	96	Bright
3323	Buyers	-498	288	-0.012	246	136	91	0.003	135	731	79	0.020	173	0	0.336	77	58	42,385	52	Flagged
3324	Trade brokers	-5	218	-0.002	218	19	140	0.008	114	42	201	0.002	210	0	0.000	0	114	2,384	215	Stable
333	Business services agents	139	46	0.008	56	1,067	44	0.058	39	1,395	51	0.062	114	1		107	50	17,410	88	
3331	Clearing and forwarding agents	46	58	0.010	53	6	154	0.001	151	65	177	0.010	199	0	0.096	6	96	4,715	166	Bright
3332	Conference and event planners	424	30	0.086	19	0	164	0.000	164	977	69	0.095	85		0.000	0	114	5,358	154	Stable
3333	Employment agents and contractors	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	354	284	Dim
3334	Real estate agents and property managers	-432	282	-0.079	305	1,061	45	0.174	14	253	121	0.082	95	1	0.200	51	63	5,034	158	Flagged
3339	Business services agents not elsewhere classified	101	49	0.055	29	0	164	0.000	164	101	160	0.053	121		0.000	51	63	1,949	223	Stable

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
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334	Administrative and specialized secretaries	280	36	0.004	65	701	52	0.010	98	2,597	32	0.017	180	0		106	50	72,062	34	
3341	Office supervisors	415	31	0.008	59	448	62	0.008	107	2,414	37	0.019	176	0	0.081	51	63	53,280	44	Bright
3342	Legal secretaries	0	74	0.000	74	253	79	0.296	12	55	187	0.000	216	1	0.085	0	114	601	268	Stable
3343	Administrative and executive secretaries	-135	257	-0.007	231	0	164	0.000	164	128	153	0.014	190		0.038	56	61	18,093	86	Flagged
3344	Medical secretaries	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	87	314	Dim
335	Regulatory government associate professionals	51	55	0.118	16	0	164	0.000	164	55	186	0.112	77			0	114	477	272	
3351	Customs and border inspectors	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	23	335	Dim
3352	Government tax and excise officials	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	5	349	Dim
3353	Government social benefits officials	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	224	292	Dim
3354	Government licensing officials	0	74	0.000	74	0	164	0.000	164	5	246	0.000	216		0.000	0	114	64	318	Stable
3359	Regulatory government associate professionals not elsewhere classified	51	55	0.457	2	0	164	0.000	164	51	189	0.372	19		0.000	0	114	161	304	Stable
34	Legal, social, cultural, and related associate professionals	1,352		0.034		132		0.003		1,530		0.034		0		1,262		41,319		
341	Legal, social, and religious associate professionals	-5	215	0.000	211	51	113	0.003	134	137	149	0.000	215	0		0	114	15,181	96	
3411	Legal and related associate professionals	0	74	0.000	74	51	113	0.076	27	87	165	0.000	216	0	0.417	0	114	616	267	Stable
3412	Social work associate professionals	0	74	0.000	74	0	164	0.000	164	51	189	0.000	216		0.000	0	114	802	259	Stable
3413	Religious associate professionals	-5	215	0.000	214	0	164	0.000	164	0	252	0.000	214			0	114	13,764	106	Dim
342	Sports and fitness workers	1,368	11	0.429	3	0	164	0.000	164	456	95	0.353	21			0	114	4,559	168	
3423	Fitness and recreation instructors and program leaders	1,368	12	0.429	3	0	164	0.000	164	456	95	0.353	22		0.000	0	114	4,559	168	Stable
343	Artistic, cultural, and culinary associate professionals	-11	219	0.000	214	82	105	0.004	129	937	72	0.000	213	0		1,262	28	21,580	78	
3431	Photographers	0	74	0.000	74	0	164	0.000	164	15	230	0.000	216		0.000	0	114	7,534	141	Stable
3432	Interior designers and decorators	-11	219	-0.010	241	82	106	0.074	29	5	242	0.010	197	0	0.000	1,262	28	1,018	250	Flagged
3434	Chefs	0	74	0.000	74	0	164	0.000	164	916	76	0.000	216		0.000	0	114	12,521	110	Stable
3435	Other artistic and cultural associate professionals	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	506	272	Dim
35	Information and communication technicians	-5,413		-0.233		695		0.038		575		0.375		0		2,133		17,768		
351	Information and communication technology operations and user support technicians	168	44	0.012	50	695	53	0.047	43	541	90	0.088	90	0		135	48	14,224	104	
3511	Information and communication technology operations technicians	-30	226	-0.010	238	92	102	0.029	62	240	123	0.068	107	0	0.144	99	53	3,062	195	Flagged
3512	Information and communication technology user support technicians	-5	215	-0.005	226	17	141	0.019	78	19	227	0.005	208	0	0.335	0	114	889	256	Stable
3513	Computer network and systems technicians	202	40	0.020	45	585	57	0.055	41	232	126	0.103	81	1	0.376	36	71	10,097	123	Bright
3514	Web technicians	0	74	0.000	74	0	164	0.000	164	51	189	0.000	216		1.000	0	114	176	300	Stable

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
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352	Telecommunications and broadcasting technicians	-5,580	336	-0.612	345	0	164	0.000	164	34	215	1.016	6			1,998	19	3,544	185	
3521	Broadcasting and audiovisual technicians	-5,993	337	-0.902	349	0	164	0.000	164	0	252	1.643	3			1,998	19	651	264	Flagged
3522	Telecommunications engineering technicians	413	32	0.166	12	0	164	0.000	164	34	216	0.165	56	1.000	0	114	2,893	198		Stable
4	Clerical support workers	-10,130		-0.013		58,404		0.071		44,633		0.055		0		3,034		769,655		
41	General and keyboard clerks	1,492		0.015		1,581		0.015		5,250		0.044		0		413		104,238		
411	General office clerks	749	21	0.009	55	1,117	42	0.013	89	4,079	21	0.040	136	0		322	41	87,671	28	
4110	General office clerks	749	22	0.009	55	1,117	43	0.013	90	4,079	22	0.040	136	0	0.090	322	45	87,671	28	Bright
412	Secretaries (general)	36	63	0.008	55	21	135	0.005	124	455	95	0.034	142	0		21	80	4,520	169	
4120	Secretaries (general)	36	63	0.008	56	21	136	0.005	124	455	103	0.034	143	0	0.111	21	80	4,520	169	Bright
413	Keyboard operators	707	23	0.062	25	443	62	0.035	56	716	80	0.073	102	0		70	58	12,047	112	
4131	Typists and word processing operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			34	78	1,688	232	Stable
4132	Data entry clerks	707	23	0.073	22	443	63	0.041	47	716	81	0.085	94	0	0.050	36	72	10,359	122	Bright
42	Customer services clerks	-7,291		-0.029		50,091		0.170		21,770		0.084		0		1,578		244,071		
421	Tellers, money collectors, and related clerks	-2,438	319	-0.016	257	46,139	2	0.235	13	12,238	11	0.089	89	0		51	63	150,262	19	
4211	Bank tellers and related clerks	-791	298	-0.014	251	2,002	28	0.035	57	6,016	15	0.078	99	0	0.072	51	63	54,657	43	Flagged
4212	Bookmakers, croupiers, and related gaming workers	0	74	0.000	74	0	164	0.000	164	456	95	0.000	216		0.000	0	114	2,279	217	Stable
4213	Pawnbrokers and moneylenders	-608	292	-0.109	315	315	74	0.060	39	722	80	0.205	47	0	0.349	0	114	4,956	161	Stable
4214	Debt collectors and related workers	-1,040	307	-0.012	247	43,822	3	0.332	11	5,044	20	0.092	88	1	0.120	0	114	88,369	27	Flagged
422	Client information workers	-4,853	332	-0.049	290	3,952	20	0.040	47	9,533	13	0.076	100	0		1,528	21	93,809	25	
4221	Travel consultants and clerks	-236	271	-0.018	261	36	124	0.003	138	324	113	0.041	135	0	0.112	456	41	12,774	109	Flagged
4222	Contact center information clerks	357	33	0.033	33	131	94	0.012	95	552	90	0.052	126	0	0.253	0	114	11,014	120	Bright
4223	Telephone switchboard operators	87	51	0.068	24	0	164	0.000	164	36	207	0.066	109		0.000	0	114	1,364	240	Stable
4224	Hotel receptionists	-456	283	-0.023	269	1,368	35	0.066	35	2,330	38	0.023	167	0	0.402	912	38	19,461	83	Flagged
4225	Enquiry clerks	-75	243	-0.003	220	361	68	0.013	89	3,671	24	0.027	156	0	0.079	123	49	28,325	70	Flagged
4226	Receptionists (general)	-139	259	-0.018	260	51	113	0.006	121	1,212	66	0.064	114	0	0.000	0	114	7,748	136	Stable
4227	Survey and market research interviewers	0	74	0.000	74	1,450	34	0.482	6	498	94	0.000	216	0	0.000	0	114	1,559	234	Stable
4229	Client information workers not elsewhere classified	-4,391	330	-0.275	337	556	58	0.046	45	910	78	0.319	27	0	0.681	37	70	11,564	115	Flagged
43	Numerical and material recording clerks	-1,873		-0.005		6,135		0.017		12,167		0.026		0		963		364,300		
431	Numerical clerks	-318	273	-0.002	217	3,244	23	0.017	78	9,278	13	0.029	154	0		768	38	183,433	13	
4311	Accounting and bookkeeping clerks	-336	277	-0.003	221	2,830	24	0.022	73	5,749	17	0.018	179	0	0.282	704	40	123,269	21	Flagged
4312	Statistical, finance, and insurance clerks	-326	275	-0.007	230	413	65	0.009	101	3,396	26	0.061	115	0	0.458	64	59	44,592	49	Flagged
4313	Payroll clerks	344	34	0.023	42	0	164	0.000	164	133	150	0.022	169		0.107	0	114	15,572	94	Stable
432	Material recording and transport clerks	-1,555	316	-0.009	233	2,891	23	0.016	80	2,889	28	0.023	166	0		196	45	180,867	13	

SEMI-SKILLED - WHITE-COLLAR

Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
4321	Stock clerks	-839	300	-0.006	229	1,704	32	0.013	86	2,172	40	0.020	174	0	0.199	103	51	130,060	20	Flagged
4322	Production clerks	-556	289	-0.015	252	1,150	42	0.031	60	406	105	0.031	147	0	0.174	6	99	36,555	61	Flagged
4323	Transport clerks	-159	264	-0.011	245	36	124	0.003	140	310	117	0.037	139	1	0.233	87	57	14,252	103	Flagged
44	Other clerical support workers	-2,458		-0.041		597		0.010		5,445		0.130		0		79		57,045		
441	Other clerical support workers	-2,458	319	-0.041	284	597	56	0.010	97	5,445	18	0.130	67	0		79	57	57,045	40	
4412	Mail carriers and sorting clerks	231	37	0.032	37	293	75	0.037	52	313	116	0.124	72	0	0.116	0	114	7,544	140	Stable
4413	Coding, proofreading, and related clerks	-2,928	323	-0.372	340	0	164	0.000	164	1,267	59	0.456	15		0.000	0	114	4,952	162	Stable
4414	Scribes and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	472	273	Dim
4415	Filing and copying clerks	-101	248	-0.015	254	51	113	0.008	115	1,477	50	0.394	18	0	0.855	0	114	6,605	145	Flagged
4416	Personnel clerks	152	45	0.005	65	238	80	0.008	113	2,085	41	0.025	162	0	0.035	21	80	29,890	66	Bright
4419	Clerical support workers not elsewhere classified	187	43	0.025	39	15	144	0.002	143	303	118	0.048	130	0	0.049	58	60	7,583	139	Bright
5	Service and sales workers	-75,419		-0.027		134,898		0.047		126,262		0.115		0		68,323		2,741,870		
51	Personal service workers	-7,315		-0.008		23,791		0.024		56,029		0.085		0		22,631		950,779		
511	Travel attendants, conductors, and guides	7,140	2	0.163	14	1,937	31	0.037	56	1,326	54	0.183	52	0		0	114	51,060	44	
5111	Travel attendants and travel stewards	-72	241	-0.015	253	0	164	0.000	164	0	252	0.015	188			0	114	4,727	165	Dim
5112	Transport conductors	5,768	4	0.295	7	1,937	31	0.071	33	363	108	0.320	26	0	0.000	0	114	25,306	76	Stable
5113	Travel guides	1,444	11	0.074	21	0	164	0.000	164	962	71	0.071	105		0.000	0	114	21,028	81	Stable
512	Cooks	-5,104	335	-0.010	242	5,960	15	0.012	93	18,226	7	0.037	140	0		11,622	7	488,849	1	
5120	Cooks	-5,104	335	-0.010	242	5,960	15	0.012	93	18,226	8	0.037	140	0	0.390	11,622	7	488,849	1	Flagged
513	Waiters and bartenders	-4,319	329	-0.015	255	15,889	7	0.054	41	34,289	1	0.173	53	1		10,553	8	275,868	5	
5131	Waiters	-77	244	0.000	213	15,433	9	0.061	37	28,443	4	0.170	55	1	0.165	8,835	9	238,281	9	Flagged
5132	Bartenders	-4,242	328	-0.101	313	456	59	0.012	94	5,846	16	0.193	51	0	0.216	1,718	21	37,586	59	Flagged
515	Building and housekeeping supervisors	-524	288	-0.004	224	5	157	0.000	163	1,732	47	0.011	195	0		456	41	134,196	19	
5151	Cleaning and housekeeping supervisors in offices, hotels, and other establishments	451	29	0.012	50	5	157	0.000	163	942	72	0.012	193	0	0.000	0	114	37,943	58	Bright
5152	Domestic housekeepers	0	74	0.000	74	0	164	0.000	164	456	95	0.000	216		0.000	0	114	3,158	191	Stable
5153	Building caretakers	-975	305	-0.010	243	0	164	0.000	164	334	112	0.011	196		0.000	456	41	93,095	26	Flagged
516	Other personal services workers	-4,508	331	-0.848	347	0	164	0.000	164	456	95	1.506	5			0	114	807	258	
5164	Pet groomers and animal care workers	51	55	0.177	11	0	164	0.000	164	0	252	0.163	58			0	114	336	285	Stable
5169	Personal services workers not elsewhere classified	-4,559	332	-0.906	350	0	164	0.000	164	456	95	1.658	2		0.000	0	114	471	274	Stable
52	Sales workers	-33,694		-0.024		95,699		0.065		69,191		0.102		0		45,642		1,388,008		
521	Street and market salespersons	-14,546	345	-0.026	271	18,931	5	0.034	59	17,669	8	0.058	117	0		18,323	1	544,925	1	
5211	Stall and market salespersons	-2,524	320	-0.026	271	0	164	0.000	164	2,524	33	0.026	160		0.000	2,524	16	95,067	24	Flagged
5212	Street food salespersons	-12,022	343	-0.026	272	18,931	5	0.040	48	15,145	10	0.065	111	0	0.083	15,799	3	449,859	2	Flagged

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
522	Shop salespersons	-7,879	339	-0.021	267	4,745	18	0.013	86	23,766	4	0.106	79	0		14,012	3	364,246	3	
5221	Shopkeepers	1,232	15	0.008	58	0	164	0.000	164	15	230	0.008	204		0.000	1,262	28	156,694	18	Stable
5222	Shop supervisors	-456	283	-0.021	267	14	144	0.001	156	36	207	0.021	172	0	0.000	6	96	21,270	79	Flagged
5223	Shop sales assistants	-8,656	340	-0.044	288	4,731	19	0.025	69	23,715	5	0.196	49	0	0.214	12,744	4	186,281	13	Flagged
523	Cashiers and ticket clerks	-432	280	-0.005	226	72	108	0.001	153	2,748	30	0.033	144	0		53	61	80,130	31	
5230	Cashiers and ticket clerks	-432	281	-0.005	227	72	108	0.001	154	2,748	31	0.033	145	0	0.418	53	62	80,130	31	Flagged
524	Other sales workers	-10,837	342	-0.026	273	71,950	1	0.153	17	25,008	4	0.173	53	1		13,253	3	398,707	3	
5242	Sales demonstrators	-375	279	-0.009	237	7,297	14	0.148	18	1,891	45	0.117	76	0	0.296	5	104	42,058	54	Flagged
5243	Door-to-door salespersons	9,472	2	0.062	26	8,398	13	0.049	43	5,623	18	0.102	82	0	0.163	136	48	163,433	15	Bright
5244	Contact center salespersons	461	26	0.032	35	771	52	0.049	42	2,829	30	0.128	70	0	0.045	1,754	20	14,819	98	Bright
5245	Service station attendants	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	52	321	Dim
5246	Food service counter attendants	-21,506	347	-0.124	316	3,786	21	0.024	70	13,077	11	0.245	43	1	0.386	11,359	8	151,517	19	Flagged
5249	Sales workers not elsewhere classified	1,112	16	0.043	32	51,698	2	0.658	4	1,588	49	0.265	38	1	0.115	0	114	26,828	73	Bright
53	Personal care workers	0		0.000		0		0.000		0		0.000				0		24		
531	Child care workers and teachers' aides	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	9	342	
5311	Child care workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	9	342	Dim
532	Personal care workers in health services	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	14	339	
5329	Personal care workers in health services not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	14	340	Dim
54	Protective services workers	-34,411		-0.079		15,408		0.037		1,042		0.229		0		51		403,060		
541	Protective services workers	-34,411	350	-0.079	304	15,408	9	0.037	56	1,042	68	0.229	44	0		51	63	403,060	2	
5414	Security guards	-34,355	350	-0.079	306	15,408	10	0.037	55	1,042	68	0.231	44	1	0.166	51	63	400,134	3	Flagged
5419	Protective services workers not elsewhere classified	-56	238	-0.019	263	0	164	0.000	164	0	252	0.019	177			0	114	2,926	197	Dim
6	Skilled agricultural, forestry, and fishery workers	-143		-0.016		0		0.000		5		0.021				0		8,951		
61	Market-oriented skilled agricultural workers	-143		-0.016		0		0.000		5		0.021				0		8,866		
611	Market gardeners and crop growers	-138	258	-0.016	257	0	164	0.000	164	0	252	0.021	172			0	114	8,640	130	
6111	Field crop and vegetable growers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	283	288	Dim
6112	Tree and shrub crop growers	-138	258	-0.020	266	0	164	0.000	164	0	252	0.026	159			0	114	6,831	144	Dim
6113	Gardeners and horticultural and nursery growers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,527	235	Dim
612	Animal producers	0	74	0.000	74	0	164	0.000	164	5	246	0.000	216			0	114	217	294	
6121	Livestock and dairy producers	0	74	0.000	74	0	164	0.000	164	5	246	0.000	216		0.000	0	114	193	296	Stable
6122	Poultry producers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	24	333	Dim
613	Mixed crop and animal producers	-5	215	-0.333	338	0	164	0.000	164	0	252	0.400	16			0	114	9	342	
6130	Mixed crop and animal producers	-5	215	-0.333	339	0	164	0.000	164	0	252	0.400	16			0	114	9	342	Dim

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
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62	Market-oriented skilled forestry, fishery, and hunting workers	0		0.000		0		0.000		0		0.000				0		85		
622	Fishery workers, hunters, and trappers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	85	315	
6221	Aquaculture workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	85	315	Dim
7	Craft and related trades workers	-256,439		-0.159		45,195		0.032		94,709		0.223		0		43,811		1,351,965		
71	Building and related trades workers, excluding electricians	-3,720		-0.089		2,982		0.072		3,930		0.214		0		0		38,263		
711	Building frame and related trades workers	-5,960	336	-0.448	340	2,107	26	0.223	13	2,201	39	0.578	10	0		0	114	7,329	141	
7111	House builders	-912	303	-0.546	345	2,107	27	0.735	1	562	88	0.750	7	0	0.000	0	114	760	260	Stable
7112	Bricklayers and related workers	0	74	0.000	74	0	164	0.000	164	72	173	0.000	216		0.000	0	114	1,411	238	Stable
7114	Concrete placers, concrete finishers, and related workers	0	74	0.000	74	0	164	0.000	164	182	139	0.000	216		0.000	0	114	526	270	Stable
7115	Carpenters and joiners	-5,048	334	-0.523	343	0	164	0.000	164	1,385	52	0.709	9		0.911	0	114	4,597	167	Flagged
7119	Building frame and related trades workers not elsewhere classified	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	34	329	Dim
712	Building finishers and related trades workers	2,242	8	0.166	12	875	49	0.053	41	318	113	0.177	52	1		0	114	15,762	93	
7121	Roofers	0	74	0.000	74	0	164	0.000	164	101	159	0.000	216		0.000	0	114	193	297	Stable
7124	Insulation workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	47	325	Dim
7126	Plumbers and pipe fitters	1,466	10	0.164	14	832	50	0.074	30	159	143	0.164	57	0	0.000	0	114	10,426	121	Stable
7127	Air conditioning and refrigeration mechanics	776	20	0.180	10	43	120	0.008	108	58	182	0.212	46	1	0.000	0	114	5,097	157	Bright
713	Painters, building structure cleaners, and related trades workers	-1	213	0.000	74	0	164	0.000	164	1,411	51	0.001	213			0	114	15,172	96	
7131	Painters and related workers	0	74	0.000	74	0	164	0.000	164	108	156	0.000	216		0.000	0	114	2,676	202	Stable
7132	Spray painters and varnishers	-1	213	0.000	211	0	164	0.000	164	1,303	55	0.002	212		0.004	0	114	12,496	111	Stable
72	Metal, machinery, and related trades workers	-3,847		-0.033		1,793		0.016		3,070		0.088		0		46		113,608		
721	Sheet and structural metal workers, molders and welders, and related workers	-5,520	336	-0.162	324	1,408	34	0.047	43	1,485	49	0.180	52	0		0	114	28,449	69	
7211	Metal molders and core makers	-108	251	-0.042	285	102	100	0.040	49	20	225	0.055	119	0	0.000	0	114	2,476	211	Stable
7212	Welders and flame cutters	-5,330	336	-0.248	336	1,306	37	0.075	28	1,413	51	0.287	32	0	0.011	0	114	16,156	92	Stable
7213	Sheet metal workers	0	74	0.000	74	0	164	0.000	164	37	206	0.000	216		0.000	0	114	8,768	130	Stable
7214	Structural metal preparers and erectors	-82	245	-0.075	304	0	164	0.000	164	0	252	0.078	98			0	114	1,006	251	Dim
7215	Riggers and cable splicers	0	74	0.000	74	0	164	0.000	164	15	230	0.000	216		0.000	0	114	45	326	Stable
722	Blacksmiths, tool makers, and related trades workers	-481	286	-0.035	279	36	124	0.003	138	113	155	0.048	129	0		0	114	13,142	106	
7221	Blacksmiths, hammersmiths, and forging press workers	-123	255	-0.028	274	0	164	0.000	164	15	229	0.029	154		0.000	0	114	4,238	173	Stable
7222	Tool makers and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	133	309	Dim

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
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7223	Metal working machine tool setters and operators	-359	278	-0.044	287	36	127	0.005	125	91	164	0.065	110	0	0.200	0	114	7,832	135	Stable
7224	Metal polishers, wheel grinders, and tool sharpeners	0	74	0.000	74	0	164	0.000	164	6	239	0.000	216	0.000	0	114	938	254	Stable	
723	Machinery mechanics and repairers	2,154	8	0.031	37	349	70	0.005	123	1,473	50	0.055	118	1	46	63	72,017	34	Stable	
7231	Motor vehicle mechanics and repairers	1,935	9	0.069	23	0	164	0.000	164	920	74	0.086	93	0.836	36	72	29,895	65	Stable	
7232	Aircraft engine mechanics and repairers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	0	114	5	348	Dim	
7233	Agricultural and industrial machinery mechanics and repairers	219	39	0.005	64	349	71	0.008	109	553	89	0.034	144	1	0.285	10	94	41,961	55	Bright
7234	Bicycle and related repairers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	0	114	157	305	Dim	
73	Handicraft and printing workers	-43,146		-0.140		4,003		0.015		17,550		0.191		0	3,792		264,670		Stable	
731	Handicraft workers	-10,030	340	-0.081	306	2,697	24	0.023	72	4,649	20	0.110	77	0	1,262	28	114,197	22	Stable	
7311	Precision-instrument makers and repairers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	0	114	98	312	Dim	
7312	Musical instrument makers and tuners	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	0	114	1,262	243	Dim	
7313	Jewelry and precious-metal workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	1,262	28	11,359	117	Stable	
7315	Glass makers, cutters, grinders, and finishers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216	0	0	114	37	328	Dim	
7316	Sign writers, decorative painters, engravers, and etchers	0	74	0.000	74	0	164	0.000	164	1,262	61	0.000	216	1.000	0	114	41,850	56	Stable	
7317	Handicraft workers in wood, basketry, and related materials	0	74	0.000	74	0	164	0.000	164	1,262	61	0.000	216	0.000	0	114	11,413	116	Stable	
7318	Handicraft workers in textile, leather, and related materials	-10,030	341	-0.192	328	699	53	0.016	80	127	154	0.279	33	1	0.460	0	114	42,185	53	Flagged
7319	Handicraft workers not elsewhere classified	0	74	0.000	74	1,998	29	0.250	13	1,998	44	0.000	216	0	1.000	0	114	5,993	149	Stable
732	Printing trades workers	-33,116	349	-0.180	326	1,306	37	0.009	105	12,902	11	0.248	42	0	2,529	15	150,473	19	Stable	
7321	Pre-press technicians	-1,262	312	-0.090	310	1,262	39	0.090	23	1,262	61	0.094	86	0	0.000	0	114	12,781	108	Stable
7322	Printers	-21,757	348	-0.228	333	44	119	0.001	158	10,373	13	0.267	37	0	0.449	1,267	27	73,603	32	Flagged
7323	Print finishing and binding workers	-10,097	342	-0.136	321	0	164	0.000	164	1,267	60	0.256	42	0.004	1,262	28	64,089	37	Flagged	
74	Electrical and electronic trades workers	467		0.010		564		0.012		1,209		0.138		0	151		45,423		Stable	
741	Electrical equipment installers and repairers	2,174	8	0.071	22	210	81	0.006	121	814	78	0.098	83	0	0	114	32,753	63	Stable	
7411	Building and related electricians	621	24	0.054	31	0	164	0.000	164	501	93	0.052	125	0.948	0	114	12,226	112	Stable	
7412	Electrical mechanics and fitters	756	21	0.087	18	88	104	0.009	100	116	155	0.131	67	0	0.162	0	114	9,397	127	Stable
7413	Electrical line installers and repairers	797	19	0.077	20	122	97	0.011	97	197	136	0.120	74	0	0.099	0	114	11,130	119	Stable
742	Electronics and telecommunications installers and repairers	-1,706	317	-0.119	315	354	69	0.027	64	395	105	0.230	44	1	151	46	12,670	109	Stable	
7421	Electronics mechanics and servicers	-886	302	-0.151	324	0	164	0.000	164	80	170	0.312	28	0.732	0	114	4,990	160	Flagged	
7422	Information and communication technology installers and servicers	-820	299	-0.096	312	354	69	0.044	46	315	115	0.176	53	1	0.191	151	46	7,680	137	Flagged

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352			#	Rank out of 114	#	Rank out of 351	
75	Food processing, wood working, garment, and other craft and related trades workers	-206,193		-0.188		35,854		0.039		68,948		0.252		0		39,822		890,001		
751	Food processing and related trades workers	-103,601	353	-0.199	329	1,353	35	0.003	134	35,716	1	0.305	28	0		8,290	9	415,746	2	
7511	Butchers, fishmongers, and related food preparers	-4,421	331	-0.089	309	0	164	0.000	164	3,368	27	0.105	80	1	0.005	1,262	28	45,068	48	Flagged
7512	Bakers, pastry cooks, and confectionery makers	-97,972	353	-0.217	331	1,262	39	0.004	132	30,896	3	0.338	24	0	0.105	7,028	10	352,945	5	Flagged
7513	Dairy product makers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	19	336	Dim
7514	Fruit, vegetable, and related preservers	-1,177	311	-0.128	319	0	164	0.000	164	1,276	57	0.159	60		0.996	0	114	8,053	132	Flagged
7515	Food and beverage tasters and graders	-31	228	-0.003	223	91	103	0.009	99	176	141	0.023	168	0	0.284	0	114	9,661	125	Stable
752	Wood treaters, cabinet makers, and related trades workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	6,669	144	
7522	Cabinet makers and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	4,879	164	Dim
7523	Woodworking-machine tool setters and operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,790	229	Dim
753	Garment and related trades workers	-101,067	353	-0.201	330	33,862	3	0.078	25	30,636	3	0.233	43	1		31,526	1	400,889	2	
7531	Tailors, dressmakers, furriers, and hatters	-28,617	349	-0.247	335	15,804	8	0.154	17	7,624	14	0.290	31	1	0.333	6,310	11	87,035	30	Flagged
7532	Garment and related pattern makers and cutters	-4,983	333	-0.082	307	381	67	0.007	119	2,703	32	0.093	87	1	0.014	11	92	55,993	42	Flagged
7533	Sewing, embroidery, and related workers	-67,451	352	-0.222	332	17,677	6	0.070	34	20,304	6	0.259	40	1	0.498	25,200	1	236,380	10	Flagged
7534	Upholsterers and related workers	-16	222	-0.500	341	0	164	0.000	164	5	242	0.667	10		1.000	5	100	16	338	Flagged
7535	Pelt dressers, tanners, and fellmongers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	3,786	179	Dim
7536	Shoemakers and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	17,678	88	Dim
754	Other craft and related workers	-1,525	315	-0.022	267	639	55	0.009	98	2,596	32	0.039	138	0		6	95	66,697	36	
7541	Underwater divers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	257	289	Dim
7543	Product graders and testers (excluding foods and beverages)	-1,544	316	-0.024	270	639	55	0.010	98	575	87	0.041	134	1	0.291	6	96	63,518	38	Flagged
7544	Fumigators and other pest and weed controllers	19	66	0.055	28	0	164	0.000	164	5	246	0.053	120		0.000	0	114	362	283	Stable
7549	Craft and related workers not elsewhere classified	0	74	0.000	74	0	164	0.000	164	2,016	43	0.000	216		0.000	0	114	2,560	204	Stable
8	Plant and machine operators and assemblers	-68,446		-0.059		40,520		0.036		30,450		0.141		0		16,098		1,083,303		
81	Stationary plant and machine operators	-71,983		-0.087		37,541		0.047		21,315		0.163		0		13,414		754,285		
811	Mining and mineral processing plant operators	-27	224	-0.003	219	0	164	0.000	164	125	154	0.040	138			0	114	10,078	124	
8111	Miners and quarriers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	707	262	Dim
8112	Mineral and stone processing plant operators	-84	246	-0.039	283	0	164	0.000	164	42	203	0.040	138		0.640	0	114	2,074	221	Flagged
8113	Well drillers and borers and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	3,439	187	Dim
8114	Cement, stone, and other mineral products machine operators	58	53	0.015	49	0	164	0.000	164	83	167	0.082	96		0.000	0	114	3,857	177	Stable

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
812	Metal processing and finishing plant operators	-353	277	-0.012	247	484	58	0.016	80	222	129	0.075	100	0		0	114	29,548	66	
8121	Metal processing plant operators	-194	265	-0.008	232	330	73	0.013	88	187	138	0.079	97	0	0.033	0	114	25,585	75	Stable
8122	Metal finishing, plating, and coating machine operators	-159	263	-0.039	281	154	87	0.037	53	36	215	0.049	128	0	0.286	0	114	3,963	176	Stable
813	Chemical and photographic products plant and machine operators	200	40	0.007	61	781	50	0.026	67	231	127	0.072	104	0		5	108	29,425	66	
8131	Chemical products plant and machine operators	200	41	0.007	61	781	51	0.026	68	225	129	0.072	104	0	0.128	5	108	29,425	67	Bright
8132	Photographic products machine operators	0	74		352	0	164		351	6	239		352		0.000	0	114	0	351	Stable
814	Rubber, plastic, and paper products machine operators	-1,354	313	-0.042	285	85	105	0.003	138	141	149	0.054	119	0		12	90	30,802	64	
8141	Rubber products machine operators	55	54	0.010	52	38	122	0.007	118	37	205	0.028	155	0	0.000	0	114	5,472	152	Bright
8142	Plastic products machine operators	-1,409	314	-0.053	291	46	118	0.002	147	104	158	0.060	117	0	0.000	12	91	25,267	77	Flagged
8143	Paper products machine operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	63	319	Dim
815	Textile, fur, and leather products machine operators	-67,222	351	-0.114	315	34,996	3	0.063	36	19,814	6	0.204	47	0		12,115	5	522,247	1	
8151	Fiber preparing, spinning, and winding machine operators	-3,427	325	-0.068	299	100	101	0.002	142	236	124	0.098	84	0	0.119	11	92	47,012	47	Flagged
8152	Weaving and knitting machine operators	-4,251	329	-0.064	297	950	49	0.015	83	394	106	0.120	75	1	0.289	16	89	62,644	39	Flagged
8153	Sewing machine operators	-14,609	346	-0.039	282	33,534	4	0.085	25	18,961	7	0.151	62	0	0.848	12,083	6	359,779	4	Flagged
8154	Bleaching, dyeing, and fabric cleaning machine operators	-718	296	-0.043	286	148	90	0.009	103	128	152	0.051	127	0	0.166	5	100	16,103	93	Flagged
8155	Fur and leather preparing machine operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	5	346	Dim
8156	Shoemaking and related machine operators	-42,951	351	-0.751	347	0	164	0.000	164	0	252	1.202	6			0	114	14,245	104	Dim
8157	Laundry machine operators	-1,148	310	-0.082	308	226	81	0.017	79	60	180	0.131	66	0	0.000	0	114	12,802	107	Stable
8159	Textile, fur, and leather products machine operators not elsewhere classified	-117	253	-0.012	249	37	123	0.004	129	33	217	0.012	194	0	0.522	0	114	9,657	126	Flagged
816	Food and related products machine operators	-2,587	322	-0.029	276	1,180	41	0.013	84	429	104	0.077	100	0		1,269	25	87,574	29	
8160	Food and related products machine operators	-2,587	322	-0.029	276	1,180	41	0.013	85	429	104	0.077	100	0	0.105	1,269	26	87,574	29	Flagged
817	Wood processing and papermaking plant operators	0	74	0.000	74	0	164	0.000	164	36	206	0.000	216			0	114	366	282	
8172	Wood processing plant operators	0	74	0.000	74	0	164	0.000	164	36	207	0.000	216		0.000	0	114	366	282	Stable
818	Other stationary plant and machine operators	-640	293	-0.014	250	16	142	0.000	158	316	113	0.054	119	1		14	90	44,243	49	
8181	Glass and ceramics plant operators	0	74	0.000	74	0	164	0.000	164	5	242	0.000	216		0.000	0	114	72	316	Stable
8182	Steam engine and boiler operators	-58	240	-0.019	262	6	157	0.002	144	21	224	0.026	161	0	0.257	9	95	3,090	194	Flagged
8183	Packing, bottling, and labeling machine operators	-324	274	-0.009	235	10	152	0.000	160	263	120	0.053	122	1	0.045	5	108	37,291	60	Flagged
8189	Stationary plant and machine operators not elsewhere classified	-258	272	-0.064	298	0	164	0.000	164	28	218	0.087	92		0.000	0	114	3,790	178	Stable
82	Assemblers	-260		-0.003		204		0.002		2,259		0.182		0		5		82,929		

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Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies (1=yes, 0=No)	Difficult to Hire %	Unopened Vacancies		Total Employment		Prospect
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821	Assemblers	-260	272	-0.003	222	204	81	0.002	140	2,259	39	0.182	52	0		5	108	82,929	30	
8211	Mechanical machinery assemblers	41	61	0.008	60	10	150	0.002	145	42	202	0.030	151	0	0.148	5	108	5,488	151	Bright
8212	Electrical and electronic equipment assemblers	-618	293	-0.011	244	177	84	0.003	136	179	140	0.258	41	0	0.274	0	114	56,422	41	Stable
8219	Assemblers not elsewhere classified	317	36	0.015	48	16	142	0.001	155	2,038	42	0.016	185	0	0.000	0	114	21,019	82	Bright
83	Drivers and mobile plant operators	3,796		0.016		2,775		0.011		6,877		0.055		0		2,678		246,089		
831	Locomotive engine drivers and related workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,003	221	
8311	Locomotive engine drivers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	185	298	Dim
8312	Railway brake, signal, and switch operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,818	228	Dim
832	Car, van, and motorcycle drivers	4,621	5	0.034	32	998	47	0.007	116	5,788	16	0.066	108	1		2,524	16	138,575	19	
8321	Motorcycle drivers	962	18	0.067	25	0	164	0.000	164	605	83	0.065	112		0.000	0	114	15,330	95	Stable
8322	Car, taxi, and van drivers	3,658	7	0.031	38	998	48	0.008	111	5,183	19	0.067	108	1	0.356	2,524	16	123,246	22	Bright
833	Heavy truck and bus drivers	-1,068	307	-0.014	250	1,643	33	0.022	74	783	78	0.033	145	0		118	50	74,235	31	
8331	Bus and tram drivers	-1,264	313	-0.148	323	0	164	0.000	164	207	133	0.160	59		1.000	118	50	7,283	142	Flagged
8332	Heavy truck and lorry drivers	196	42	0.003	69	1,643	33	0.024	72	576	86	0.018	178	0	0.278	0	114	66,952	36	Stable
834	Mobile plant operators	244	36	0.009	54	134	92	0.005	124	270	119	0.073	102	0		36	72	28,236	70	
8341	Mobile farm and forestry plant operators	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	317	286	Dim
8342	Earthmoving and related plant operators	0	74	0.000	74	0	164	0.000	164	63	179	0.000	216		0.000	0	114	11,571	114	Stable
8343	Crane, hoist, and related plant operators	-214	270	-0.102	314	0	164	0.000	164	0	252	0.107	78			0	114	1,887	226	Dim
8344	Lifting truck operators	458	27	0.033	34	134	93	0.009	102	207	134	0.129	68	0	0.025	36	72	14,462	100	Bright
835	Ship deck crews and related workers	0	74	0.000	74	0	164	0.000	164	36	206	0.000	216			0	114	3,040	195	
8350	Ship deck crews and related workers	0	74	0.000	74	0	164	0.000	164	36	207	0.000	216		1.000	0	114	3,040	196	Stable
9	Elementary occupations	-37,130		-0.024		47,298		0.031		104,703		0.092		0		45,616		1,478,985		
91	Cleaners and helpers	-1,135		-0.004		17,435		0.060		12,505		0.042		0		1,426		274,219		
911	Domestic, hotel, and office cleaners, and helpers	-149	261	-0.001	214	17,097	7	0.062	36	12,013	11	0.040	135	0		1,426	21	257,582	6	
9111	Domestic cleaners and helpers	0	74	0.000	74	0	164	0.000	164	917	75	0.000	216		0.000	456	41	41,688	57	Stable
9112	Cleaners and helpers in offices, hotels, and other establishments	-149	261	-0.001	215	17,097	7	0.073	31	11,096	12	0.048	129	0	0.050	970	37	215,894	11	Flagged
912	Vehicle, window, laundry, and other hand cleaning workers	-986	305	-0.056	292	338	71	0.020	76	492	94	0.058	117	0		0	114	16,637	90	
9121	Hand launderers and pressers	-74	242	-0.009	236	338	72	0.039	51	0	252	0.009	200	0		0	114	8,429	131	Stable
9122	Vehicle cleaners	-912	303	-0.243	334	0	164	0.000	164	36	207	0.276	35		0.000	0	114	2,846	199	Stable
9129	Other cleaning workers	0	74	0.000	74	0	164	0.000	164	456	95	0.000	216		0.000	0	114	5,361	153	Stable
92	Agricultural, forestry, and fishery laborers	-128		-0.008		1,010		0.058		124		0.008		0		5		16,398		
921	Agricultural, forestry, and fishery laborers	-128	256	-0.008	232	1,010	46	0.058	39	124	154	0.008	204	1		5	108	16,398	91	
9211	Crop farm laborers	-128	256	-0.016	257	0	164	0.000	164	16	228	0.016	184		0.298	5	108	8,026	133	Flagged

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LOW-SKILLED

Occupations		Short-term Dynamics				Opportunities								Skill Shortages				Short-Term Occupational Prospects		
KBJI Code	Title	Net Change in Employment		Employment Growth		Vacancies		Vacancy Rate		Firms Trying to Hire		Turnover Rate		Hard to Fill Vacancies	Difficult to Hire	Unopened Vacancies		Total Employment		Prospect
		#	Rank out of 353	%	Rank out of 352	#	Rank out of 164	%	Rank out of 351	#	Rank out of 252	%	Rank out of 352	(1=yes, 0=No)	%	#	Rank out of 114	#	Rank out of 351	
9214	Garden and horticultural laborers	0	74	0.000	74	1,010	47	0.113	19	57	183	0.000	216	1	0.880	0	114	7,916	134	Bright
9215	Forestry laborers	0	74		352	0	164		351	51	189		352		0.000	0	114	0	351	Stable
9216	Fishery and aquaculture laborers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	456	275	Dim
93	Laborers in mining, construction, manufacturing, and transport	-11,689		-0.022		2,810		0.005		20,808		0.068		0		4,769		530,034		
931	Mining and construction laborers	-10,362	342	-0.134	320	1,071	43	0.016	80	2,856	29	0.282	32	0		456	41	66,983	35	
9311	Mining and quarrying laborers	-14	220	-0.013	250	0	164	0.000	164	0	252	0.013	192			0	114	1,109	248	Dim
9312	Civil engineering laborers	-6,949	338	-0.125	318	1,071	44	0.022	75	589	85	0.292	30	0	0.109	0	114	48,515	46	Stable
9313	Building construction laborers	-3,398	324	-0.164	325	0	164	0.000	164	2,266	39	0.269	36		0.402	456	41	17,359	89	Flagged
932	Manufacturing laborers	-459	283	-0.001	216	1,111	43	0.003	134	16,462	8	0.038	138	1		3,015	13	334,896	5	
9321	Hand packers	-994	306	-0.004	225	683	54	0.003	137	16,116	9	0.043	132	1	0.082	3,000	14	240,975	8	Flagged
9329	Manufacturing laborers not elsewhere classified	536	25	0.006	63	428	64	0.005	126	345	111	0.024	164	1	0.041	16	90	93,920	25	Bright
933	Transport and storage laborers	-869	301	-0.007	229	628	55	0.005	123	1,490	49	0.027	157	0		1,298	25	128,155	20	
9333	Freight handlers	-1,095	308	-0.016	256	618	56	0.009	105	1,275	58	0.036	141	0	0.114	1,298	25	68,947	35	Flagged
9334	Shelf fillers	226	38	0.004	67	11	149	0.000	162	216	130	0.015	186	1	0.025	0	114	59,208	40	Bright
94	Food preparation assistants	-26,285		-0.054		21,614		0.045		65,889		0.148		0		30,529		460,849		
941	Food preparation assistants	-26,285	348	-0.054	292	21,614	4	0.045	45	65,889	1	0.148	62	1		30,529	1	460,849	1	
9411	Fast food preparers	-12,458	344	-0.046	290	9,122	12	0.034	58	33,348	1	0.129	69	1	0.248	12,621	5	256,531	7	Flagged
9412	Kitchen helpers	-13,827	345	-0.063	296	12,492	11	0.058	40	32,541	2	0.171	54	0	0.144	17,908	2	204,319	12	Flagged
95	Street and related sales and service workers	0		0.000		0		0.000		0		0.000				0		8,280		
951	Street and related service workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,969	221	
9510	Street and related service workers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	1,969	222	Dim
952	Street vendors (excluding food)	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	6,310	146	
9520	Street vendors (excluding food)	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	6,310	147	Dim
96	Refuse workers and other elementary workers	2,107		0.011		4,428		0.023		5,377		0.106		0		8,887		189,205		
961	Refuse workers	0	74	0.000	74	0	164	0.000	164	6	239	0.000	216			0	114	6,572	145	
9611	Garbage and recycling collectors	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	2,227	219	Dim
9612	Refuse sorters	0	74	0.000	74	0	164	0.000	164	6	239	0.000	216		0.000	0	114	43	327	Stable
9613	Sweepers and related laborers	0	74	0.000	74	0	164	0.000	164	0	252	0.000	216			0	114	4,302	171	Dim
962	Other elementary workers	2,107	8	0.012	50	4,428	19	0.024	72	5,371	18	0.110	77	0		8,887	8	182,634	13	
9621	Messengers, package deliverers, and luggage porters	4,918	5	0.032	36	4,241	20	0.026	67	3,509	25	0.107	79	0	0.214	4,645	12	158,919	16	Bright
9622	Odd job persons	-704	295	-0.070	301	6	157	0.001	157	528	91	0.116	77	0	0.959	1,718	21	9,385	128	Flagged
9629	Elementary workers not elsewhere classified	-2,108	318	-0.128	320	181	83	0.012	91	1,334	54	0.137	64	0	0.027	2,524	16	14,329	102	Flagged

LOW-SKILLED

Reliability of Information: Number of Observations and RSE

All of the results in the Occupational Outlook reports are shown at 1-, 2-, 3-, and 4-digit KBJI-2014 classification. However, the observations for some 3- and 4-digit occupations are too slim to produce reliable statistics. Table A.1 shows the number of observations for each 1-, 2-, 3-, and 4-digit occupation. The user should decide, based on the intended use, how to handle the information for the occupations with too few observations. The table also presents the sample size (number of firms) with which the statistic is calculated and the resulting relative standard error (RSE). This outlook recommends pooling information at a higher level of aggregation until the user obtains a sample size of about 10 observations.¹⁸ In addition, the RSE indicates how likely the survey estimate is to deviate from the actual population: the higher the RSE, the more likely it is that the estimate is subject to sampling error.¹⁹ It is also important to consider that, while the precise estimate may be subject to sampling error, the ranking of the indicator is less susceptible to it, especially for distant rankings (where the difference between the estimates may be larger). For example, even if the top 10 ranked occupations for the change in net employment have a small sample or a large RSE, it is very unlikely that, by correcting

the sampling error (or by increasing the sample), they will be ranked toward the bottom of occupations. Table A.1 presents the statistics for each of the following indicators: firms reporting employment, increases in employment, decreases in employment, change in employment, growth of employment, rate of turnover, opened vacancies, vacancy rate, number of firms that tried to hire workers, and number of unopened vacancies.

In addition, the results need to be taken with caution, as they could be capturing transitory shocks as opposed to long-term trends since they are based on a single year of data. The results should be repeated in the future using various years of data to improve reliability. For example, occupations such as debt collector and security guard are identified as having very high demand in terms of vacancies. Both are flagged occupations because there are not enough data to assess the state of the occupation accurately. It may be the case that they are responding to the high growth of financial technology firms (which demand a lot of debt collectors) and building and real estate developers (which demand security guards for their buildings). In any case, more data are needed to estimate reliable statistics.

Table A.1 Reliability of Information: Number of Observations and Relative Standard Error (RSE)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
1	Managers	N	7,977	33	62	95	8,072	8,072	63	8,040	148	13
		RSE	(15)	(26)	(31)	(45)	(43)	(24)	(42)	(41)	(25)	(37)
11	Chief executives, senior officials and legislators	N	1,686	3	6	9	1,695	1,695	1	1,687	11	
		RSE	(13)	(51)	(79)	(125)	(109)	(66)	(0)	(100)	(60)	
111	Legislators and senior officials	N	8				8	8		8		
		RSE	(78)									
1113	Traditional chiefs and heads of village	N	2				2	2		2		
		RSE	(93)									
1114	Senior officials of special-interest organizations	N	6				6	6		6		
		RSE	(41)									
112	Managing directors and chief executives	N	1,678	3	6	9	1,687	1,687	1	1,679	11	
		RSE	(14)	(51)	(79)	(125)	(109)	(66)	(0)	(100)	(60)	
1120	Managing directors and chief executives	N	1,678	3	6	9	1,687	1,687	1	1,679	11	
		RSE	(14)	(51)	(79)	(125)	(109)	(66)	(0)	(100)	(60)	
12	Administrative and commercial managers	N	3,117	16	33	49	3,166	3,166	42	3,159	81	7
		RSE	(15)	(25)	(45)	(52)	(52)	(40)	(50)	(45)	(36)	(54)
121	Business services and administration managers	N	2,166	8	22	30	2,196	2,196	23	2,189	47	2
		RSE	(15)	(22)	(20)	(26)	(38)	(29)	(19)	(33)	(22)	(0)
1211	Finance managers	N	868	2	6	8	876	876	8	876	15	1
		RSE	(18)	(0)	(48)	(165)	(139)	(52)	(21)	(53)	(24)	(0)
1212	Human resource managers	N	812	2	8	10	822	822	12	824	19	
		RSE	(12)	(0)	(37)	(46)	(61)	(51)	(26)	(46)	(24)	
1213	Policy and planning managers	N	225	1	5	6	231	231	1	226	2	1
		RSE	(35)	(0)	(28)	(28)	(50)	(48)	(0)	(106)	(4)	(0)
1219	Business services and administration managers not elsewhere classified	N	261	3	3	6	267	267	2	263	11	
		RSE	(18)	(18)	(13)	(208)	(230)	(51)	(16)	(66)	(19)	
122	Sales, marketing and development managers	N	951	8	11	19	970	970	19	970	34	5
		RSE	(19)	(35)	(73)	(83)	(78)	(63)	(56)	(52)	(44)	(47)
1221	Sales and marketing managers	N	737	7	10	17	754	754	13	750	26	5
		RSE	(18)	(42)	(74)	(83)	(80)	(65)	(63)	(57)	(47)	(47)
1222	Advertising and public relations managers	N	42				42	42	3	45	2	
		RSE	(55)						(0)	(59)	(0)	
1223	Research and development managers	N	172	1	1	2	174	174	3	175	6	
		RSE	(23)	(0)	(0)	(722)	(528)	(70)	(24)	(58)	(4)	
13	Production and specialized services managers	N	2,589	14	21	35	2,624	2,624	18	2,607	54	3
		RSE	(23)	(26)	(39)	(244)	(241)	(28)	(32)	(52)	(22)	(34)

KBjl	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
131	Production managers in agriculture, forestry and fisheries	N	19				19	19		19		
		RSE	(27)									
1311	Agricultural and forestry production managers	N	17				17	17		17		
		RSE	(20)									
1312	Aquaculture and fisheries production managers	N	2				2	2		2		
		RSE	(89)									
132	Manufacturing, mining, construction, and distribution managers	N	2,099	8	17	25	2,124	2,124	15	2,114	41	3
		RSE	(31)	(44)	(69)	(128)	(114)	(38)	(9)	(50)	(11)	(34)
1321	Manufacturing managers	N	1,231	1	5	6	1,237	1,237	6	1,237	14	
		RSE	(20)	(0)	(22)	(43824)	(40347)	(57)	(31)	(55)	(21)	
1322	Mining managers	N	8				8	8		8	1	
		RSE	(43)								(0)	
1323	Construction managers	N	172	3	9	12	184	184	3	175	7	3
		RSE	(75)	(33)	(70)	(106)	(63)	(33)	(0)	(118)	(41)	(34)
1324	Supply, distribution and related managers	N	688	4	3	7	695	695	6	694	19	
		RSE	(21)	(43)	(15)	(73)	(77)	(55)	(0)	(59)	(12)	
133	Information and communications technology service managers	N	154	3	1	4	158	158		154	5	
		RSE	(31)	(16)	(0)	(426)	(353)	(41)			(58)	
1330	Information and communications technology service managers	N	154	3	1	4	158	158		154	5	
		RSE	(31)	(16)	(0)	(426)	(353)	(41)			(58)	
134	Professional services managers	N	317	3	3	6	323	323	3	320	8	
		RSE	(11)	(41)	(39)	(1099)	(1036)	(47)	(47)	(69)	(41)	
1342	Health services managers	N	1				1	1		1		
		RSE	(0)									
1345	Education managers	N	5				5	5		5		
		RSE	(9)									
1346	Financial and insurance services branch managers	N	281	3	3	6	287	287	3	284	8	
		RSE	(9)	(41)	(39)	(1099)	(1036)	(45)	(47)	(69)	(41)	
1349	Professional services managers not elsewhere classified	N	30				30	30		30		
		RSE	(45)									
14	Hospitality, retail and other services managers	N	585		2	2	587	587	2	587	2	3
		RSE	(16)		(79)	(79)	(88)	(88)	(0)	(94)	(0)	(33)
141	Hotel and restaurant managers	N	236		1	1	237	237	1	237	1	3
		RSE	(16)		(0)	(0)	(100)	(100)	(0)	(100)	(0)	(33)
1411	Hotel managers	N	21				21	21		21		
		RSE	(34)									
1412	Restaurant managers	N	215		1	1	216	216	1	216	1	3
		RSE	(17)		(0)	(0)	(100)	(100)	(0)	(100)	(0)	(33)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
142	Retail and wholesale trade managers	N	24				24	24	1	25		
		RSE	(30)						(0)	(104)		
1420	Retail and wholesale trade managers	N	24				24	24	1	25		
		RSE	(30)						(0)	(104)		
143	Other services managers	N	325		1	1	326	326		325	1	
		RSE	(16)		(0)	(0)	(100)	(100)			(0)	
1431	Sports, recreation and cultural centre managers	N	9				9	9		9		
		RSE	(23)									
1439	Services managers not elsewhere classified	N	316		1	1	317	317		316	1	
		RSE	(16)		(0)	(0)	(100)	(100)			(0)	
2	Professionals	N	2,260	42	64	106	2,366	2,366	96	2,357	246	21
		RSE	(24)	(53)	(41)	(151)	(159)	(37)	(35)	(40)	(22)	(46)
21	Science and engineering professionals	N	826	9	28	37	863	863	31	857	89	9
		RSE	(22)	(95)	(34)	(135)	(140)	(77)	(21)	(40)	(61)	(85)
211	Physical and earth science professionals	N	62	1	4	5	67	67	2	64	9	1
		RSE	(40)	(0)	(58)	(59)	(76)	(78)	(50)	(87)	(45)	(0)
2111	Physicists and astronomers	N	1				1	1		1		
		RSE	(0)									
2112	Meteorologists	N			2	2	2	2			2	
		RSE			(0)	(0)	(0)	(0)			(0)	
2113	Chemists	N	47	1	2	3	50	50	2	49	6	
		RSE	(28)	(0)	(0)	(27)	(90)	(77)	(50)	(82)	(5)	
2114	Geologists and geophysicists	N	14				14	14		14	1	1
		RSE	(73)								(0)	(0)
212	Mathematicians, actuaries and statisticians	N	6		1	1	7	7		6		
		RSE	(21)		(0)	(0)	(105)	(117)				
2120	Mathematicians, actuaries and statisticians	N	6		1	1	7	7		6		
		RSE	(21)		(0)	(0)	(105)	(117)				
213	Life science professionals	N	30		5	5	35	35		30	3	
		RSE	(37)		(3)	(3)	(53)	(60)			(33)	
2131	Biologists, botanists, zoologists and related professionals	N	10		2	2	12	12		10	2	
		RSE	(50)		(2)	(2)	(23)	(32)			(34)	
2132	Farming, forestry and fisheries advisers	N	10		3	3	13	13		10		
		RSE	(16)		(25)	(25)	(66)	(67)				
2133	Environmental protection professionals	N	10				10	10		10	1	
		RSE	(39)								(0)	
214	Engineering professionals (excluding electrotechnology)	N	432	6	6	12	444	444	10	442	31	3
		RSE	(19)	(39)	(10)	(80)	(78)	(45)	(22)	(48)	(22)	(1)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
2141	Industrial and production engineers	N	150				150	150	2	152	4	
		RSE	(20)						(33)	(70)	(8)	
2142	Civil engineers	N	37				37	37	4	41	8	1
		RSE	(23)						(22)	(58)	(23)	(0)
2143	Environmental engineers	N	16		2	2	18	18		16	2	1
		RSE	(24)		(34)	(34)	(81)	(89)			(34)	(0)
2144	Mechanical engineers	N	115	3	3	6	121	121	2	117	8	1
		RSE	(27)	(36)	(10)	(102)	(97)	(63)	(0)	(79)	(28)	(0)
2145	Chemical engineers	N	40	1		1	41	41		40	2	
		RSE	(23)	(0)		(0)	(89)	(87)			(0)	
2146	Mining engineers, metallurgists and related professionals	N	9				9	9		9	2	
		RSE	(22)								(40)	
2149	Engineering professionals not elsewhere classified	N	65	2	1	3	68	68	2	67	5	
		RSE	(25)	(0)	(0)	(54)	(105)	(73)	(6)	(58)	(16)	
215	Electrotechnology engineers	N	77		2	2	79	79	4	81	4	2
		RSE	(45)		(0)	(0)	(84)	(84)	(8)	(78)	(37)	(0)
2151	Electrical engineers	N	37		1	1	38	38	1	38	2	
		RSE	(34)		(0)	(0)	(70)	(71)	(0)	(101)	(31)	
2152	Electronics engineers	N	27				27	27	1	28		1
		RSE	(64)						(0)	(118)		(0)
2153	Telecommunications engineers	N	13		1	1	14	14	2	15	2	1
		RSE	(51)		(0)	(0)	(52)	(53)	(0)	(93)	(0)	(0)
216	Architects, planners, surveyors and designers	N	219	2	10	12	231	231	15	234	42	3
		RSE	(30)	(96)	(26)	(108)	(114)	(90)	(27)	(52)	(80)	(91)
2161	Building architects	N	31	1	1	2	33	33	4	35	7	1
		RSE	(29)	(0)	(0)	(830)	(601)	(78)	(51)	(63)	(23)	(0)
2162	Landscape architects	N	2				2	2		2		
		RSE	(33)									
2163	Product and garment designers	N	110		3	3	113	113	6	116	19	
		RSE	(58)		(53)	(53)	(87)	(88)	(82)	(100)	(25)	
2164	Town and traffic planners	N	3				3	3		3		
		RSE	(0)									
2165	Cartographers and surveyors	N	19		1	1	20	20	2	21	5	
		RSE	(45)		(0)	(0)	(80)	(80)	(0)	(84)	(28)	
2166	Graphic and multimedia designers	N	54	1	5	6	60	60	3	57	11	2
		RSE	(51)	(0)	(27)	(106)	(100)	(77)	(2)	(102)	(96)	(92)
22	Health professionals	N	79	2	3	5	84	84	2	81	8	
		RSE	(49)	(0)	(23)	(138)	(87)	(44)	(0)	(107)	(27)	
221	Medical doctors	N	5				5	5		5		
		RSE	(8)									
2211	Generalist medical practitioners	N	5				5	5		5		
		RSE	(8)									
222	Nursing and midwifery professionals	N	19	1		1	20	20		19	2	
		RSE	(6)	(0)		(0)	(229)	(197)			(0)	

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
2221	Nursing professionals	N	19	1		1	20	20		19	2	
		RSE	(6)	(0)		(0)	(229)	(197)			(0)	
224	Paramedical practitioners	N	3				3	3		3		
		RSE	(41)									
2240	Paramedical practitioners	N	3				3	3		3		
		RSE	(41)									
225	Veterinarians	N	1				1	1		1		
		RSE	(0)									
2250	Veterinarians	N	1				1	1		1		
		RSE	(0)									
226	Other health professionals	N	51	1	3	4	55	55	2	53	6	
		RSE	(46)	(0)	(23)	(273)	(193)	(38)	(0)	(107)	(23)	
2262	Pharmacists	N	6				6	6	1	7		
		RSE	(55)						(0)	(113)		
2263	Environmental and occupational health and hygiene professionals	N	45	1	3	4	49	49	1	46	6	
		RSE	(54)	(0)	(23)	(273)	(191)	(29)	(0)	(121)	(23)	
23	Teaching professionals	N	26	2	2	4	30	30	1	27	3	
		RSE	(29)	(33)	(71)	(173)	(155)	(66)	(0)	(98)	(15)	
232	Vocational education teachers	N	2				2	2		2		
		RSE	(0)									
2320	Vocational education teachers	N	2				2	2		2		
		RSE	(0)									
233	Secondary education teachers	N	3				3	3		3		
		RSE	(1)									
2330	Secondary education teachers	N	3				3	3		3		
		RSE	(1)									
234	Primary school and early childhood teachers	N	10	1	1	2	12	12		10	3	
		RSE	(25)	(0)	(0)	(139)	(90)	(63)			(15)	
2341	Primary school teachers	N	4		1	1	5	5		4	1	
		RSE	(32)		(0)	(0)	(69)	(81)			(0)	
2342	Early childhood educators	N	6	1		1	7	7		6	2	
		RSE	(14)	(0)		(0)	(127)	(117)			(20)	
235	Other teaching professionals	N	11	1	1	2	13	13	1	12		
		RSE	(31)	(0)	(0)	(300)	(98)	(80)	(0)	(82)		
2351	Education methods specialists	N	4				4	4		4		
		RSE	(40)									
2353	Other language teachers	N	2				2	2		2		
		RSE	(0)									
2354	Other music teachers	N	1	1	1	2	3	3		1		
		RSE	(0)	(0)	(0)	(300)	(343)	(167)				
2355	Other arts teachers	N	1				1	1		1		
		RSE	(0)									
2359	Teaching professionals not elsewhere classified	N	3				3	3	1	4		
		RSE	(34)						(0)	(41)		

KBjl	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
24	Business and administration professionals	N	1,142	24	22	46	1,188	1,188	46	1,189	117	6
		RSE	(35)	(72)	(48)	(79)	(91)	(72)	(36)	(48)	(25)	(87)
241	Finance professionals	N	491	8	6	14	505	505	13	504	35	1
		RSE	(26)	(55)	(93)	(194)	(171)	(55)	(70)	(57)	(43)	(0)
2411	Accountants	N	459	7	5	12	471	471	12	471	31	1
		RSE	(27)	(56)	(96)	(196)	(172)	(55)	(70)	(57)	(45)	(0)
2412	Financial and investment advisers	N	11		1	1	12	12		11	1	
		RSE	(77)		(0)	(0)	(136)	(136)			(0)	
2413	Financial analysts	N	21	1		1	22	22	1	22	3	
		RSE	(25)	(0)		(0)	(104)	(103)	(0)	(106)	(0)	
242	Administration professionals	N	165	1	2	3	168	168		165	8	
		RSE	(24)	(0)	(1)	(202)	(176)	(52)			(26)	
2421	Management and organization analysts	N	26	1		1	27	27		26	1	
		RSE	(42)	(0)		(0)	(72)	(69)			(0)	
2422	Policy administration professionals	N	24		1	1	25	25		24		
		RSE	(46)		(0)	(0)	(110)	(112)				
2423	Personnel and careers professionals	N	85				85	85		85	5	
		RSE	(41)								(8)	
2424	Training and staff development professionals	N	30		1	1	31	31		30	2	
		RSE	(20)		(0)	(0)	(105)	(109)			(0)	
243	Sales, marketing and public relations professionals	N	486	15	14	29	515	515	33	520	74	5
		RSE	(45)	(74)	(47)	(77)	(89)	(77)	(36)	(60)	(29)	(89)
2431	Advertising and marketing professionals	N	380	13	13	26	406	406	30	411	64	4
		RSE	(46)	(74)	(47)	(77)	(89)	(77)	(41)	(63)	(29)	(89)
2432	Public relations professionals	N	37				37	37		37	1	
		RSE	(34)								(0)	
2433	Technical and medical sales professionals (excluding ICT)	N	66	2	1	3	69	69		66	7	1
		RSE	(36)	(0)	(0)	(38)	(150)	(104)			(29)	(0)
2434	Information and communications technology sales professionals	N	3				3	3	3	6	2	
		RSE	(26)						(32)	(18)	(54)	
25	Information and communications technology professionals	N	109	2	4	6	115	115	7	116	13	2
		RSE	(50)	(91)	(95)	(118)	(99)	(76)	(37)	(77)	(56)	(92)
251	Software and applications developers and analysts	N	34	2	3	5	39	39	6	40	10	1
		RSE	(58)	(91)	(98)	(123)	(108)	(86)	(44)	(88)	(56)	(0)
2511	Systems analysts	N	7				7	7	2	9	1	
		RSE	(88)						(0)	(126)	(0)	
2512	Software developers	N	17	1	1	2	19	19	3	20	4	
		RSE	(55)	(0)	(0)	(108)	(85)	(72)	(52)	(54)	(44)	
2513	Web and multimedia developers	N	4		2	2	6	6		4	2	1
		RSE	(78)		(0)	(0)	(129)	(137)			(0)	(0)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
2514	Applications programmers	N	4	1		1	5	5	1	5	3	
		RSE	(85)	(0)		(0)	(164)	(162)	(0)	(130)	(0)	
2519	Software and applications developers and analysts not elsewhere classified	N	2				2	2		2		
		RSE	(19)									
252	Database and network professionals	N	75		1	1	76	76	1	76	3	1
		RSE	(41)		(0)	(0)	(99)	(100)	(0)	(107)	(13)	(0)
2521	Database designers and administrators	N	7				7	7		7		
		RSE	(88)									
2522	Systems administrators	N	41		1	1	42	42		41	3	1
		RSE	(28)		(0)	(0)	(75)	(77)			(13)	(0)
2523	Computer network professionals	N	19				19	19	1	20		
		RSE	(47)						(0)	(114)		
2529	Database and network professionals not elsewhere classified	N	8				8	8		8		
		RSE	(23)									
26	Legal, social and cultural professionals	N	78	3	5	8	86	86	9	87	16	4
		RSE	(30)	(48)	(79)	(112)	(80)	(54)	(94)	(58)	(43)	(92)
261	Legal professionals	N	28		1	1	29	29	2	30	4	2
		RSE	(53)		(0)	(0)	(54)	(55)	(33)	(50)	(0)	(0)
2611	Lawyers	N	6		1	1	7	7	2	8	2	2
		RSE	(87)		(0)	(0)	(18)	(19)	(33)	(14)	(0)	(0)
2619	Legal professionals not elsewhere classified	N	22				22	22		22	2	
		RSE	(42)								(0)	
262	Librarians, archivists and curators	N	6				6	6	1	7		
		RSE	(67)						(0)	(138)		
2621	Archivists and curators	N	5				5	5		5		
		RSE	(64)									
2622	Librarians and related information professionals	N	1				1	1	1	2		
		RSE	(0)						(0)	(67)		
263	Social and religious professionals	N	6	1	1	2	8	8		6	2	
		RSE	(59)	(0)	(0)	(298)	(294)	(88)			(0)	
2631	Economists	N	3	1		1	4	4		3	1	
		RSE	(89)	(0)		(0)	(32)	(32)			(0)	
2632	Sociologists, anthropologists and related professionals	N	1		1	1	2	2		1	1	
		RSE	(0)		(0)	(0)	(100)	(133)			(0)	
2635	Social work and counselling professionals	N	1				1	1		1		
		RSE	(0)									
2636	Religious professionals	N	1				1	1		1		
		RSE	(0)									
264	Authors, journalists and linguists	N	29	1	1	2	31	31	5	34	5	2
		RSE	(67)	(0)	(0)			(61)	(20)	(22)	(56)	(0)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
2641	Authors and related writers	N	5	1	1	2	7	7	1	6	2	1
		RSE	(67)	(0)	(0)			(62)	(0)	(28)	(0)	(0)
2642	Journalists	N	10				10	10	1	11	2	1
		RSE	(68)						(0)	(23)	(97)	(0)
2643	Translators, interpreters and other linguists	N	14				14	14	3	17	1	
		RSE	(15)						(32)	(54)	(0)	
265	Creative and performing artists	N	9	1	2	3	12	12	1	10	5	
		RSE	(29)	(0)	(10)	(121)	(53)	(46)	(0)	(121)	(98)	
2651	Visual artists	N	4				4	4		4	1	
		RSE	(20)								(0)	
2652	Musicians, singers and composers	N	1	1	1	2	3	3		1	2	
		RSE	(0)	(0)	(0)	(143)	(75)	(41)			(0)	
2653	Dancers and choreographers	N	1		1	1	2	2		1	1	
		RSE	(0)		(0)	(0)	(20)	(36)			(0)	
2654	Film, stage and related directors and producers	N	3				3	3	1	4	1	
		RSE	(45)						(0)	(142)	(0)	
3	Technicians and associate professionals	N	6,798	103	135	238	7,036	7,036	109	6,909	441	35
		RSE	(14)	(34)	(29)	(576)	(598)	(22)	(76)	(62)	(14)	(36)
31	Science and engineering associate professionals	N	4,153	46	72	118	4,271	4,271	50	4,203	215	12
		RSE	(13)	(50)	(51)	(146)	(150)	(39)	(36)	(38)	(29)	(16)
311	Physical and engineering science technicians	N	772	19	27	46	818	818	14	786	63	4
		RSE	(25)	(74)	(65)	(747)	(743)	(39)	(28)	(46)	(21)	(19)
3111	Chemical and physical science technicians	N	59	2	3	5	64	64	2	61	4	1
		RSE	(29)	(0)	(93)	(112)	(98)	(71)	(12)	(68)	(25)	(0)
3112	Civil engineering technicians	N	56	4	2	6	62	62	2	58	6	
		RSE	(48)	(83)	(14)	(90)	(84)	(61)	(0)	(80)	(36)	
3113	Electrical engineering technicians	N	110	3	3	6	116	116		110	7	
		RSE	(23)	(40)	(15)	(110)	(99)	(64)			(21)	
3114	Electronics engineering technicians	N	19	2	3	5	24	24	1	20	5	1
		RSE	(36)	(15)	(85)	(132)	(102)	(41)	(0)	(125)	(26)	(0)
3115	Mechanical engineering technicians	N	419	5	12	17	436	436	7	426	19	1
		RSE	(29)	(3)	(86)	(94)	(87)	(75)	(24)	(51)	(13)	(0)
3116	Chemical engineering technicians	N	63	1	2	3	66	66	1	64	9	
		RSE	(21)	(0)	(50)	(37)	(74)	(76)	(0)	(104)	(20)	
3117	Mining and metallurgical technicians	N	6	1		1	7	7		6	2	
		RSE	(21)	(0)		(0)	(128)	(124)			(16)	
3118	Draughtspersons	N	35	1	2	3	38	38	1	36	11	1
		RSE	(19)		(78)	(83)	(83)	(87)	(0)	(101)	(13)	(0)
3119	Physical and engineering science technicians not elsewhere classified	N	5				5	5		5		
		RSE	(35)									

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
312	Mining, manufacturing and construction supervisors	N	3,070	20	32	52	3,122	3,122	30	3,100	125	7
		RSE	(13)	(84)	(23)	(111)	(116)	(73)	(43)	(47)	(39)	(25)
3121	Mining supervisors	N	2				2	2		2		
		RSE	(0)									
3122	Manufacturing supervisors	N	2,848	9	20	29	2,877	2,877	21	2,869	91	4
		RSE	(15)	(57)	(55)	(352)	(354)	(58)	(22)	(34)	(67)	(2)
3123	Construction supervisors	N	220	11	12	23	243	243	9	229	34	3
		RSE	(21)	(90)	(25)	(112)	(135)	(87)	(54)	(57)	(18)	(31)
313	Process control technicians	N	256	6	9	15	271	271	5	261	24	1
		RSE	(16)	(2)	(24)	(11)	(125)	(76)	(40)	(63)	(16)	(0)
3131	Power production plant operators	N	38				38	38	2	40	4	
		RSE	(27)						(0)	(89)	(25)	
3132	Incinerator and water treatment plant operators	N	94	1	6	7	101	101	1	95	7	
		RSE	(29)	(0)	(26)	(47)	(57)	(53)	(0)	(109)	(58)	
3133	Chemical processing plant controllers	N	68	2	1	3	71	71	1	69	6	
		RSE	(25)	(50)	(0)	(114)	(111)	(67)	(0)	(100)	(16)	
3134	Petroleum and natural gas refining plant operators	N	5				5	5		5		
		RSE	(59)									
3135	Metal production process controllers	N	19	2	1	3	22	22	1	20	2	1
		RSE	(61)	(20)	(0)	(225)	(57)	(46)	(0)	(47)	(0)	(0)
3139	Process control technicians not elsewhere classified	N	32	1	1	2	34	34		32	5	
		RSE	(46)	(0)	(0)	(0)	(104)	(77)			(9)	
314	Life science technicians and related associate professionals	N	37	1	3	4	41	41	1	38	2	
		RSE	(53)	(0)	(98)	(215)	(131)	(29)	(0)	(121)	(0)	
3141	Life science technicians (excluding medical)	N	8				8	8	1	9	1	
		RSE	(27)						(0)	(87)	(0)	
3142	Agricultural technicians	N	28	1	3	4	32	32		28	1	
		RSE	(50)	(0)	(98)	(215)	(136)	(28)			(0)	
3143	Forestry technicians	N	1				1	1		1		
		RSE	(0)									
315	Ship and aircraft controllers and technicians	N	18		1	1	19	19		18	1	
		RSE	(55)		(0)	(0)	(118)	(119)			(0)	
3151	Ships' engineers	N	11		1	1	12	12		11	1	
		RSE	(48)		(0)	(0)	(107)	(109)			(0)	
3152	Ships' deck officers and pilots	N	6				6	6		6		
		RSE	(60)									
3155	Air traffic safety electronics technicians	N	1				1	1		1		
		RSE	(0)									
32	Health associate professionals	N	130	5	1	6	136	136	3	133	11	1
		RSE	(36)	(54)	(0)	(195)	(235)	(46)	(86)	(96)	(36)	(0)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
321	Medical and pharmaceutical technicians	N	1				1	1		1		
		RSE	(0)									
3213	Pharmaceutical technicians and assistants	N	1				1	1		1		
		RSE	(0)									
322	Nursing and midwifery associate professionals	N	1				1	1		1		
		RSE	(0)									
3221	Nursing associate professionals	N	1				1	1		1		
		RSE	(0)									
323	Traditional and complementary medicine associate professionals	N	1				1	1		1		
		RSE	(0)									
3230	Traditional and complementary medicine associate professionals	N	1				1	1		1		
		RSE	(0)									
324	Veterinary technicians and assistants	N	2				2	2		2		
		RSE	(0)									
3240	Veterinary technicians and assistants	N	2				2	2		2		
		RSE	(0)									
325	Other health associate professionals	N	125	5	1	6	131	131	3	128	11	1
		RSE	(39)	(54)	(0)	(195)	(234)	(42)	(86)	(97)	(36)	(0)
3252	Medical records and health information technicians	N	1				1	1		1		
		RSE	(0)									
3255	Physiotherapy technicians and assistants	N	18	2	1	3	21	21	1	19	3	
		RSE	(44)	(20)	(0)	(310)	(298)	(39)	(0)	(109)	(0)	
3256	Medical assistants	N	1				1	1		1		
		RSE	(0)									
3257	Environmental and occupational health inspectors and associates	N	105	3		3	108	108	2	107	8	1
		RSE	(21)	(36)		(36)	(55)	(54)	(33)	(65)	(23)	(0)
33	Business and administration associate professionals	N	2,223	42	49	91	2,314	2,314	41	2,266	176	17
		RSE	(16)	(31)	(33)	(73)	(81)	(30)	(82)	(60)	(20)	(43)
331	Financial and mathematical associate professionals	N	496	11	14	25	521	521	14	511	44	7
		RSE	(15)	(64)	(37)	(61)	(75)	(40)	(45)	(41)	(27)	(48)
3311	Securities and finance dealers and brokers	N	9				9	9		9	2	1
		RSE	(74)								(32)	(0)
3312	Credit and loans officers	N	175	8	8	16	191	191	9	185	23	3
		RSE	(19)	(69)	(50)	(115)	(167)	(49)	(44)	(37)	(30)	(40)
3313	Accounting associate professionals	N	250	3	2	5	255	255	5	255	15	1
		RSE	(24)	(0)	(0)	(112)	(94)	(79)	(21)	(43)	(64)	(0)
3314	Statistical, mathematical and related associate professionals	N	5				5	5		5	1	
		RSE	(24)								(0)	

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
3315	Valuers and loss assessors	N	57		4	4	61	61		57	3	2
		RSE	(23)		(40)	(40)	(50)	(52)			(1)	(32)
332	Sales and purchasing agents and brokers	N	781	18	19	37	818	818	16	798	75	4
		RSE	(29)	(40)	(71)	(117)	(127)	(62)	(89)	(44)	(16)	(23)
3321	Insurance representatives	N	36	5	2	7	43	43	4	41	10	1
		RSE	(59)	(47)	(95)	(147)	(158)	(90)	(92)	(19)	(20)	(0)
3322	Commercial sales representatives	N	62	5	1	6	68	68	4	66	17	
		RSE	(55)	(16)	(0)	(25)	(97)	(66)	(79)	(94)	(38)	
3323	Buyers	N	670	8	15	23	693	693	7	677	46	3
		RSE	(14)	(11)	(24)	(51)	(57)	(32)	(5)	(77)	(13)	(38)
3324	Trade brokers	N	13		1	1	14	14	1	14	2	
		RSE	(78)		(0)	(0)	(126)	(126)	(0)	(126)	(0)	
333	Business services agents	N	151	5	4	9	160	160	5	156	17	3
		RSE	(21)	(67)	(39)	(412)	(387)	(43)	(34)	(53)	(63)	(0)
3331	Clearing and forwarding agents	N	101	2		2	103	103	1	102	6	1
		RSE	(31)	(0)		(0)	(75)	(74)	(0)	(104)	(14)	(0)
3332	Conference and event planners	N	15	1	1	2	17	17		15	4	
		RSE	(55)	(0)	(0)	(0)	(66)	(51)			(89)	
3333	Employment agents and contractors	N	2				2	2		2		
		RSE	(54)									
3334	Real estate agents and property managers	N	18		3	3	21	21	4	22	5	1
		RSE	(32)		(42)	(42)	(72)	(75)	(35)	(34)	(0)	(0)
3339	Business services agents not elsewhere classified	N	15	2		2	17	17		15	2	1
		RSE	(41)	(0)		(0)	(41)	(40)			(0)	(0)
334	Administrative and specialized secretaries	N	786	7	12	19	805	805	6	792	38	3
		RSE	(19)	(56)	(29)	(217)	(202)	(46)	(24)	(48)	(48)	(0)
3341	Office supervisors	N	590	5	8	13	603	603	5	595	29	1
		RSE	(20)	(53)	(51)	(127)	(126)	(51)	(32)	(55)	(52)	(0)
3342	Legal secretaries	N	10				10	10	1	11	2	
		RSE	(51)						(0)	(39)	(0)	
3343	Administrative and executive secretaries	N	183	2	4	6	189	189		183	7	2
		RSE	(34)	(0)	(41)	(114)	(116)	(68)			(4)	(0)
3344	Medical secretaries	N	3				3	3		3		
		RSE	(65)									
335	Regulatory government associate professionals	N	9	1		1	10	10		9	2	
		RSE	(27)	(0)		(0)	(119)	(112)			(0)	
3351	Customs and border inspectors	N	2				2	2		2		
		RSE	(32)									
3352	Government tax and excise officials	N	1				1	1		1		
		RSE	(0)									
3353	Government social benefits officials	N	2				2	2		2		
		RSE	(35)									

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
3354	Government licensing officials	N	1				1	1		1	1	
		RSE	(0)								(0)	
3359	Regulatory government associate professionals not elsewhere classified	N	3	1		1	4	4		3	1	
		RSE	(31)	(0)		(0)	(104)	(84)			(0)	
34	Legal, social, cultural and related associate professionals	N	56	1	2	3	59	59	2	58	9	1
		RSE	(28)	(0)	(38)	(0)	(94)	(90)	(24)	(79)	(48)	(0)
341	Legal, social and religious associate professionals	N	26		1	1	27	27	1	27	3	
		RSE	(63)		(0)	(0)	(118)	(118)	(0)	(127)	(26)	
3411	Legal and related associate professionals	N	14				14	14	1	15	2	
		RSE	(47)						(0)	(101)	(16)	
3412	Social work associate professionals	N	4				4	4		4	1	
		RSE	(30)								(0)	
3413	Religious associate professionals	N	8		1	1	9	9		8		
		RSE	(61)		(0)	(0)	(117)	(117)				
342	Sports and fitness workers	N	1	1		1	2	2		1	1	
		RSE	(0)	(0)		(0)	(286)	(235)			(0)	
3423	Fitness and recreation instructors and program leaders	N	1	1		1	2	2		1	1	
		RSE	(0)	(0)		(0)	(286)	(235)			(0)	
343	Artistic, cultural and culinary associate professionals	N	29		1	1	30	30	1	30	5	1
		RSE	(22)		(0)	(0)	(102)	(102)	(0)	(105)	(95)	(0)
3431	Photographers	N	5				5	5		5	1	
		RSE	(27)								(0)	
3432	Interior designers and decorators	N	8		1	1	9	9	1	9	1	1
		RSE	(40)		(0)	(0)	(104)	(104)	(0)	(125)	(0)	(0)
3434	Chefs	N	14				14	14		14	3	
		RSE	(39)								(0)	
3435	Other artistic and cultural associate professionals	N	2				2	2		2		
		RSE	(0)									
35	Information and communications technicians	N	236	9	11	20	256	256	13	249	30	4
		RSE	(18)	(40)	(88)	(106)	(79)	(60)	(51)	(56)	(18)	(90)
351	Information and communications technology operations and user support technicians	N	215	8	9	17	232	232	13	228	29	3
		RSE	(20)	(45)	(41)	(249)	(257)	(41)	(51)	(55)	(20)	(59)
3511	Information and communications technology operations technicians	N	51	2	2	4	55	55	4	55	11	1
		RSE	(47)	(33)	(0)	(269)	(258)	(42)	(4)	(52)	(21)	(0)
3512	Information and communications technology user support technicians	N	19		1	1	20	20	2	21	3	
		RSE	(27)		(0)	(0)	(102)	(102)	(45)	(80)	(0)	

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
3513	Computer network and systems technicians	N	141	6	6	12	153	153	7	148	14	2
		RSE	(22)	(52)	(39)	(202)	(209)	(51)	(62)	(65)	(17)	(18)
3514	Web technicians	N	4				4	4		4	1	
		RSE	(47)								(0)	
352	Telecommunications and broadcasting technicians	N	21	1	2	3	24	24		21	1	1
		RSE	(48)	(0)	(99)	(110)	(48)	(52)			(0)	(0)
3521	Broadcasting and audio-visual technicians	N	4		1	1	5	5		4		1
		RSE	(78)		(0)	(0)	(15)	(27)				(0)
3522	Telecommunications engineering technicians	N	17	1	1	2	19	19		17	1	
		RSE	(59)	(0)	(0)	(106)	(74)	(62)			(0)	
4	Clerical support workers	N	6,869	169	197	366	7,237	7,237	143	7,015	690	39
		RSE	(12)	(21)	(24)	(60)	(62)	(18)	(57)	(54)	(12)	(29)
41	General and keyboard clerks	N	785	28	31	59	844	844	16	801	102	13
		RSE	(23)	(41)	(29)	(71)	(78)	(39)	(42)	(50)	(23)	(20)
411	General office clerks	N	574	22	28	50	624	624	12	586	80	10
		RSE	(26)	(31)	(32)	(89)	(106)	(39)	(59)	(65)	(30)	(17)
4110	General office clerks	N	574	22	28	50	624	624	12	586	80	10
		RSE	(26)	(31)	(32)	(89)	(106)	(39)	(59)	(65)	(30)	(17)
412	Secretaries (general)	N	74	3	2	5	79	79	1	75	9	1
		RSE	(21)	(23)	(25)	(245)	(213)	(42)	(0)	(100)	(40)	(0)
4120	Secretaries (general)	N	74	3	2	5	79	79	1	75	9	1
		RSE	(21)	(23)	(25)	(245)	(213)	(42)	(0)	(100)	(40)	(0)
413	Keyboard operators	N	137	3	1	4	141	141	3	140	13	2
		RSE	(21)	(86)	(0)	(104)	(101)	(81)	(47)	(70)	(22)	(3)
4131	Typists and word processing operators	N	4				4	4		4		1
		RSE	(61)									(0)
4132	Data entry clerks	N	133	3	1	4	137	137	3	136	13	1
		RSE	(22)	(86)	(0)	(104)	(100)	(79)	(47)	(70)	(22)	(0)
42	Customer services clerks	N	1,155	49	52	101	1,256	1,256	51	1,207	186	8
		RSE	(12)	(21)	(33)	(71)	(73)	(27)	(67)	(56)	(11)	(54)
421	Tellers, money collectors and related clerks	N	632	33	33	66	698	698	36	669	108	1
		RSE	(17)	(27)	(31)	(129)	(135)	(27)	(73)	(56)	(12)	(0)
4211	Bank tellers and related clerks	N	375	17	17	34	409	409	11	386	61	1
		RSE	(10)	(31)	(27)	(130)	(135)	(29)	(36)	(46)	(11)	(0)
4212	Bookmakers, croupiers and related gaming workers	N	1				1	1		1	1	
		RSE	(0)								(0)	
4213	Pawnbrokers and money-lenders	N	50	3	2	5	55	55	1	52	5	
		RSE	(14)	(20)	(49)	(112)	(102)	(56)	(0)	(94)	(30)	
4214	Debt-collectors and related workers	N	206	13	14	27	233	233	24	230	41	
		RSE	(27)	(40)	(49)	(288)	(289)	(42)	(78)	(53)	(19)	
422	Client information workers	N	523	16	19	35	558	558	15	538	78	7
		RSE	(13)	(22)	(61)	(83)	(82)	(57)	(37)	(45)	(22)	(57)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
4221	Travel consultants and clerks	N	51	3	5	8	59	59	1	52	8	1
		RSE	(32)	(25)	(31)	(96)	(108)	(52)	(0)	(98)	(15)	(0)
4222	Contact centre information clerks	N	66	4	2	6	72	72	2	68	11	
		RSE	(38)	(60)	(0)	(93)	(99)	(66)	(54)	(56)	(32)	
4223	Telephone switchboard operators	N	20	2		2	22	22		20	1	
		RSE	(26)	(16)		(16)	(64)	(62)			(0)	
4224	Hotel receptionists	N	12		1	1	13	13	2	14	5	2
		RSE	(11)		(0)	(0)	(102)	(103)	(33)	(68)	(21)	(0)
4225	Enquiry clerks	N	191	6	4	10	201	201	6	197	32	3
		RSE	(11)	(16)	(74)	(542)	(526)	(50)	(23)	(42)	(33)	(12)
4226	Receptionists (general)	N	140	1	4	5	145	145	1	141	8	
		RSE	(20)	(0)	(48)	(212)	(199)	(52)	(0)	(99)	(41)	
4227	Survey and market research interviewers	N	4				4	4	1	5	2	
		RSE	(86)						(0)	(14)	(93)	
4229	Client information workers not elsewhere classified	N	39		3	3	42	42	2	41	11	1
		RSE	(38)		(87)	(87)	(75)	(87)	(81)	(96)	(45)	(0)
43	Numerical and material recording clerks	N	4,192	70	95	165	4,359	4,359	65	4,259	334	15
		RSE	(16)	(20)	(21)	(70)	(80)	(20)	(28)	(32)	(15)	(41)
431	Numerical clerks	N	1,639	35	38	73	1,713	1,713	27	1,667	157	9
		RSE	(16)	(27)	(31)	(357)	(386)	(27)	(47)	(53)	(18)	(52)
4311	Accounting and bookkeeping clerks	N	1,020	19	24	43	1,063	1,063	18	1,038	94	6
		RSE	(18)	(26)	(33)	(165)	(172)	(31)	(54)	(60)	(22)	(56)
4312	Statistical, finance and insurance clerks	N	417	13	14	27	445	445	9	427	53	3
		RSE	(19)	(45)	(53)	(317)	(330)	(39)	(23)	(41)	(36)	(23)
4313	Payroll clerks	N	202	3		3	205	205		202	10	
		RSE	(30)	(0)		(0)	(91)	(90)			(12)	
432	Material-recording and transport clerks	N	2,553	35	57	92	2,646	2,646	38	2,592	177	6
		RSE	(17)	(21)	(31)	(54)	(58)	(29)	(30)	(39)	(19)	(19)
4321	Stock clerks	N	1,606	23	37	60	1,667	1,667	25	1,632	114	3
		RSE	(21)	(24)	(38)	(64)	(70)	(36)	(23)	(37)	(15)	(5)
4322	Production clerks	N	808	7	13	20	828	828	12	820	54	1
		RSE	(25)	(29)	(64)	(102)	(118)	(57)	(84)	(71)	(12)	(0)
4323	Transport clerks	N	139	5	7	12	151	151	1	140	9	2
		RSE	(18)	(36)	(38)	(100)	(98)	(40)	(0)	(89)	(71)	(16)
44	Other clerical support workers	N	737	22	19	41	778	778	11	748	68	3
		RSE	(25)	(53)	(52)	(91)	(97)	(39)	(36)	(52)	(48)	(45)
441	Other clerical support workers	N	737	22	19	41	778	778	11	748	68	3
		RSE	(25)	(53)	(52)	(91)	(97)	(39)	(36)	(52)	(48)	(45)
4412	Mail carriers and sorting clerks	N	40	2	3	5	45	45	2	42	8	
		RSE	(36)	(12)	(4)	(243)	(181)	(55)	(75)	(91)	(24)	
4413	Coding, proof-reading and related clerks	N	11		4	4	15	15		11	2	
		RSE	(72)		(73)	(73)	(22)	(27)			(0)	

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
4414	Scribes and related workers	N	5				5	5		5		
		RSE	(11)									
4415	Filing and copying clerks	N	55	1	3	4	59	59	1	56	7	
		RSE	(42)	(0)	(88)	(386)	(758)	(60)	(0)	(111)	(80)	
4416	Personnel clerks	N	532	15	7	22	554	554	7	539	42	1
		RSE	(31)	(21)	(58)	(163)	(158)	(39)	(23)	(50)	(60)	(0)
4419	Clerical support workers not elsewhere classified	N	94	4	2	6	100	100	1	95	9	2
		RSE	(25)	(61)	(16)	(112)	(113)	(66)	(0)	(103)	(23)	(25)
5	Service and sales workers	N	2,939	115	156	272	3,211	3,211	108	3,048	339	72
		RSE	(15)	(22)	(35)	(92)	(85)	(17)	(34)	(35)	(17)	(17)
51	Personal service workers	N	811	22	39	62	873	873	15	826	74	19
		RSE	(13)	(23)	(19)	(196)	(203)	(18)	(13)	(29)	(15)	(12)
511	Travel attendants, conductors and guides	N	36	3	3	6	42	42	1	37	5	
		RSE	(35)	(64)	(58)	(88)	(86)	(66)	(0)	(99)	(65)	
5111	Travel attendants and travel stewards	N	13		1	1	14	14		13		
		RSE	(85)		(0)	(0)	(141)	(142)				
5112	Transport conductors	N	11	2	2	4	15	15	1	12	3	
		RSE	(57)	(99)	(58)	(119)	(95)	(60)	(0)	(100)	(64)	
5113	Travel guides	N	12	1		1	13	13		12	2	
		RSE	(56)	(0)		(0)	(88)	(85)			(0)	
512	Cooks	N	331	5	11	16	347	347	4	335	20	9
		RSE	(14)	(14)	(26)	(83)	(86)	(32)	(48)	(65)	(14)	(14)
5120	Cooks	N	331	5	11	16	347	347	4	335	20	9
		RSE	(14)	(14)	(26)	(83)	(86)	(32)	(48)	(65)	(14)	(14)
513	Waiters and bartenders	N	133	11	17	29	162	162	9	142	40	9
		RSE	(16)	(28)	(20)	(231)	(240)	(25)	(18)	(35)	(14)	(18)
5131	Waiters	N	110	9	13	23	133	133	8	118	33	7
		RSE	(16)	(27)	(18)	(12695)	(13205)	(27)	(20)	(36)	(12)	(17)
5132	Bartenders	N	23	2	4	6	29	29	1	24	7	2
		RSE	(17)	(47)	(23)	(19)	(46)	(48)	(0)	(103)	(40)	(47)
515	Building and housekeeping supervisors	N	306	2	7	9	315	315	1	307	8	1
		RSE	(28)	(0)	(27)	(151)	(142)	(51)	(0)	(104)	(23)	(0)
5151	Cleaning and housekeeping supervisors in offices, hotels and other establishments	N	105	1	1	2	107	107	1	106	3	
		RSE	(26)	(0)	(0)	(0)	(92)	(89)	(0)	(103)	(3)	
5152	Domestic housekeepers	N	9				9	9		9	1	
		RSE	(21)								(0)	
5153	Building caretakers	N	192	1	6	7	199	199		192	4	1
		RSE	(40)	(0)	(27)	(28)	(65)	(64)			(66)	(0)
516	Other personal services workers	N	5	1	1	2	7	7		5	1	
		RSE	(47)	(0)	(0)	(101)	(10)	(16)			(0)	
5164	Pet groomers and animal care workers	N	3	1		1	4	4		3		
		RSE	(40)	(0)		(0)	(164)	(151)				

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
5169	Personal services workers not elsewhere classified	N	2		1	1	3	3		2	1	
		RSE	(93)		(0)	(0)	(2)	(4)			(0)	
52	Sales workers	N	1,312	78	92	170	1,482	1,482	83	1,396	225	52
		RSE	(17)	(23)	(24)	(68)	(64)	(15)	(46)	(49)	(19)	(23)
521	Street and market salespersons	N	318	4	11	15	333	333	6	324	14	14
		RSE	(18)	(14)	(22)	(49)	(51)	(33)	(24)	(40)	(15)	(10)
5211	Stall and market salespersons	N	59		2	2	61	61		59	2	2
		RSE	(20)		(0)	(0)	(54)	(55)			(0)	(0)
5212	Street food salespersons	N	259	4	9	13	272	272	6	265	12	12
		RSE	(19)	(14)	(24)	(60)	(62)	(36)	(24)	(39)	(12)	(11)
522	Shop salespersons	N	311	13	19	32	343	343	8	319	40	19
		RSE	(19)	(33)	(41)	(150)	(150)	(27)	(48)	(53)	(25)	(25)
5221	Shop keepers	N	149	1	1	2	151	151		149	1	1
		RSE	(17)	(0)	(0)	(104)	(99)	(94)			(0)	(0)
5222	Shop supervisors	N	32		1	1	33	33	1	33	1	1
		RSE	(37)		(0)	(0)	(110)	(111)	(0)	(106)	(0)	(0)
5223	Shop sales assistants	N	130	12	17	29	159	159	7	137	38	17
		RSE	(24)	(33)	(41)	(131)	(133)	(30)	(48)	(50)	(25)	(26)
523	Cashiers and ticket clerks	N	144	5	6	11	155	155	2	146	13	1
		RSE	(16)	(76)	(64)	(345)	(338)	(55)	(0)	(87)	(36)	(0)
5230	Cashiers and ticket clerks	N	144	5	6	11	155	155	2	146	13	1
		RSE	(16)	(76)	(64)	(345)	(338)	(55)	(0)	(87)	(36)	(0)
524	Other sales workers	N	539	56	56	112	651	651	67	607	158	18
		RSE	(29)	(35)	(29)	(138)	(139)	(32)	(62)	(62)	(21)	(27)
5242	Sales demonstrators	N	193	18	17	35	228	228	27	220	60	1
		RSE	(14)	(30)	(23)	(294)	(298)	(28)	(34)	(34)	(19)	(0)
5243	Door to door salespersons	N	149	20	15	35	184	184	24	174	53	5
		RSE	(49)	(52)	(32)	(75)	(101)	(71)	(29)	(60)	(22)	(74)
5244	Contact centre salespersons	N	70	9	9	18	88	88	8	78	25	3
		RSE	(23)	(54)	(60)	(188)	(185)	(35)	(34)	(47)	(41)	(95)
5245	Service station attendants	N	1				1	1		1		
		RSE	(0)									
5246	Food service counter attendants	N	79	4	11	15	94	94	2	81	11	9
		RSE	(30)	(17)	(29)	(46)	(34)	(22)	(33)	(53)	(23)	(22)
5249	Sales workers not elsewhere classified	N	47	5	4	9	56	56	6	53	9	
		RSE	(57)	(90)	(79)	(170)	(197)	(52)	(95)	(23)	(74)	
53	Personal care workers	N	2				2	2		2		
		RSE	(20)									
531	Child care workers and teachers' aides	N	1				1	1		1		
		RSE	(0)									
5311	Child care workers	N	1				1	1		1		
		RSE	(0)									
532	Personal care workers in health services	N	1				1	1		1		
		RSE	(0)									

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
5329	Personal care workers in health services not elsewhere classified	N	1				1	1		1		
		RSE	(0)									
54	Protective services workers	N	814	15	25	40	854	854	10	824	40	1
		RSE	(29)	(48)	(80)	(173)	(152)	(47)	(77)	(68)	(13)	(0)
541	Protective services workers	N	814	15	25	40	854	854	10	824	40	1
		RSE	(29)	(48)	(80)	(173)	(152)	(47)	(77)	(68)	(13)	(0)
5414	Security guards	N	809	15	24	39	848	848	10	819	40	1
		RSE	(29)	(48)	(80)	(173)	(152)	(47)	(77)	(68)	(13)	(0)
5419	Protective services workers not elsewhere classified	N	5		1	1	6	6		5		
		RSE	(81)		(0)	(0)	(156)	(158)				
6	Skilled agricultural, forestry and fishery workers	N	30	1	5	6	36	36		30	1	
		RSE	(73)	(0)	(56)	(129)	(50)	(26)			(0)	
61	Market-oriented skilled agricultural workers	N	29	1	5	6	35	35		29	1	
		RSE	(73)	(0)	(56)	(129)	(49)	(25)			(0)	
611	Market gardeners and crop growers	N	24	1	4	5	29	29		24		
		RSE	(76)	(0)	(55)	(130)	(48)	(24)				
6111	Field crop and vegetable growers	N	6				6	6		6		
		RSE	(76)									
6112	Tree and shrub crop growers	N	12	1	4	5	17	17		12		
		RSE	(96)	(0)	(55)	(130)	(35)	(23)				
6113	Gardeners, horticultural and nursery growers	N	6				6	6		6		
		RSE	(44)									
612	Animal producers	N	4				4	4		4	1	
		RSE	(77)								(0)	
6121	Livestock and dairy producers	N	3				3	3		3	1	
		RSE	(47)								(0)	
6122	Poultry producers	N	1				1	1		1		
		RSE	(0)									
613	Mixed crop and animal producers	N	1		1	1	2	2		1		
		RSE	(0)		(0)	(0)	(133)	(160)				
6130	Mixed crop and animal producers	N	1		1	1	2	2		1		
		RSE	(0)		(0)	(0)	(133)	(160)				
62	Market-oriented skilled forestry, fishery and hunting workers	N	1				1	1		1		
		RSE	(0)									
622	Fishery workers, hunters and trappers	N	1				1	1		1		
		RSE	(0)									
6221	Aquaculture workers	N	1				1	1		1		
		RSE	(0)									
7	Craft and related trades workers	N	2,950	103	198	306	3,256	3,256	81	3,036	447	43
		RSE	(15)	(47)	(40)	(47)	(38)	(29)	(21)	(29)	(25)	(17)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
71	Building and related trades workers, excluding electricians	N	105	8	8	17	122	122	5	110	30	
		RSE	(20)	(36)	(76)	(143)	(130)	(53)	(48)	(61)	(48)	
711	Building frame and related trades workers	N	23		3	4	27	27	2	25	11	
		RSE	(47)		(76)	(76)	(29)	(38)	(56)	(74)	(49)	
7111	House builders	N	8		2	3	11	11	2	10	3	
		RSE	(25)		(0)	(6)	(39)	(53)	(56)	(14)	(63)	
7112	Bricklayers and related workers	N	4				4	4		4	2	
		RSE	(62)								(40)	
7114	Concrete placers, concrete finishers and related workers	N	3				3	3		3	3	
		RSE	(41)								(11)	
7115	Carpenters and joiners	N	7		1	1	8	8		7	3	
		RSE	(77)		(0)	(0)	(21)	(28)			(86)	
7119	Building frame and related trades workers not elsewhere classified	N	1				1	1		1		
		RSE	(0)									
712	Building finishers and related trades workers	N	34	7	3	10	44	44	3	37	8	
		RSE	(32)	(36)	(24)	(47)	(58)	(49)	(74)	(88)	(32)	
7121	Roofers	N	2				2	2		2	1	
		RSE	(99)								(0)	
7124	Insulation workers	N	2				2	2		2		
		RSE	(13)									
7126	Plumbers and pipe fitters	N	18	4	1	5	23	23	2	20	5	
		RSE	(41)	(55)	(0)	(54)	(70)	(66)	(74)	(100)	(56)	
7127	Air conditioning and refrigeration mechanics	N	12	3	2	5	17	17	1	13	2	
		RSE	(32)	(89)	(0)	(109)	(111)	(71)	(0)	(121)	(25)	
713	Painters, building structure cleaners and related trades workers	N	48	1	2	3	51	51		48	11	
		RSE	(37)	(0)	(10)	(1451)	(1247)	(68)			(82)	
7131	Painters and related workers	N	7				7	7		7	2	
		RSE	(41)								(0)	
7132	Spray painters and varnishers	N	41	1	2	3	44	44		41	9	
		RSE	(30)	(0)	(10)	(1451)	(1258)	(64)			(1)	
72	Metal, machinery and related trades workers	N	958	30	43	73	1,031	1,031	17	976	117	3
		RSE	(16)	(38)	(71)	(141)	(139)	(49)	(67)	(66)	(42)	(1)
721	Sheet and structural metal workers, moulders and welders, and related workers	N	110	6	11	17	127	127	3	114	26	
		RSE	(24)	(20)	(89)	(90)	(76)	(81)	(86)	(85)	(85)	
7211	Metal moulders and coremakers	N	14	1	2	3	17	17	1	15	4	
		RSE	(37)	(0)	(33)	(128)	(121)	(95)	(0)	(103)	(25)	
7212	Welders and flamecutters	N	67	5	8	13	80	80	2	69	14	
		RSE	(34)	(14)	(93)	(93)	(75)	(84)	(93)	(85)	(89)	

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
7213	Sheet-metal workers	N	18				18	18		18	7	
		RSE	(36)								(50)	
7214	Structural-metal preparers and erectors	N	10		1	1	11	11		10		
		RSE	(24)		(0)	(0)	(92)	(95)				
7215	Riggers and cable splicers	N	1				1	1		2	1	
		RSE	(0)								(0)	
722	Blacksmiths, toolmakers and related trades workers	N	113	4	10	14	127	127	3	116	20	
		RSE	(34)	(43)	(53)	(60)	(42)	(35)	(57)	(66)	(25)	
7221	Blacksmiths, hammersmiths and forging press workers	N	20		2	2	22	22		20	3	
		RSE	(21)		(50)	(50)	(55)	(55)			(0)	
7222	Toolmakers and related workers	N	3				3	3		3		
		RSE	(77)									
7223	Metal working machine tool setters and operators	N	62	4	8	12	74	74	3	65	16	
		RSE	(42)	(43)	(48)	(56)	(36)	(30)	(57)	(62)	(26)	
7224	Metal polishers, wheel grinders and tool sharpeners	N	28				28	28		28	1	
		RSE	(32)								(0)	
723	Machinery mechanics and repairers	N	735	20	22	42	777	777	11	746	71	3
		RSE	(17)	(40)	(26)	(68)	(72)	(36)	(39)	(49)	(30)	(1)
7231	Motor vehicle mechanics and repairers	N	65	4	4	8	73	73		65	8	1
		RSE	(33)	(44)	(12)	(70)	(69)	(52)			(47)	(0)
7232	Aircraft engine mechanics and repairers	N	1				1	1		1		
		RSE	(0)									
7233	Agricultural and industrial machinery mechanics and repairers	N	667	16	18	34	701	701	11	678	63	2
		RSE	(16)	(50)	(36)	(210)	(233)	(32)	(39)	(47)	(12)	(5)
7234	Bicycle and related repairers	N	2				2	2		2		
		RSE	(0)									
73	Handicraft and printing workers	N	185	11	19	30	215	215	7	193	24	4
		RSE	(26)	(40)	(42)	(52)	(41)	(32)	(43)	(66)	(42)	(0)
731	Handicraft workers	N	84	5	6	11	95	95	5	89	9	1
		RSE	(31)	(70)	(65)	(76)	(71)	(53)	(11)	(83)	(11)	(0)
7311	Precision-instrument makers and repairers	N	6				6	6		6		
		RSE	(38)									
7312	Musical instrument makers and tuners	N	1				1	1		1		
		RSE	(0)									
7313	Jewellery and precious-metal workers	N	4				4	4		4		1
		RSE	(77)									(0)
7315	Glass makers, cutters, grinders and finishers	N	3				3	3		3		
		RSE	(29)									

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
7316	Sign writers, decorative painters, engravers and etchers	N	9				9	9		9	1	
		RSE	(67)								(0)	
7317	Handicraft workers in wood, basketry and related materials	N	6				6	6		6	1	
		RSE	(17)								(0)	
7318	Handicraft workers in textile, leather and related materials	N	54	5	6	11	65	65	4	58	6	
		RSE	(52)	(70)	(65)	(76)	(40)	(20)	(42)	(112)	(53)	
7319	Handicraft workers not elsewhere classified	N	1				1	1	1	2	1	
		RSE	(0)						(0)	(150)	(0)	
732	Printing trades workers	N	101	6	13	19	120	120	2	104	15	3
		RSE	(31)	(47)	(37)	(47)	(42)	(34)	(93)	(99)	(60)	(0)
7321	Pre-press technicians	N	11		1	1	12	12	1	12	1	
		RSE	(39)		(0)	(0)	(59)	(62)	(0)	(104)	(0)	
7322	Printers	N	73	4	10	14	87	87	1	75	12	2
		RSE	(23)	(31)	(51)	(54)	(38)	(41)	(0)	(108)	(78)	(0)
7323	Print finishing and binding workers	N	17	2	2	4	21	21		17	2	1
		RSE	(44)	(33)	(81)	(138)	(123)	(73)			(0)	(0)
74	Electrical and electronic trades workers	N	239	14	16	30	269	269	7	246	37	4
		RSE	(15)	(25)	(48)	(390)	(404)	(30)	(50)	(61)	(34)	(59)
741	Electrical equipment installers and repairers	N	146	10	6	16	162	162	4	150	22	
		RSE	(17)	(32)	(35)	(46)	(55)	(41)	(38)	(61)	(53)	
7411	Building and related electricians	N	33	2		2	35	35		33	4	
		RSE	(35)	(38)		(38)	(91)	(89)			(86)	
7412	Electrical mechanics and fitters	N	79	5	2	7	86	86	2	81	9	
		RSE	(24)	(46)	(0)	(82)	(80)	(41)	(0)	(77)	(10)	
7413	Electrical line installers and repairers	N	34	3	4	7	41	41	2	36	9	
		RSE	(30)	(83)	(37)	(124)	(118)	(64)	(75)	(96)	(27)	
742	Electronics and telecommunications installers and repairers	N	93	4	10	14	107	107	3	96	15	4
		RSE	(22)	(46)	(30)	(59)	(77)	(40)	(85)	(89)	(23)	(59)
7421	Electronics mechanics and servicers	N	29	1	6	7	36	36		29	3	
		RSE	(32)	(0)	(40)	(58)	(120)	(52)			(36)	
7422	Information and communications technology installers and servicers	N	64	3	4	7	71	71	3	67	12	4
		RSE	(31)	(47)	(46)	(86)	(86)	(55)	(85)	(88)	(28)	(59)
75	Food processing, wood working, garment and other craft and related trades workers	N	1,463	40	112	156	1,619	1,619	45	1,511	239	32
		RSE	(20)	(80)	(48)	(56)	(44)	(35)	(21)	(36)	(30)	(16)
751	Food processing and related trades workers	N	357	9	25	38	395	395	7	365	50	5
		RSE	(40)	(1)	(89)	(114)	(79)	(51)	(3)	(105)	(59)	(23)
7511	Butchers, fishmongers and related food preparers	N	62	2	12	18	80	80		63	14	1
		RSE	(28)	(11)	(11)	(13)	(66)	(61)			(2)	(0)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
7512	Bakers, pastry-cooks and confectionery makers	N	81	1	6	7	88	88	1	82	10	4
		RSE	(47)	(0)	(94)	(125)	(82)	(51)	(0)	(114)	(69)	(24)
7513	Dairy-products makers	N	2				2	2		2		
		RSE	(0)									
7514	Fruit, vegetable and related preservers	N	16	3	2	5	21	21		16	4	
		RSE	(15)	(71)	(0)	(10)	(163)	(158)			(0)	
7515	Food and beverage tasters and graders	N	196	3	5	8	204	204	6	202	22	
		RSE	(24)	(26)	(45)	(319)	(317)	(39)	(50)	(64)	(24)	
752	Wood treaters, cabinet-makers and related trades workers	N	12				12	12		12		
		RSE	(32)									
7522	Cabinet-makers and related workers	N	4				4	4		4		
		RSE	(26)									
7523	Woodworking-machine tool setters and operators	N	8				8	8		8		
		RSE	(95)									
753	Garment and related trades workers	N	415	10	47	57	472	472	23	439	81	26
		RSE	(18)	(9)	(39)	(39)	(30)	(33)	(21)	(30)	(23)	(15)
7531	Tailors, dressmakers, furriers and hatters	N	38	4	4	8	46	46	7	46	15	5
		RSE	(27)	(24)	(74)	(75)	(68)	(76)	(14)	(46)	(19)	(20)
7532	Garment and related pattern-makers and cutters	N	225	3	17	20	245	245	3	228	31	2
		RSE	(25)	(47)	(15)	(15)	(75)	(72)	(82)	(79)	(2)	(0)
7533	Sewing, embroidery and related workers	N	148	3	25	28	176	176	13	161	34	18
		RSE	(20)	(0)	(49)	(48)	(32)	(37)	(25)	(34)	(22)	(15)
7534	Upholsterers and related workers	N	1		1	1	2	2		1	1	1
		RSE	(0)		(0)	(0)	(100)	(133)			(0)	(0)
7535	Pelt dressers, tanners and fellmongers	N	1				1	1		1		
		RSE	(0)									
7536	Shoemakers and related workers	N	2				2	2		2		
		RSE	(0)									
754	Other craft and related workers	N	679	21	40	61	740	740	15	695	108	1
		RSE	(22)	(25)	(33)	(45)	(41)	(26)	(54)	(45)	(5)	(0)
7541	Underwater divers	N	2				2	2		2		
		RSE	(50)									
7543	Product graders and testers (excluding foods and beverages)	N	655	20	40	60	715	715	15	671	103	1
		RSE	(22)	(25)	(33)	(44)	(40)	(26)	(54)	(45)	(20)	(0)
7544	Fumigators and other pest and weed controllers	N	4	1		1	5	5		4	1	
		RSE	(4)	(0)		(0)	(110)	(107)			(0)	
7549	Craft and related workers not elsewhere classified	N	18				18	18		18	4	
		RSE	(10)								(0)	

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
8	Plant and machine operators, and assemblers	N	3,209	172	361	539	3,750	3,750	116	3,335	591	23
		RSE	(14)	(28)	(39)	(66)	(59)	(25)	(34)	(33)	(37)	(70)
81	Stationary plant and machine operators	N	1,995	137	306	449	2,445	2,445	97	2,101	464	17
		RSE	(16)	(37)	(42)	(61)	(56)	(31)	(21)	(33)	(52)	(80)
811	Mining and mineral processing plant operators	N	19	3	4	7	26	26		19	7	
		RSE	(22)	(68)	(11)	(350)	(364)	(73)			(32)	
8111	Miners and quarriers	N	1				1	1		1		
		RSE	(0)									
8112	Mineral and stone processing plant operators	N	6		3	3	9	9		6	4	
		RSE	(54)		(27)	(27)	(84)	(85)			(51)	
8113	Well drillers and borers and related workers	N	3	1		1	4	4		3		
		RSE	(29)									
8114	Cement, stone and other mineral products machine operators	N	9	2	1	3	12	12		9	3	
		RSE	(44)	(0)	(0)	(445)	(137)	(94)			(41)	
812	Metal processing and finishing plant operators	N	112	15	22	37	149	149	9	121	42	
		RSE	(37)	(40)	(30)	(88)	(97)	(18)	(36)	(45)	(44)	
8121	Metal processing plant operators	N	84	14	19	33	117	117	8	92	35	
		RSE	(39)	(36)	(26)	(180)	(197)	(19)	(62)	(44)	(49)	
8122	Metal finishing, plating and coating machine operators	N	28	1	3	4	32	32	1	29	7	
		RSE	(28)	(0)	(78)	(97)	(84)	(62)	(0)	(93)	(14)	
813	Chemical and photographic products plant and machine operators	N	289	15	35	50	340	340	7	297	43	1
		RSE	(21)	(32)	(25)	(248)	(249)	(22)	(66)	(77)	(16)	(0)
8131	Chemical products plant and machine operators	N	289	15	35	50	340	340	7	297	42	1
		RSE	(21)	(32)	(25)	(248)	(249)	(22)	(66)	(77)	(15)	(0)
8132	Photographic products machine operators	N									1	
		RSE									(0)	
814	Rubber, plastic and paper products machine operators	N	111	6	9	15	126	126	7	118	25	2
		RSE	(47)	(18)	(91)	(101)	(85)	(72)	(44)	(54)	(44)	(0)
8141	Rubber products machine operators	N	30	3	1	4	34	34	4	34	7	
		RSE	(52)	(29)	(0)	(69)	(94)	(91)	(74)	(40)	(53)	
8142	Plastic products machine operators	N	78	3	8	11	89	89	3	81	18	2
		RSE	(55)	(10)	(91)	(96)	(80)	(72)	(77)	(70)	(61)	(0)
8143	Paper products machine operators	N	3				3	3		3		
		RSE	(52)									
815	Textile, fur and leather products machine operators	N	739	60	158	219	958	958	62	805	225	9
		RSE	(20)	(44)	(37)	(52)	(59)	(36)	(18)	(33)	(50)	(0)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
8151	Fibre preparing, spinning and winding machine operators	N	139	7	34	41	180	180	4	143	39	2
		RSE	(20)	(47)	(28)	(44)	(35)	(23)	(43)	(65)	(17)	(0)
8152	Weaving and knitting machine operators	N	199	17	43	60	259	259	12	211	58	3
		RSE	(33)	(44)	(71)	(98)	(77)	(43)	(39)	(33)	(39)	(33)
8153	Sewing machine operators	N	185	28	50	79	264	264	37	226	91	3
		RSE	(26)	(48)	(29)	(97)	(113)	(31)	(18)	(33)	(52)	(0)
8154	Bleaching, dyeing and fabric cleaning machine operators	N	86	2	15	17	103	103	3	89	22	1
		RSE	(35)	(48)	(72)	(80)	(50)	(39)	(58)	(67)	(44)	(0)
8155	Fur and leather preparing machine operators	N	1				1	1		1		
		RSE	(0)									
8156	Shoemaking and related machine operators	N	4		4	4	8	8		4		
		RSE	(33)		(50)	(50)	(24)	(39)				
8157	Laundry machine operators	N	78	6	9	15	93	93	4	82	9	
		RSE	(27)	(70)	(55)	(75)	(69)	(39)	(44)	(63)	(19)	
8159	Textile, fur and leather products machine operators not elsewhere classified	N	47		3	3	50	50	2	49	6	
		RSE	(19)		(20)	(20)	(86)	(87)	(43)	(88)	(45)	
816	Food and related products machine operators	N	406	24	53	79	485	485	9	416	67	2
		RSE	(15)	(29)	(47)	(91)	(89)	(32)	(91)	(92)	(16)	(0)
8160	Food and related products machine operators	N	406	24	53	79	485	485	9	416	67	2
		RSE	(15)	(29)	(47)	(91)	(89)	(32)	(91)	(92)	(16)	(0)
817	Wood processing and papermaking plant operators	N	2				2	2		2	1	
		RSE	(0)								(0)	
8172	Wood processing plant operators	N	2				2	2		2	1	
		RSE	(0)								(0)	
818	Other stationary plant and machine operators	N	317	14	25	42	359	359	3	323	54	3
		RSE	(19)	(40)	(33)	(90)	(93)	(29)	(8)	(53)	(17)	(0)
8181	Glass and ceramics plant operators	N	5				5	5		5	1	
		RSE	(52)								(0)	
8182	Steam engine and boiler operators	N	62	1	3	4	66	66	1	63	4	2
		RSE	(36)	(0)	(47)	(78)	(73)	(71)	(0)	(111)	(54)	(0)
8183	Packing, bottling and labelling machine operators	N	228	11	19	33	261	261	2	233	44	1
		RSE	(20)	(42)	(36)	(194)	(198)	(29)	(1)	(70)	(20)	(0)
8189	Stationary plant and machine operators not elsewhere classified	N	22	2	3	5	27	27		22	5	
		RSE	(29)	(70)	(70)	(94)	(96)	(72)			(23)	
82	Assemblers	N	117	15	17	32	149	149	5	122	35	1
		RSE	(34)	(69)	(51)	(1755)	(1749)	(33)	(4)	(93)	(86)	(0)
821	Assemblers	N	117	15	17	32	149	149	5	122	35	1
		RSE	(34)	(69)	(51)	(1755)	(1749)	(33)	(4)	(93)	(86)	(0)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
8211	Mechanical machinery assemblers	N	33	2	2	4	37	37	1	34	8	1
		RSE	(46)	(0)	(66)	(105)	(132)	(88)	(0)	(108)	(22)	(0)
8212	Electrical and electronic equipment assemblers	N	60	10	14	24	84	84	2	62	19	
		RSE	(45)	(73)	(49)	(747)	(750)	(24)	(0)	(107)	(15)	
8219	Assemblers not elsewhere classified	N	24	3	1	4	28	28	2	26	8	
		RSE	(40)	(61)	(0)	(75)	(88)	(84)	(24)	(75)	(1)	
83	Drivers and mobile plant operators	N	1,097	20	38	58	1,156	1,156	14	1,112	92	5
		RSE	(17)	(29)	(28)	(91)	(102)	(31)	(34)	(48)	(25)	(54)
831	Locomotive engine drivers and related workers	N	7				7	7		7		
		RSE	(10)									
8311	Locomotive engine drivers	N	2				2	2		2		
		RSE	(58)									
8312	Railway brake, signal and switch operators	N	5				5	5		5		
		RSE	(9)									
832	Car, van and motorcycle drivers	N	669	9	19	28	698	698	9	679	54	2
		RSE	(24)	(31)	(56)	(67)	(80)	(39)	(39)	(55)	(29)	(0)
8321	Motorcycle drivers	N	28	1		1	29	29		28	5	
		RSE	(37)	(0)		(0)	(85)	(83)			(72)	
8322	Car, taxi and van drivers	N	641	8	19	27	669	669	9	651	49	2
		RSE	(25)	(37)	(56)	(84)	(97)	(43)	(39)	(55)	(33)	(0)
833	Heavy truck and bus drivers	N	196	8	13	21	217	217	2	198	19	2
		RSE	(24)	(27)	(46)	(95)	(99)	(47)	(18)	(71)	(19)	(38)
8331	Bus and tram drivers	N	15		3	3	18	18		15	2	2
		RSE	(39)		(58)	(58)	(55)	(60)			(65)	(38)
8332	Heavy truck and lorry drivers	N	181	8	10	18	199	199	2	183	17	
		RSE	(27)	(27)	(59)	(252)	(257)	(45)	(18)	(72)	(17)	
834	Mobile plant operators	N	213	3	6	9	222	222	3	216	18	1
		RSE	(39)	(85)	(39)	(283)	(290)	(87)	(14)	(80)	(15)	(0)
8341	Mobile farm and forestry plant operators	N	4				4	4		4		
		RSE	(71)									
8342	Earthmoving and related plant operators	N	5				5	5		5	2	
		RSE	(85)								(28)	
8343	Crane, hoist and related plant operators	N	9		1	1	10	10		9		
		RSE	(24)		(0)	(0)	(85)	(90)				
8344	Lifting truck operators	N	195	3	5	8	203	203	3	198	16	1
		RSE	(25)	(85)	(19)	(110)	(138)	(86)	(14)	(61)	(17)	(0)
835	Ships' deck crews and related workers	N	12				12	12		12	1	
		RSE	(44)								(0)	
8350	Ships' deck crews and related workers	N	12				12	12		12	1	
		RSE	(44)								(0)	
9	Elementary occupations	N	2,980	94	158	261	3,242	3,242	62	3,052	367	52
		RSE	(13)	(20)	(18)	(48)	(51)	(17)	(27)	(27)	(17)	(11)

KBJI	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
91	Cleaners and helpers	N	1,029	14	22	36	1,065	1,065	10	1,040	58	5
		RSE	(24)	(40)	(45)	(358)	(369)	(36)	(61)	(63)	(18)	(28)
911	Domestic, hotel and office cleaners and helpers	N	994	14	20	34	1,028	1,028	9	1,004	56	5
		RSE	(25)	(40)	(54)	(2673)	(2707)	(38)	(63)	(64)	(19)	(28)
9111	Domestic cleaners and helpers	N	98				98	98		98	3	1
		RSE	(23)								(0)	(0)
9112	Cleaners and helpers in offices, hotels and other establishments	N	896	14	20	34	930	930	9	906	53	4
		RSE	(27)	(40)	(54)	(2673)	(2699)	(39)	(63)	(64)	(18)	(41)
912	Vehicle, window, laundry and other hand cleaning workers	N	35		2	2	37	37	1	36	2	
		RSE	(25)		(0)	(0)	(86)	(88)	(0)	(98)	(85)	
9121	Hand launderers and pressers	N	24		1	1	25	25	1	25		
		RSE	(21)		(0)	(0)	(95)	(95)	(0)	(92)		
9122	Vehicle cleaners	N	5		1	1	6	6		5	1	
		RSE	(74)		(0)	(0)	(31)	(35)			(0)	
9129	Other cleaning workers	N	6				6	6		6	1	
		RSE	(24)								(0)	
92	Agricultural, forestry and fishery labourers	N	44		1	1	45	45	1	45	6	1
		RSE	(46)		(0)	(0)	(111)	(111)	(0)	(107)	(2)	(0)
921	Agricultural, forestry and fishery labourers	N	44		1	1	45	45	1	45	6	1
		RSE	(46)		(0)	(0)	(111)	(111)	(0)	(107)	(2)	(0)
9211	Crop farm labourers	N	14		1	1	15	15		14	3	1
		RSE	(80)		(0)	(0)	(151)	(152)			(19)	(0)
9214	Garden and horticultural labourers	N	29				29	29	1	30	2	
		RSE	(44)						(0)	(102)	(0)	
9215	Forestry labourers	N									1	
		RSE									(0)	
9216	Fishery and aquaculture labourers	N	1				1	1		1		
		RSE	(0)									
93	Labourers in mining, construction, manufacturing and transport	N	1,289	49	88	146	1,436	1,436	29	1,327	203	12
		RSE	(17)	(31)	(40)	(76)	(78)	(36)	(39)	(48)	(40)	(27)
931	Mining and construction labourers	N	67	10	11	21	88	88	1	69	30	1
		RSE	(27)	(49)	(58)	(72)	(55)	(44)	(0)	(102)	(45)	(0)
9311	Mining and quarrying labourers	N	2		1	1	3	3		2		
		RSE	(0)		(0)	(0)	(102)	(103)				
9312	Civil engineering labourers	N	37	7	8	15	52	52	1	39	14	
		RSE	(36)	(60)	(83)	(100)	(73)	(58)	(0)	(108)	(57)	
9313	Building construction labourers	N	28	3	2	5	33	33		28	16	1
		RSE	(31)	(39)	(57)	(102)	(77)	(51)			(56)	(0)
932	Manufacturing labourers	N	811	23	56	87	898	898	21	838	128	9
		RSE	(25)	(46)	(44)	(1096)	(1016)	(43)	(38)	(49)	(49)	(26)
9321	Hand packers	N	397	12	38	52	449	449	10	407	74	7
		RSE	(33)	(59)	(48)	(493)	(458)	(55)	(62)	(77)	(50)	(27)

KBJL	Occupations		Total employment	Total increase	Total decrease	Net employment change	Employment growth	Turnover rate	Vacancies	Vacancy rate	Firms tried to hire	Unopened vacancies
9329	Manufacturing labourers not elsewhere classified	N	414	11	18	35	449	449	11	431	54	2
		RSE	(21)	(36)	(35)	(123)	(121)	(33)	(31)	(45)	(19)	(39)
933	Transport and storage labourers	N	411	16	21	38	450	450	7	420	45	2
		RSE	(32)	(34)	(34)	(123)	(129)	(45)	(63)	(77)	(30)	(94)
9333	Freight handlers	N	277	12	15	28	305	305	6	284	32	2
		RSE	(21)	(32)	(40)	(84)	(88)	(41)	(64)	(70)	(35)	(94)
9334	Shelf fillers	N	134	4	6	10	145	145	1	136	13	
		RSE	(72)	(70)	(35)	(214)	(236)	(95)	(0)	(122)	(40)	
94	Food preparation assistants	N	309	17	25	42	351	351	13	322	65	23
		RSE	(14)	(25)	(26)	(63)	(62)	(22)	(17)	(33)	(20)	(13)
941	Food preparation assistants	N	309	17	25	42	351	351	13	322	65	23
		RSE	(14)	(25)	(26)	(63)	(62)	(22)	(17)	(33)	(20)	(13)
9411	Fast food preparers	N	165	7	12	19	184	184	6	171	31	10
		RSE	(15)	(14)	(46)	(112)	(103)	(34)	(35)	(49)	(23)	(29)
9412	Kitchen helpers	N	144	10	13	23	167	167	7	151	34	13
		RSE	(17)	(28)	(19)	(48)	(51)	(24)	(35)	(46)	(18)	(14)
95	Street and related sales and service workers	N	5				5	5		5		
		RSE	(48)									
951	Street and related service workers	N	2				2	2		2		
		RSE	(28)									
9510	Street and related service workers	N	2				2	2		2		
		RSE	(28)									
952	Street vendors (excluding food)	N	3				3	3		3		
		RSE	(60)									
9520	Street vendors (excluding food)	N	3				3	3		3		
		RSE	(60)									
96	Refuse workers and other elementary workers	N	304	14	22	36	340	340	9	313	35	11
		RSE	(17)	(32)	(50)	(255)	(278)	(37)	(51)	(62)	(41)	(22)
961	Refuse workers	N	10				10	10		10	1	
		RSE	(32)								(0)	
9611	Garbage and recycling collectors	N	4				4	4		4		
		RSE	(56)									
9612	Refuse sorters	N	1				1	1		1	1	
		RSE	(0)								(0)	
9613	Sweepers and related labourers	N	5				5	5		5		
		RSE	(46)									
962	Other elementary workers	N	294	14	22	36	330	330	9	303	34	11
		RSE	(18)	(32)	(50)	(255)	(278)	(37)	(51)	(62)	(41)	(22)
9621	Messengers, package deliverers and luggage porters	N	234	13	16	29	263	263	7	241	28	7
		RSE	(19)	(32)	(77)	(107)	(118)	(44)	(54)	(65)	(33)	(44)
9622	Odd job persons	N	26	1	2	3	29	29	1	27	3	2
		RSE	(23)	(0)	(0)	(159)	(134)	(83)	(0)	(103)	(79)	(0)
9629	Elementary workers not elsewhere classified	N	34		4	4	38	38	1	35	3	2
		RSE	(26)		(46)	(46)	(43)	(46)	(0)	(84)	(91)	(0)

Short-Term Occupational Prospects

The occupational score presented in this report is a synthetic assessment of the occupational state at the 4-digit KBJI level based on multiple indicators. Given that no single indicator can describe the state of an occupation, the score evaluates carefully selected ones in order to make a holistic assessment. Indicators used to make the assessment include total employment, employment growth, total vacancies, total number of firms that tried to hire, turnover rate, and evidence of a skills shortage. A skills shortage is identified if vacancies are hard to fill (using the indicator “hard to fill”), if half or more firms that report having difficulty hiring also report that the difficulty is due to skills-related issues (using the indicator “difficult to hire”), or if firms did not open a vacancy due to a lack of certainty that they would find candidates with the appropriate skills (using the indicator “unopened vacancies”).

The occupational score categorizes occupations at the 4-digit KBJI level in the following way (table B.1):

- **Bright occupations** are occupations with a critical number of employees and in which firms have expressed an interest on hiring; they either have a high employment growth rate with a low turnover rate or a null or positive growth rate but with clear skills shortages. Specifically, a bright occupation is one for which:
 - i. Total employment is above the first quartile of the employment distribution (25th percentile)
 - ii. Firms have tried to hire workers for this occupation within the last year, and there are opened vacancies.
- **Dim occupations** are occupations that have no demand or are shrinking. Specifically, a dim occupation is one that has a null or negative employment growth rate, there are no open vacancies, and firms have not tried to hire any workers within the last year.
- **Flagged occupations** are occupations for which the data are not clear enough to make an accurate assessment. They have negative employment growth, but firms have expressed an interest in hiring—through vacancies or reporting that they tried to hire within the last year—and at the same time skills shortages have been identified. Although these occupations may be highly seasonal or undergoing structural changes, a larger sample is needed to make an accurate assessment. Thus, the recommendation is to monitor them.
- **Stable occupations** are the remaining occupations that continue with normal trends of employment growth and no skills shortage have been identified, but there is not enough demand to consider them bright.

- iii. Either
 - a. The employment growth rate is above the 85th percentile of the distribution and the turnover rate is below the third quartile (75th percentile)
 - or
 - b. There has been no or positive employment growth, but a skills shortage has been identified (as defined above).

Table B.1 Occupational Score Conditions

Score and rationale	Employment (#)	Employment growth (%)	Vacancies (#)	# of firms trying to hire	Turnover rate (%)	Skills shortages	Total occupations
Bright							
Occupations that have a critical number of employees, a high growth rate, and a low turnover rate	>=p25	>=p85	>0 and	>0	<p75	No	42
Occupations that have demand but may or may not be growing because of skills shortages	>=p25	>=0	>0 and	>0		Yes	
Dim							
Occupations that have no demand or are shrinking		<=0	=0 and	=0		No	90
Flagged							
Remaining occupations that have negative employment growth but skills shortages		<0	>=0	>=0		Yes	92
Stable state							
Occupations that are continuing with normal employment trends		>0	>=0	>=0	>p75	No	129
		<=0	=0 or >0	>0 or =0			
Occupations that have skills shortages but not enough demand to consider them bright		>0	0	>0		Yes	
	<p25	=0	>0 and	>0			
		=0	=0 or >0	>0 or =0			

Top 35 Occupations, by Indicator

Table C.1 Top 35 Occupations, by Absolute Increase in Employment (Persons)

KBJI	Occupation	Employment change	Rank	N	RSE
2431	Advertising and marketing professionals	30,797	1	26	77
5243	Door-to-door salespersons	9,472	2	35	75
3123	Construction supervisors	5,770	3	23	112
5112	Transport conductors	5,768	4	4	119
9621	Messengers, package deliverers, and luggage porters	4,918	5	29	107
2166	Graphic and multimedia designers	4,210	6	6	106
8322	Car, taxi, and van drivers	3,658	7	27	84
3112	Civil engineering technicians	3,306	8	6	90
7231	Motor vehicle mechanics and repairers	1,935	9	8	70
7126	Plumbers and pipe fitters	1,466	10	5	54
5113	Travel guides	1,444	11	1	0
3423	Fitness and recreation instructors and program leaders	1,368	12	1	0
2354	Other music teachers	1,262	13	2	300
2342	Early childhood educators	1,262	13	1	0
5221	Shopkeepers	1,232	14	2	104
5249	Sales workers not elsewhere classified	1,112	15	9	170
3139	Process control technicians not elsewhere classified	980	16	2	0
8321	Motorcycle drivers	962	17	1	0
7413	Electrical line installers and repairers	797	18	7	124
7127	Air conditioning and refrigeration mechanics	776	19	5	109
7412	Electrical mechanics and fitters	756	20	7	82
4110	General office clerks	749	21	50	89
4132	Data entry clerks	707	22	4	104
7411	Building and related electricians	621	23	2	38
9329	Manufacturing laborers not elsewhere classified	536	24	35	123
5244	Contact center salespersons	461	25	18	188
8344	Lifting truck operators	458	26	8	110
3255	Physiotherapy technicians and assistants	456	27	3	310
5151	Cleaning and housekeeping supervisors in offices, hotels, and other establishments	451	28	2	0
3332	Conference and event planners	424	29	2	0
3341	Office supervisors	415	30	13	127
3522	Telecommunications engineering technicians	413	31	2	106
4222	Contact center information clerks	357	32	6	93
4313	Payroll clerks	344	33	3	0
2512	Software developers	339	34	2	108
8219	Assemblers not elsewhere classified	317	35	4	75

Table C.2 Bottom 35 Occupations, by Absolute Increase in Employment (Persons)

KBJI	Occupation	Employment change	Rank	N	RSE
7512	Bakers, pastry cooks, and confectionery makers	-97,972	353	7	125
7533	Sewing, embroidery, and related workers	-67,451	352	28	48
8156	Shoemaking and related machine operators	-42,951	351	4	50
5414	Security guards	-34,355	350	39	173
7531	Tailors, dressmakers, furriers, and hatters	-28,617	349	8	75
7322	Printers	-21,757	348	14	54
5246	Food service counter attendants	-21,506	347	15	46
8153	Sewing machine operators	-14,609	346	79	97
9412	Kitchen helpers	-13,827	345	23	48
9411	Fast food preparers	-12,458	344	19	112
5212	Street food salespersons	-12,022	343	13	60
7323	Print finishing and binding workers	-10,097	342	4	138
7318	Handicraft workers in textile, leather, and related materials	-10,030	341	11	76
5223	Shop sales assistants	-8,656	340	29	131
2341	Primary school teachers	-7,573	339	1	0
9312	Civil engineering laborers	-6,949	338	15	100
3521	Broadcasting and audiovisual technicians	-5,993	337	1	0
7212	Welders and flame cutters	-5,330	336	13	93
5120	Cooks	-5,104	335	16	83
7115	Carpenters and joiners	-5,048	334	1	0
7532	Garment and related pattern makers and cutters	-4,983	333	20	15
5169	Personal services workers not elsewhere classified	-4,559	332	1	0
7511	Butchers, fishmongers, and related food preparers	-4,421	331	18	13
4229	Client information workers not elsewhere classified	-4,391	330	3	87
8152	Weaving and knitting machine operators	-4,251	329	60	98
5132	Bartenders	-4,242	328	6	19
2653	Dancers and choreographers	-4,103	326	1	0
2652	Musicians, singers, and composers	-4,103	326	2	143
8151	Fiber preparing, spinning, and winding machine operators	-3,427	325	41	44
9313	Building construction laborers	-3,398	324	5	102
4413	Coding, proofreading, and related clerks	-2,928	323	4	73
8160	Food and related products machine operators	-2,587	322	79	91
2513	Web and multimedia developers	-2,529	321	2	0
5211	Stall and market salespersons	-2,524	320	2	0
3115	Mechanical engineering technicians	-2,227	319	17	94

Table C.3 Top 35 Occupations, by Increase in Employment (Percentage Growth)

KBJI	Occupation	Employment growth (%)	Rank	N	RSE
3139	Process control technicians not elsewhere classified	0.608	1	34	104
3359	Regulatory government associate professionals not elsewhere classified	0.457	2	4	104
3423	Fitness and recreation instructors and program leaders	0.429	3	2	286
3112	Civil engineering technicians	0.398	4	62	84
2166	Graphic and multimedia designers	0.344	5	60	100
2221	Nursing professionals	0.322	6	20	229
5112	Transport conductors	0.295	7	15	95
3123	Construction supervisors	0.274	8	243	135
2431	Advertising and marketing professionals	0.206	9	406	89
7127	Air conditioning and refrigeration mechanics	0.180	10	17	111
5164	Pet groomers and animal care workers	0.177	11	4	164
3522	Telecommunications engineering technicians	0.166	12	19	74
2342	Early childhood educators	0.165	13	7	127
7126	Plumbers and pipe fitters	0.164	14	23	70
2354	Other music teachers	0.143	15	3	343
2512	Software developers	0.138	16	19	85
2421	Management and organization analysts	0.094	17	27	72
7412	Electrical mechanics and fitters	0.087	18	86	80
3332	Conference and event planners	0.086	19	17	66
7413	Electrical line installers and repairers	0.077	20	41	118
5113	Travel guides	0.074	21	13	88
4132	Data entry clerks	0.073	22	137	100
7231	Motor vehicle mechanics and repairers	0.069	23	73	69
4223	Telephone switchboard operators	0.068	24	22	64
8321	Motorcycle drivers	0.067	25	29	85
5243	Door-to-door salespersons	0.062	26	184	101
3117	Mining and metallurgical technicians	0.059	27	7	128
7544	Fumigators and other pest and weed controllers	0.055	28	5	110
3339	Business services agents not elsewhere classified	0.055	29	17	41
3257	Environmental and occupational health inspectors and associates	0.054	30	108	55
7411	Building and related electricians	0.054	31	35	91
5249	Sales workers not elsewhere classified	0.043	32	56	197
4222	Contact center information clerks	0.033	33	72	99
8344	Lifting truck operators	0.033	34	203	138
5244	Contact center salespersons	0.032	35	88	185

Table C.4 Bottom 35 Occupations, by Increase in Employment (Percentage Growth)

KBJI	Occupation	Employment growth	Rank	N	RSE
2112	Meteorologists	-1.000	351	2	0
5169	Personal services workers not elsewhere classified	-0.906	350	3	2
3521	Broadcasting and audiovisual technicians	-0.902	349	5	15
2653	Dancers and choreographers	-0.900	348	2	20
8156	Shoemaking and related machine operators	-0.751	347	8	24
2652	Musicians, singers, and composers	-0.692	346	3	75
7111	House builders	-0.546	345	11	39
2131	Biologists, botanists, zoologists, and related professionals	-0.542	344	12	23
7115	Carpenters and joiners	-0.523	343	8	21
2632	Sociologists, anthropologists, and related professionals	-0.500	341	2	100
7534	Upholsterers and related workers	-0.500	341	2	100
4413	Coding, proofreading, and related clerks	-0.372	340	15	22
2341	Primary school teachers	-0.311	338	5	69
6130	Mixed crop and animal producers	-0.333	338	2	133
4229	Client information workers not elsewhere classified	-0.275	337	42	75
7212	Welders and flame cutters	-0.248	336	80	75
7531	Tailors, dressmakers, furriers, and hatters	-0.247	335	46	68
9122	Vehicle cleaners	-0.243	334	6	31
7322	Printers	-0.228	333	87	38
7533	Sewing, embroidery, and related workers	-0.222	332	176	32
7512	Bakers, pastry cooks, and confectionery makers	-0.217	331	88	82
2120	Mathematicians, actuaries, and statisticians	-0.201	330	7	105
3111	Chemical and physical science technicians	-0.193	329	64	98
7318	Handicraft workers in textile, leather, and related materials	-0.192	328	65	40
3142	Agricultural technicians	-0.192	327	32	136
2143	Environmental engineers	-0.171	326	18	81
9313	Building construction laborers	-0.164	325	33	77
7421	Electronics mechanics and servicers	-0.151	324	36	120
8331	Bus and tram drivers	-0.148	323	18	55
3114	Electronics engineering technicians	-0.140	322	24	102
7323	Print finishing and binding workers	-0.136	321	21	123
9629	Elementary workers not elsewhere classified	-0.128	320	38	43
7514	Fruit, vegetable, and related preservers	-0.128	319	21	163

Table C.5 Top 35 Occupations, by Absolute Increase in Number of Vacancies Open

KBJI	Occupation	Total vacancies	Rank	N	RSE
3321	Insurance representatives	52,949	1	4	92
5249	Sales workers not elsewhere classified	51,698	2	6	95
4214	Debt collectors and related workers	43,822	3	24	78
8153	Sewing machine operators	33,534	4	37	18
5212	Street food salespersons	18,931	5	6	24
7533	Sewing, embroidery, and related workers	17,677	6	13	25
9112	Cleaners and helpers in offices, hotels, and other establishments	17,097	7	9	63
7531	Tailors, dressmakers, furriers, and hatters	15,804	8	7	14
5131	Waiters	15,433	9	8	20
5414	Security guards	15,408	10	10	77
9412	Kitchen helpers	12,492	11	7	35
9411	Fast food preparers	9,122	12	6	35
5243	Door-to-door salespersons	8,398	13	24	29
5242	Sales demonstrators	7,297	14	27	34
5120	Cooks	5,960	15	4	48
2431	Advertising and marketing professionals	5,545	16	30	41
2359	Teaching professionals not elsewhere classified	5,048	17	1	0
3312	Credit and loans officers	4,874	18	9	44
5223	Shop sales assistants	4,731	19	7	48
9621	Messengers, package deliverers, and luggage porters	4,241	20	7	54
2641	Authors and related writers	3,786	21	1	0
5246	Food service counter attendants	3,786	21	2	33
2411	Accountants	3,349	22	12	70
4311	Accounting and bookkeeping clerks	2,830	23	18	54
1222	Advertising and public relations managers	2,573	24	3	0
2642	Journalists	2,524	25	1	0
7111	House builders	2,107	26	2	56
4211	Bank tellers and related clerks	2,002	27	11	36
7319	Handicraft workers not elsewhere classified	1,998	28	1	0
1221	Sales and marketing managers	1,978	29	13	63
5112	Transport conductors	1,937	30	1	0
4321	Stock clerks	1,704	31	25	23
8332	Heavy truck and lorry drivers	1,643	32	2	18
4227	Survey and market research interviewers	1,450	33	1	0

Table C.6 Bottom 35 Occupations, by Absolute Increase in Number of Vacancies Open

KBJI	Occupation	Vacancy rate	Rank	N	RSE
7111	House builders	0.735	1	10	14
2622	Librarians and related information professionals	0.667	2	2	67
3321	Insurance representatives	0.661	3	41	19
5249	Sales workers not elsewhere classified	0.658	4	53	23
2434	Information and communication technology sales professionals	0.545	5	6	18
4227	Survey and market research interviewers	0.482	6	5	14
2642	Journalists	0.441	7	11	23
2641	Authors and related writers	0.422	8	6	28
2359	Teaching professionals not elsewhere classified	0.398	9	4	41
1222	Advertising and public relations managers	0.340	10	45	59
4214	Debt collectors and related workers	0.332	11	230	53
3342	Legal secretaries	0.296	12	11	39
7319	Handicraft workers not elsewhere classified	0.250	13	2	150
3334	Real estate agents and property managers	0.174	14	22	34
2611	Lawyers	0.158	15	8	14
3141	Life science technicians (excluding medical)	0.155	16	9	87
7531	Tailors, dressmakers, furriers, and hatters	0.154	17	46	46
5242	Sales demonstrators	0.148	18	220	34
9214	Garden and horticultural laborers	0.113	19	30	102
3312	Credit and loans officers	0.100	20	185	37
3116	Chemical engineering technicians	0.095	21	64	104
2153	Telecommunications engineers	0.093	22	15	93
7321	Pre-press technicians	0.090	23	12	104
2161	Building architects	0.090	24	35	63
8153	Sewing machine operators	0.085	25	226	33
3322	Commercial sales representatives	0.078	26	66	94
3411	Legal and related associate professionals	0.076	27	15	101
7212	Welders and flame cutters	0.075	28	69	85
3432	Interior designers and decorators	0.074	29	9	125
7126	Plumbers and pipe fitters	0.074	30	20	100
9112	Cleaners and helpers in offices, hotels, and other establishments	0.073	31	906	64
2411	Accountants	0.072	32	471	57
5112	Transport conductors	0.071	33	12	100
7533	Sewing, embroidery, and related workers	0.070	34	161	34
4224	Hotel receptionists	0.066	35	14	68

Table C.7 Top 35 Occupations, by Absolute Increase in Number of Firms Hiring

KBJI	Occupation	Firms tried to hire	Rank	N	RSE
9411	Fast food preparers	33,348	1	31	23
9412	Kitchen helpers	32,541	2	34	18
7512	Bakers, pastry cooks, and confectionery makers	30,896	3	10	69
5131	Waiters	28,443	4	33	12
5223	Shop sales assistants	23,715	5	38	25
7533	Sewing, embroidery, and related workers	20,304	6	34	22
8153	Sewing machine operators	18,961	7	91	52
5120	Cooks	18,226	8	20	14
9321	Hand packers	16,116	9	74	50
5212	Street food salespersons	15,145	10	12	12
5246	Food service counter attendants	13,077	11	11	23
9112	Cleaners and helpers in offices, hotels, and other establishments	11,096	12	53	18
7322	Printers	10,373	13	12	78
7531	Tailors, dressmakers, furriers, and hatters	7,624	14	15	19
4211	Bank tellers and related clerks	6,016	15	61	11
5132	Bartenders	5,846	16	7	40
4311	Accounting and bookkeeping clerks	5,749	17	94	22
5243	Door-to-door salespersons	5,623	18	53	22
8322	Car, taxi, and van drivers	5,183	19	49	33
4214	Debt collectors and related workers	5,044	20	41	19
2166	Graphic and multimedia designers	4,527	21	11	96
4110	General office clerks	4,079	22	80	30
2431	Advertising and marketing professionals	3,838	23	64	29
4225	Enquiry clerks	3,671	24	32	33
9621	Messengers, package deliverers, and luggage porters	3,509	25	28	33
4312	Statistical, finance, and insurance clerks	3,396	26	53	36
7511	Butchers, fishmongers, and related food preparers	3,368	27	14	2
2342	Early childhood educators	3,178	28	2	20
3312	Credit and loans officers	2,877	29	23	30
5244	Contact center salespersons	2,829	30	25	41
5230	Cashiers and ticket clerks	2,748	31	13	36
7532	Garment and related pattern makers and cutters	2,703	32	31	2
2641	Authors and related writers	2,524	33	2	0
2513	Web and multimedia developers	2,524	33	2	0
5211	Stall and market salespersons	2,524	33	2	0

Table C.8 Top 35 Occupations, by Turnover Rate

KBJI	Occupation	Turnover rate	Rank	N	RSE
2112	Meteorologists	2.000	1	2	0
5169	Personal services workers not elsewhere classified	1.658	2	3	4
3521	Broadcasting and audiovisual technicians	1.643	3	5	27
2653	Dancers and choreographers	1.636	4	2	36
2652	Musicians, singers, and composers	1.529	5	3	41
8156	Shoemaking and related machine operators	1.202	6	8	39
7111	House builders	0.750	7	11	53
2131	Biologists, botanists, zoologists, and related professionals	0.743	8	12	32
7115	Carpenters and joiners	0.709	9	8	28
2632	Sociologists, anthropologists, and related professionals	0.667	10	2	133
7534	Upholsterers and related workers	0.667	10	2	133
3142	Agricultural technicians	0.520	11	32	28
2641	Authors and related writers	0.486	12	7	62
3139	Process control technicians not elsewhere classified	0.480	13	34	77
4413	Coding, proofreading, and related clerks	0.456	14	15	27
2354	Other music teachers	0.400	15	3	167
6130	Mixed crop and animal producers	0.400	15	2	160
4415	Filing and copying clerks	0.394	16	59	60
3359	Regulatory government associate professionals not elsewhere classified	0.372	17	4	84
2341	Primary school teachers	0.369	18	5	81
3112	Civil engineering technicians	0.362	19	62	61
3423	Fitness and recreation instructors and program leaders	0.353	20	2	235
3123	Construction supervisors	0.350	21	243	87
7512	Bakers, pastry cooks, and confectionery makers	0.338	22	88	51
2166	Graphic and multimedia designers	0.323	23	60	77
5112	Transport conductors	0.320	24	15	60
4229	Client information workers not elsewhere classified	0.319	25	42	87
7421	Electronics mechanics and servicers	0.312	26	36	52
3111	Chemical and physical science technicians	0.294	27	64	71
9312	Civil engineering laborers	0.292	28	52	58
7531	Tailors, dressmakers, furriers, and hatters	0.290	29	46	76
7212	Welders and flame cutters	0.287	30	80	84
7318	Handicraft workers in textile, leather, and related materials	0.279	31	65	20
2221	Nursing professionals	0.277	32	20	197
9122	Vehicle cleaners	0.276	33	6	35

Table C.9 Top 35 Occupations Finding It Difficult to Hire, by Number of Days Vacancy Is Open

KBJI	Occupation	Average days opened	Rank	N	RSE
7127	Air conditioning and refrigeration mechanics	366	1	1	0
9334	Shelf fillers	365	2	1	0
9214	Garden and horticultural laborers	365	2	1	0
2514	Applications programmers	365	2	1	0
7511	Butchers, fishmongers, and related food preparers	360	3	1	0
3141	Life science technicians (excluding medical)	360	3	1	0
9321	Hand packers	355	4	9	0
2144	Mechanical engineers	297	5	2	0
8183	Packing, bottling, and labeling machine operators	285	6	5	31
1346	Financial and insurance services branch managers	277	7	3	19
1219	Business services and administration managers not elsewhere classified	210	8	2	82
1221	Sales and marketing managers	208	9	13	47
2611	Lawyers	190	10	2	93
7318	Handicraft workers in textile, leather, and related materials	189	11	4	33
9329	Manufacturing laborers not elsewhere classified	188	12	17	47
8152	Weaving and knitting machine operators	188	13	12	60
5246	Food service counter attendants	183	14	2	99
7531	Tailors, dressmakers, furriers, and hatters	174	15	7	54
9411	Fast food preparers	170	16	6	108
5131	Waiters	157	17	8	51
8322	Car, taxi, and van drivers	152	18	9	45
3321	Insurance representatives	146	19	5	70
3122	Manufacturing supervisors	139	20	21	36
7532	Garment and related pattern makers and cutters	126	21	3	86
3334	Real estate agents and property managers	107	22	4	79
7422	Information and communication technology installers and servicers	101	23	3	106
2431	Advertising and marketing professionals	95	24	29	46
7233	Agricultural and industrial machinery mechanics and repairers	93	25	11	47
2165	Cartographers and surveyors	90	26	2	0
3342	Legal secretaries	90	26	1	0
2642	Journalists	90	26	1	0
4323	Transport clerks	90	26	1	0
2641	Authors and related writers	90	26	1	0
2434	Information and communication technology sales professionals	72	27	3	168
7543	Product graders and testers (excluding foods and beverages)	71	28	15	65

Table C.10 Top 35 Occupations in Which Firms Find It Difficult to Hire

KBJI	Occupation	Firms find it difficult to hire	Rank	N	RSE
9411	Fast food preparers	17,555	1	31	35
8153	Sewing machine operators	16,159	2	91	67
7533	Sewing, embroidery, and related workers	15,193	3	34	21
9412	Kitchen helpers	13,109	4	34	26
5131	Waiters	10,658	5	33	29
5223	Shop sales assistants	8,925	6	38	40
5120	Cooks	8,824	7	20	33
5246	Food service counter attendants	7,573	8	11	36
5212	Street food salespersons	6,310	9	12	42
7531	Tailors, dressmakers, furriers, and hatters	5,064	10	15	40
7322	Printers	4,655	11	12	93
2166	Graphic and multimedia designers	4,447	12	11	98
7512	Bakers, pastry cooks, and confectionery makers	3,251	13	10	98
2342	Early childhood educators	3,178	14	2	20
2513	Web and multimedia developers	2,524	15	2	0
9621	Messengers, package deliverers, and luggage porters	2,141	16	28	56
8322	Car, taxi, and van drivers	2,018	17	49	61
7319	Handicraft workers not elsewhere classified	1,998	18	1	0
4311	Accounting and bookkeeping clerks	1,954	19	94	57
9112	Cleaners and helpers in offices, hotels, and other establishments	1,917	20	53	43
4214	Debt collectors and related workers	1,892	21	41	32
4312	Statistical, finance, and insurance clerks	1,846	22	53	63
5243	Door-to-door salespersons	1,804	23	53	24
3122	Manufacturing supervisors	1,527	24	91	80
3255	Physiotherapy technicians and assistants	1,368	25	3	0
3313	Accounting associate professionals	1,358	26	15	94
9321	Hand packers	1,350	27	74	93
3312	Credit and loans officers	1,335	28	23	44
7532	Garment and related pattern makers and cutters	1,313	29	31	95
4415	Filing and copying clerks	1,313	30	7	93
7514	Fruit, vegetable, and related preservers	1,272	31	4	0
7115	Carpenters and joiners	1,262	32	3	99
2341	Primary school teachers	1,262	32	1	0
5132	Bartenders	1,262	32	7	100
9411	Fast food preparers	17,555	1	31	35

Table C.11 Top 35 Occupations with the Highest Number of Unopen Vacancies

KBJI	Occupation	Unopened vacancies	Rank	N	RSE
7533	Sewing, embroidery, and related workers	25,200	1	18	15
9412	Kitchen helpers	17,908	2	13	14
5212	Street food salespersons	15,799	3	12	11
5223	Shop sales assistants	12,744	4	17	26
9411	Fast food preparers	12,621	5	10	29
8153	Sewing machine operators	12,083	6	3	0
5120	Cooks	11,622	7	9	14
5246	Food service counter attendants	11,359	8	9	22
5131	Waiters	8,835	9	7	17
7512	Bakers, pastry cooks, and confectionery makers	7,028	10	4	24
7531	Tailors, dressmakers, furriers, and hatters	6,310	11	5	20
9621	Messengers, package deliverers, and luggage porters	4,645	12	7	44
1412	Restaurant managers	3,786	13	3	33
9321	Hand packers	3,000	14	7	27
1221	Sales and marketing managers	2,603	15	5	47
8322	Car, taxi, and van drivers	2,524	16	2	0
9629	Elementary workers not elsewhere classified	2,524	16	2	0
5211	Stall and market salespersons	2,524	16	2	0
3521	Broadcasting and audiovisual technicians	1,998	17	1	0
5244	Contact center salespersons	1,754	18	3	95
9622	Odd job persons	1,718	19	2	0
5132	Bartenders	1,718	19	2	47
2431	Advertising and marketing professionals	1,354	20	4	89
2166	Graphic and multimedia designers	1,313	21	2	92
9333	Freight handlers	1,298	22	2	94
8160	Food and related products machine operators	1,269	23	2	0
7322	Printers	1,267	24	2	0
2641	Authors and related writers	1,262	25	1	0
3313	Accounting associate professionals	1,262	25	1	0
7323	Print finishing and binding workers	1,262	25	1	0
7511	Butchers, fishmongers, and related food preparers	1,262	25	1	0
7313	Jewelry and precious-metal workers	1,262	25	1	0
5221	Shopkeepers	1,262	25	1	0
2642	Journalists	1,262	25	1	0

Table C.12 Top 35 Occupations with the Highest Number of Employees

KBJI	Occupation	Employment	Rank	N	RSE
5120	Cooks	488,849	1	331	14
5212	Street food salespersons	449,859	2	259	19
5414	Security guards	400,134	3	809	29
8153	Sewing machine operators	359,779	4	185	26
7512	Bakers, pastry cooks, and confectionery makers	352,945	5	81	47
1412	Restaurant managers	267,568	6	215	17
9411	Fast food preparers	256,531	7	165	15
9321	Hand packers	240,975	8	397	33
5131	Waiters	238,281	9	110	16
7533	Sewing, embroidery, and related workers	236,380	10	148	20
9112	Cleaners and helpers in offices, hotels, and other establishments	215,894	11	896	27
9412	Kitchen helpers	204,319	12	144	17
5223	Shop sales assistants	186,281	13	130	24
2431	Advertising and marketing professionals	180,124	14	380	46
5243	Door-to-door salespersons	163,433	15	149	49
9621	Messengers, package deliverers, and luggage porters	158,919	16	234	19
1439	Services managers not elsewhere classified	157,036	17	316	16
5221	Shopkeepers	156,694	18	149	17
5246	Food service counter attendants	151,517	19	79	30
4321	Stock clerks	130,060	20	1606	21
4311	Accounting and bookkeeping clerks	123,269	21	1020	18
8322	Car, taxi, and van drivers	123,246	22	641	25
1120	Managing directors and chief executives	95,606	23	1678	14
5211	Stall and market salespersons	95,067	24	59	20
9329	Manufacturing laborers not elsewhere classified	93,920	25	414	21
5153	Building caretakers	93,095	26	192	40
4214	Debt collectors and related workers	88,369	27	206	27
4110	General office clerks	87,671	28	574	26
8160	Food and related products machine operators	87,574	29	406	15
7531	Tailors, dressmakers, furriers, and hatters	87,035	30	38	27
5230	Cashiers and ticket clerks	80,130	31	144	16
7322	Printers	73,603	32	73	23
1221	Sales and marketing managers	73,000	33	737	18
3122	Manufacturing supervisors	72,379	34	2848	15
9333	Freight handlers	68,947	35	277	21

Occupations Classified as Bright, Dim, and Flagged

Table D.1 Bright Occupations, as Determined by the Short-Term Occupational Prospects Score

KBJI	Occupation title
1346	Financial and insurance services branch managers
2141	Industrial and production engineers
2142	Civil engineers
2149	Engineering professionals not elsewhere classified
2161	Building architects
2166	Graphic and multimedia designers
2263	Environmental and occupational health and hygiene professionals
2413	Financial analysts
2431	Advertising and marketing professionals
2512	Software developers
2642	Journalists
3112	Civil engineering technicians
3122	Manufacturing supervisors
3123	Construction supervisors
3131	Power production plant operators
3257	Environmental and occupational health inspectors and associates
3322	Commercial sales representatives
3331	Clearing and forwarding agents
3341	Office supervisors
3513	Computer network and systems technicians
4110	General office clerks
4120	Secretaries (general)
4132	Data entry clerks
4222	Contact center information clerks
4416	Personnel clerks
4419	Clerical support workers not elsewhere classified
5151	Cleaning and housekeeping supervisors in offices, hotels, and other establishments
5243	Door-to-door salespersons
5244	Contact center salespersons
5249	Sales workers not elsewhere classified
7127	Air conditioning and refrigeration mechanics
7233	Agricultural and industrial machinery mechanics and repairers
8131	Chemical products plant and machine operators
8141	Rubber products machine operators
8211	Mechanical machinery assemblers
8219	Assemblers not elsewhere classified
8322	Car, taxi, and van drivers

KBJI	Occupation title
8344	Lifting truck operators
9214	Garden and horticultural laborers
9329	Manufacturing laborers not elsewhere classified
9334	Shelf fillers
9621	Messengers, package deliverers, and luggage porters

Table D.2 Dim Occupations

KBJI	Occupation title
1113	Traditional chiefs and heads of village
1114	Senior officials of special-interest organizations
1311	Agricultural and forestry production managers
1312	Aquaculture and fisheries production managers
1342	Health services managers
1345	Education managers
1349	Professional services managers not elsewhere classified
1411	Hotel managers
1431	Sports, recreation, and cultural center managers
2111	Physicists and astronomers
2120	Mathematicians, actuaries, and statisticians
2132	Farming, forestry, and fisheries advisers
2162	Landscape architects
2164	Town and traffic planners
2211	Generalist medical practitioners
2240	Paramedical practitioners
2250	Veterinarians
2320	Vocational education teachers
2330	Secondary education teachers
2351	Education methods specialists
2353	Other language teachers
2355	Other arts teachers
2422	Policy administration professionals
2519	Software and applications developers and analysts not elsewhere classified
2521	Database designers and administrators
2529	Database and network professionals not elsewhere classified
2621	Archivists and curators
2635	Social work and counseling professionals
2636	Religious professionals
3119	Physical and engineering science technicians not elsewhere classified
3121	Mining supervisors
3134	Petroleum and natural gas refining plant operators
3143	Forestry technicians
3152	Ship deck officers and pilots

KBJI	Occupation title
3155	Air traffic safety electronics technicians
3213	Pharmaceutical technicians and assistants
3221	Nursing associate professionals
3230	Traditional and complementary medicine associate professionals
3240	Veterinary technicians and assistants
3252	Medical records and health information technicians
3256	Medical assistants
3333	Employment agents and contractors
3344	Medical secretaries
3351	Customs and border inspectors
3352	Government tax and excise officials
3353	Government social benefits officials
3413	Religious associate professionals
3435	Other artistic and cultural associate professionals
4414	Scribes and related workers
5111	Travel attendants and travel stewards
5245	Service station attendants
5311	Child care workers
5329	Personal care workers in health services not elsewhere classified
5419	Protective services workers not elsewhere classified
6111	Field crop and vegetable growers
6112	Tree and shrub crop growers
6113	Gardeners and horticultural and nursery growers
6122	Poultry producers
6130	Mixed crop and animal producers
6221	Aquaculture workers
7119	Building frame and related trades workers not elsewhere classified
7124	Insulation workers
7214	Structural metal preparers and erectors
7222	Tool makers and related workers
7232	Aircraft engine mechanics and repairers
7234	Bicycle and related repairers
7311	Precision-instrument makers and repairers
7312	Musical instrument makers and tuners
7315	Glass makers, cutters, grinders, and finishers
7513	Dairy product makers
7522	Cabinet makers and related workers
7523	Woodworking-machine tool setters and operators
7535	Pelt dressers, tanners, and fellmongers
7536	Shoemakers and related workers
7541	Underwater divers
8111	Miners and quarriers
8113	Well drillers and borers and related workers

KBJI	Occupation title
8143	Paper products machine operators
8155	Fur and leather preparing machine operators
8156	Shoemaking and related machine operators
8311	Locomotive engine drivers
8312	Railway brake, signal, and switch operators
8341	Mobile farm and forestry plant operators
8343	Crane, hoist, and related plant operators
9216	Fishery and aquaculture laborers
9311	Mining and quarrying laborers
9510	Street and related service workers
9520	Street vendors (excluding food)
9611	Garbage and recycling collectors
9613	Sweepers and related laborers

Table A4.3. Flagged Occupations

KBJI	Occupation title
1211	Finance managers
1213	Policy and planning managers
1219	Business services and administration managers not elsewhere classified
1221	Sales and marketing managers
1323	Construction managers
1412	Restaurant managers
2112	Meteorologists
2143	Environmental engineers
2144	Mechanical engineers
2153	Telecommunications engineers
2165	Cartographers and surveyors
2411	Accountants
2424	Training and staff development professionals
2513	Web and multimedia developers
2522	Systems administrators
2611	Lawyers
2652	Musicians, singers, and composers
2653	Dancers and choreographers
3111	Chemical and physical science technicians
3114	Electronics engineering technicians
3115	Mechanical engineering technicians
3116	Chemical engineering technicians
3118	Draughtspersons
3135	Metal production process controllers
3312	Credit and loans officers
3313	Accounting associate professionals

KBJI	Occupation title
3315	Valuers and loss assessors
3321	Insurance representatives
3323	Buyers
3334	Real estate agents and property managers
3343	Administrative and executive secretaries
3432	Interior designers and decorators
3511	Information and communication technology operations technicians
3521	Broadcasting and audiovisual technicians
4211	Bank tellers and related clerks
4214	Debt collectors and related workers
4221	Travel consultants and clerks
4224	Hotel receptionists
4225	Enquiry clerks
4229	Client information workers not elsewhere classified
4311	Accounting and bookkeeping clerks
4312	Statistical, finance, and insurance clerks
4321	Stock clerks
4322	Production clerks
4323	Transport clerks
4415	Filing and copying clerks
5120	Cooks
5131	Waiters
5132	Bartenders
5153	Building caretakers
5211	Stall and market salespersons
5212	Street food salespersons
5222	Shop supervisors
5223	Shop sales assistants
5230	Cashiers and ticket clerks
5242	Sales demonstrators
5246	Food service counter attendants
5414	Security guards
7115	Carpenters and joiners
7318	Handicraft workers in textile, leather, and related materials
7322	Printers
7323	Print finishing and binding workers
7421	Electronics mechanics and servicers
7422	Information and communication technology installers and servicers
7511	Butchers, fishmongers and related food preparers
7512	Bakers, pastry cooks, and confectionery makers
7514	Fruit, vegetable, and related preservers
7531	Tailors, dressmakers, furriers, and hatters
7532	Garment and related pattern makers and cutters

KBJI	Occupation title
7533	Sewing, embroidery, and related workers
7534	Upholsterers and related workers
7543	Product graders and testers (excluding foods and beverages)
8112	Mineral and stone processing plant operators
8142	Plastic products machine operators
8151	Fiber preparing, spinning, and winding machine operators
8152	Weaving and knitting machine operators
8153	Sewing machine operators
8154	Bleaching, dyeing, and fabric cleaning machine operators
8159	Textile, fur, and leather products machine operators not elsewhere classified
8160	Food and related products machine operators
8182	Steam engine and boiler operators
8183	Packing, bottling, and labeling machine operators
8331	Bus and tram drivers
9112	Cleaners and helpers in offices, hotels, and other establishments
9211	Crop farm laborers
9313	Building construction laborers
9321	Hand packers
9333	Freight handlers
9411	Fast food preparers
9412	Kitchen helpers
9622	Odd job persons
9629	Elementary workers not elsewhere classified

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Endnotes

- ¹ Indicators cannot be interpreted in isolation because doing so may lead to an inaccurate assessment. For example, an occupation with a large number of vacancies or net employment growth may not necessarily have good job opportunities since, due to the nature of the industry or job, the occupation may also have a large number of layoffs and high turnover. This is the case, for instance, with plumbers, who are hired when construction starts on a new building and are let go when the building is completed.
- ² It is assumed that the changes in occupational demand can only be detected after a period of three to five years.
- ³ Two other signals indicate a skills shortage: (a) occupations that have experienced rapid wage increases and (b) occupations that have been filled with workers with skills that are not a good match for the job. This survey is not able to measure these cases.
- ⁴ The structural transformation is faster than in the past, requiring individuals to change their skills more than once in a lifetime.
- ⁵ See section 5 (what explains these dynamics) in the Technical Report for a discussion of the channels that lead to shifts in occupational demand.
- ⁶ See <https://www.bls.gov/oes/home.htm>.
- ⁷ See <https://www.bls.gov/jlt/>.
- ⁸ The OEVS was designed to be representative, with a relative standard error (RSE) of about 18 percent for service firms and 20 percent for manufacturing firms. The RSE is the standard error expressed as a fraction of the estimate. This yields a relatively precise estimate, expressed in percentages, of how likely the survey estimate is to deviate from the actual population. An estimate with a high RSE is subject to high sampling error and should be interpreted with caution. BPS (Statistics Indonesia) usually publishes data with an RSE below 25 percent, but the cutoff percentage may be higher depending on how unique the variable of interest is. For surveying, say, very rare diseases, an RSE up to, say, 40 percent may be used.
- ⁹ More frequent changes could also be monitored using complementary tools like the Critical Occupation List, which is designed to be repeated every year.
- ¹⁰ The percentage (31 percent) was calculated using the total weighted employment from the OEVS sample (9,288,368 workers) over the total weighted employees in 2018 Sakernas on the sampled provinces and subsectors (25,550,803 workers). It was not possible to estimate an accurate level of employment using Sakernas 2019 since the database does not count with a 5-digit KBLI code. However, assuming that subsectors grew evenly within the sampled provinces, the percentage coverage would be 30 percent.
- ¹¹ Full accounting of occupations requires the collection of narrowly defined occupations (at the 4-digit level of classification) in the population census. This survey is based on a sample, not an entire population.
- ¹² The final number will be revised once the data collection is finalized.
- ¹³ The final number will be revised once the data collection is finalized.
- ¹⁴ The 75th percentile of opened days for all occupations is 67 at the 4-digit level and 72 at the 3-digit level.
- ¹⁵ Due to the small number of responses to this question, an indicator for unopened vacancies is not included.
- ¹⁶ The score conditionalities were selected after conducting a sensitivity analysis and considering the skewness of each indicator's distribution. Most indicators have a right-skew distribution with a median of 0. Thus, the score conditions are based on a careful selection of percentiles for each indicator.
- ¹⁷ For technical details on how the skills shortage is constructed, please refer to appendix B.
- ¹⁸ This recommendation is based on what other occupational surveys consider questionable precision. In particular, O*Net estimates flag or suppress estimates when the sample size is less than 10, the variance is 0, and the sample size is less than 15 or the RSE is greater than 50 percent (BLS 2018).
- ¹⁹ BPS usually publishes data with an RSE below 25 percent, but the cutoff percentage may be higher depending on how unique the variable of interest is. See footnote 8 for more details on the RSE definition.

