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Job Ads: A Leading Indicator?

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Help-wanted advertisements are placed in newspapers by employers to attract potential workers to vacant jobs. These classified section advertisements are used by Statistics Canada to create the help-wanted index, an indicator of labour demand.

Although many economic indicators are available to researchers, the help-wanted index is Canada's only regularly published measure of employers' attempts to attract additional labour. As such, the index reflects changes in labour demand, which in turn signal changes in the level of economic activity. Statistics Canada publishes a monthly and an annual average help-wanted index for Canada and five regions. [\(1\)](#) The monthly index for Canada is examined here.

This study evaluates the performance of the help-wanted index as a leading indicator of economic and labour market conditions in Canada from 1971 to 1988. First, the performance of the help-wanted index during the last three business cycles is assessed. Second, the ability of the index to signal changes in the labour market is examined using the employment ratio and the unemployment rate as key indicators of labour market conditions.

Before turning to the performance of the help-wanted index in these two areas, the concept of help-wanted advertising and the properties of the help-wanted index as a leading indicator are described.

Help-wanted advertising and the index

Newspapers provide employers with a convenient forum to advertise job openings at local and national levels. By placing help-wanted ads in newspapers employers reach the widest audience of potential job seekers ([Walsh](#), 1975).

At the same time, help-wanted ads are a valuable information resource for persons looking for work. Newspapers sold at corner stores or delivered to residences provide daily, low-cost information on immediate job openings to job seekers. Those who read help-wanted ads are mainly unemployed persons looking for work, persons who are interested in keeping an eye on available jobs for future reference (for example, full-time students), or employed persons looking for better job opportunities.

Some employers use help-wanted ads frequently; some employers do not use them at all; and still others use a combination of ads and other recruitment methods. Consequently, jobs advertised in the classified sections of newspapers do not represent all vacant jobs in the labour market. Classified ads only are used to produce the help-wanted index. All "career section" ads are excluded.

Most classified ads are used to help fill the least attractive jobs - low-paying, unprestigious, high-turnover jobs - and commission sales positions. But ads are also used to advertise some of the hardest to fill jobs - those requiring specialized training or skills ([Oughtred](#), 1979).

Very little research has been done on the distribution of job ads by occupation or industry. A Canadian survey of job vacancies, discontinued by Statistics Canada in the late 1970s, found most job vacancies were in semi-skilled, low-skilled, and trades and crafts occupations ([Gower](#), 1973). Another study of help-wanted ads, based on the classified section of a Nova Scotia newspaper, found little change in the number of job ads by occupation over the 23 years from 1959 to 1982. Nearly half of the jobs advertised during this period were in the service sector ([VanBlarcom](#), 1982).

The importance of the help-wanted index lies in its ability to signal changes in the demand for additional labour over time. An upward or downward movement in the help-wanted index represents a change in the amount of help-wanted advertising placed by employers within a given month. Since help-wanted ads represent the future hiring intentions of employers, and the need for additional workers is often the result of an increased demand for goods and services, movements in the index should signal changes in the level of economic activity.

The timeliness of the help-wanted index in fact makes it one of the first signals of change in economic activity. It is published immediately after the collection of job ads is completed and is available much sooner than key macro-economic indicators such as the gross domestic product, industrial output, and the consumer price index.

The business cycle

Business cycles are characterized by periods of economic recession and recovery. They reflect substantial changes in consumer, business and government spending on goods and services, and in foreign purchases of Canadian exports.

Movements in the help-wanted index signal changes in the staffing requirements of employers who must

adjust production schedules in response to the demand for goods and services. Thus, the help-wanted index acts as a barometer of businesses' intentions to expand or reduce their work forces ([Boschan](#), 1966).

([Preston](#) (1977) describes the relationship between the index and business cycles as follows. Before a recession, employers begin experiencing a slowdown in sales and new orders. Reacting to this, some employers who use newspaper advertising begin to remove job ads and reduce hiring. Thus, the help-wanted index drops off slowly.

During a recession, as the demand for goods and services drops off rapidly, more businesses are forced to reduce production through temporary lay-offs and shorter hours of work for employees. The help-wanted index continues to decline sharply.

At the beginning of a recovery, help-wanted advertising usually remains low while employers cautiously wait to hire workers until a recovery is certain. Before placing ads in the newspaper, employers will increase employees' hours, recall laid-off labour, or hire through informal methods. As the economy returns to previous levels of production and the demand for goods and services continues to increase, the number of job seekers may begin to diminish. Businesses, needing additional workers to meet increased demand, resort to help-wanted ads pushing the index to higher and higher levels.

A leading indicator of recession?

American studies have found that cyclical patterns in help-wanted advertising mirror swings in the business cycle ([Preston](#), 1977). The U.S. help-wanted index reflects movements in the level of economic activity and so acts as an early indicator of recession, exemplified by its decline several months before the onset of recession.

Declines in the American index consistently occurred three to seven months before the five post-war recessions in the U.S. between 1953 and 1975. Following each recession in the U.S., increases in the help-wanted index occurred either at the end of the recession or lagged the economic recovery by one to four months.

The Canadian help-wanted index has responded well during the last three business cycles. Since 1971, it has signalled two recessions, declining sharply at the onset of each and continuing to drop until recovery starts.

The index maintained a steady climb in the early 1970s, peaking at the start of the 1974-1975 recession. It showed several false starts during the weak expansionary period in the second half of the 1970s, peaking one month before the 1980 recession. ⁽²⁾ The next expansionary phase was short-lived, lasting only one year, with the index peaking two months before the 1981-1982 recession.



Chart A The Help-wanted Index (trend-cycle)

In summary, the Canadian help-wanted index has led the onset of the last two recessions by a short lead time of one to two months. The index lagged the start of the first two recoveries by one month, and was coincident with the start of the last recovery. Further research is needed to establish how well the index performs with other macro-economic indicators.

The labour market

This section examines the performance of the help-wanted index as a leading indicator of labour market conditions. It assesses the relationship between the index and two key labour market indicators: the employment ratio and the unemployment rate. Job openings advertised today should indicate changes in the labour market tomorrow; vacant jobs appearing in newspapers this month will most likely be filled by workers hired in upcoming months. Thus, movements in the index should signal changes in employment and unemployment.

The employment ratio

The employment-population ratio (commonly referred to as the employment ratio), expresses the number of people employed as a percentage of the working-age population, that is, persons aged 15 years and over.

The employment ratio has several properties that make it a key indicator of labour market conditions. First, the definition of employment is straightforward, encompassing all persons who did any work at all or who were absent from work. Second, since the working-age population does not fluctuate substantially over time, it provides a stable denominator upon which to compare

employment levels. In this way, movements in the employment ratio represent changes in employment levels rather than in population growth ([Green](#), 1977). Lastly, although increases in the employment ratio should correspond with declines in unemployment, both indicators may increase at the same time when there is substantial growth in the labour force.

The employment ratio is an appropriate indicator for comparison with the help-wanted index, because the index reflects changes in employers' demands for additional labour while the ratio reflects changes in the existing levels of employment. Thus, increases in the help-wanted index should signal upcoming changes in the addition of labour.

We also examine the relationship between movements in the help-wanted index and the employment ratio

of men aged 25 and over, women aged 25 and over, and young people aged 15 to 24 years. If movements in the index are more closely related to one group than another this could suggest that job ads are used more by certain age and sex groups. (See [note on data analysis](#) at the end of the article.)

A leading indicator of employment?

The help-wanted index was not a leading indicator of growth or decline in employment between 1971 and 1988. Instead, it appeared to be a coincident indicator, meaning that levels in the help-wanted index changed at the same time as movements in the employment ratio. This pattern was particularly evident for young people.



Chart B Help-wanted Index and Trend-Cycle of the Employment Ratio

A close relationship between movements in the help-wanted index and the aggregate employment ratio was apparent throughout the 1970s and 1980s. Thus, when the demand for additional labour grew, so did the proportion of employed persons in relation to the working-age population.

The relationship, however, varied for men and women aged 25 and over, and young people aged 15 to 24 years. During the 1970s and 1980s, the help-wanted index had a weak relationship with the employment ratio of men. It had a closer relationship with the employment ratio of women, and a very close relationship with the employment ratio of young people.

One reason for these age and sex differences may be the contrasting movements in the employment ratios of men, women and young people over this period. The employment ratio of men has slowly declined during the last twenty years despite economic upturns, whereas the employment ratio of women has continued to rise unaffected by economic downturns.

For young people, the employment ratio has tended to follow economic upturns and downturns. At the onset of economic recessions, the employment ratio for young people declined sharply; it climbed rapidly during economic recoveries ([Wong, 1978](#)). This relationship is close probably because employers placing classified ads in newspapers are looking for workers with specific characteristics, such as willingness to accept entry-level jobs, low pay, or little job security. These are often characteristics of young workers.



Table 1 Cross-correlation Coefficients: the Help-wanted Index and the Employment Ratio, 1971-1988

Source: Help -wanted index; Labour Force Survey.

For further information, see [note on data analysis](#) at the end of the article.

Another reason for the age and sex differences may be that men, women and young workers use different job search methods ([Clemenson](#), 1987). For example, between 1977 and 1986, the most frequently used method of job search among the unemployed was contacting employers directly: this method was used more by men than women. The second most frequently used method of job search was looking at job ads and women used this method more than men.

The unemployment rate

The unemployment rate represents the number of unemployed as a percentage of the labour force. (Unemployed persons are those actively looking for work, on lay-off, or waiting to start a job in the next four weeks.) This rate is a key indicator of labour market conditions since it reflects the interaction between the supply of and the demand for labour. A reduction in the excess supply of labour occurs when additional labour is hired to increase the production of goods and services. In contrast, the unemployed grow in number when employers reduce production and work forces.

Unemployed workers form the largest group of both job seekers and users of help-wanted ads. The unemployed make up three-quarters of all job seekers. Help-wanted ads are second only to contacting employers directly as their most frequent source of job search.

The unemployment rate is an appropriate indicator for comparison with the help-wanted index because changes in employers' demand for workers should precede movements in unemployment. A rapid drop in the help-wanted index should indicate a future increase in the unemployment rate as employers lay-off workers because of a decline in demand; a rapid increase in the help-wanted index should signal a future decline in the unemployment rate.

A leading indicator of unemployment?

The help-wanted index was not a leading indicator of growth or decline in unemployment during the 1970s. This lack of a relationship may be partly explained by the continuous rise in the unemployment rate for all groups over this decade despite an economic upturn.

During the 1980s, however, changes in the level of the help-wanted index appeared to lead movements in the aggregate unemployment rate by three to five months. This relationship was negative, meaning that as the help-wanted index moved up, the unemployment rate moved down three to five months later.

The index appeared to lead movements in the unemployment rate of women by six or more months; for unemployed men, the index appeared to lead by five or six months. For young people, there was no discernible lead pattern, which suggests that movements in the youth unemployment rate occurred quickly and in immediate response to changes in labour demand. The average duration of unemployment for a young person in 1987 was 14 weeks ([Cohen](#), 1989). This is much shorter than the average five months duration of unemployment for adults.

The longer lag that occurs before the unemployment rate for men and women drops may be partly explained by a longer job search period. Possibly, unemployed men and women over age 25 take more time to find a job that suits their needs, matches their qualifications, or provides their desired income.



Chart C Help-wanted Index and Trend-Cycle of the Unemployment Rate (inverted)

In the 1980s, changes in the level of help-wanted advertising and the unemployment rate had a much closer association for all groups. Unemployed persons' use of help-wanted ads compared with other job search methods increased substantially after the 1981-1982 recession ([Clemenson](#), 1987).

Conclusion

The help-wanted index was a weak leading indicator of changing economic conditions in Canada over the 1971-1988 period. However, it did signal the onset of the last two economic recessions. The principal advantage for researchers using the help-wanted index is that it is available much earlier than other macro-economic indicators.

The index was a coincident indicator of movements in the employment ratio during the 1970s and the 1980s. It was strongly associated with the employment ratio of young people. This suggests that employers looking for additional workers through classified job ads appear to be attracting young workers.

The help-wanted index was a leading indicator of movements in the unemployment rate by three to five months in the 1980s, though these results differed by age and sex. In short, the index has some value as a leading indicator of the condition of the labour market during the 1980s.



Table 2 **Cross-correlation Coefficients: the Help-wanted Index and the Unemployment Rate, 1981-1988**

Source: Help -wanted index; Labour Force Survey.

For further information, see [note on data analysis](#) at the end of the article.

Origins of the help-wanted index

1920s In the United States, William A. Berridge uses help-wanted advertisements to develop a measure of labour demand. This measure is later updated and published by the Metropolitan Life Insurance Company.

1960s The United States Conference Board assumes responsibility for producing the help-wanted index and improves its methodology. The U.S. index is derived from a monthly count of help-wanted advertisements published in 51 U.S. city newspapers.

1970s In 1973, Finance Canada collects want-ad data and publishes quarterly averages of the help-wanted index for Canada from 1962 on. The Canadian index is derived from a measurement of the column space devoted to help-wanted advertising.

In 1974, Statistics Canada assumes responsibility for the help-wanted index and continues publishing quarterly averages with only minor changes to the methodology.

1980s In 1983, Statistics Canada begins to publish the help wanted index on a monthly basis.

In 1989, Statistics Canada revises the methodology of the help-wanted index. Help-wanted advertisements are counted rather than measured. The revised index is only available back to 1981.

Data analysis

Three data series were analyzed for the period 1971 to 1988: the monthly series of the help-wanted index, the employment ratio, and the unemployment rate.

A trend-cycle was produced for each data series to facilitate more direct comparisons between series. The trend-cycle program removes the effects of seasonality and irregularities from the time series. This procedure was especially appropriate for the help-wanted index, which has large month-to-month fluctuations in its seasonally-adjusted data.

A cross-correlation technique was used to test for an association between the help-wanted index and the employment ratio, and between the index and the unemployment rate.

Cross-correlation matches the curves of two data series and establishes a "goodness-of-fit", expressed numerically as a cross-correlation coefficient r . This coefficient is the standardized co-variance of the two series.

An example of the formula is:

$$r = \frac{\sum_t (HWI_t - \overline{HWI}) (U_t - \overline{U})}{\sqrt{\sum_t (HWI_t - \overline{HWI})^2 \sum_t (U_t - \overline{U})^2}} \quad \text{where}$$

HWI is the help-wanted index, and

U is the unemployment rate

The cross-correlation coefficient has a range of + 1.0 to - 1.0. If the distributions of two series are skewed in the same direction and have the same degree of skewness, then $r = + 1.0$. If the distributions of two series are skewed in opposite directions and have the same degree of skewness, then $r = -1.0$.

Leading and lagging relationships are established by producing coefficients for "shifting" time periods. The help-wanted index data series was shifted relative to the employment ratio and unemployment rate series, reflecting one-month to eight-month leads and one-month to five-month lags. For example, the index for January 1971 was correlated with the employment ratio for February, March, and then April 1971 to create one-month, two-month and three-month leads by the index. The match or "best fit" is established where the coefficient is highest.

Changes in methodology

The old help-wanted index performed well in reflecting long-term trends in labour demand. But short-term fluctuations made the interpretation of current trends in the old index difficult. This prompted revision of the index methodology. The revised index came into effect in January 1989.

Derived from a sample of 18 major city newspapers, the old help-wanted index is available for the years 1962 to 1988. Help-wanted ads were collected from Saturday newspapers published during the week of the Labour Force Survey (usually the week including the fifteenth day of the month). Only classified ads were used to calculate the index. Career-section ads, positions-wanted and newspaper carriers were excluded from the index.

The basic unit of analysis of the old index was the measurement of column space. Briefly, the column space devoted to help-wanted advertising was measured in inches and compared with the average column space measured in the base year 1981. The raw index was then multiplied by the appropriate city, regional, and national 1981 population weights. (For a technical description of the old index, see [*The Help-wanted Index 1987*](#), April 1988.)

The revised index, derived from a sample of 22 major city newspapers, is available from 1981 onward. As with the old index, the Saturday newspapers are collected during the Labour Force Survey reference week and only classified ads are used. The basic unit of analysis is a count of the number of help-wanted ads appearing in the classified sections of newspapers. The procedure for weighting the revised index is the same.

In-house research, conducted to examine movements in the revised and old index between 1981 to 1988, has found that the revised index is a superior indicator of trends in labour demand. Results have shown that the revised index:

- has fewer short-term variations than the old index;
- showed changes in direction at an earlier date than the old index;
- has been a stronger leading indicator of movements in the employment ratio and unemployment rate.

For a brief study on the differences in the behaviour of the revised and old index, see [*The Help-wanted Index 1988*](#), May 1989.

Notes

Note 1

The five regions are the Atlantic Provinces, Quebec, Ontario, the Prairie Provinces, and British Columbia

Note 2

The reference dates for the 1979-1980 recession have changed as a result of data revisions, placing the onset of this recession in February 1980, not November 1979 ([Cross and Roy-Mayrand](#), 1989). For a discussion of the methodology in determining business cycle turning points, see [Cross](#), 1982.

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Chart references

- *The Help-wanted index (trend-cycle)*: based on data published in [*The Help-wanted Index 1988*](#) and reference dates for business cycles listed in the *Canadian Economic Observer*, February 1989.
 - *Help-wanted index and trend-cycle of the employment ratio*: based on data published in [*The Help-wanted Index 1988*](#) and *Historical Labour Force Statistics: Actual Data, Seasonal Factors, Seasonally Adjusted Data* (71-201).
 - *Help-wanted index and trend-cycle of the unemployment rate (inverted)*: based on data published in [*The Help-wanted Index 1988*](#) and *Historical Labour Force Statistics: Actual Data, Seasonal Factors, Seasonally Adjusted Data* (71-201).
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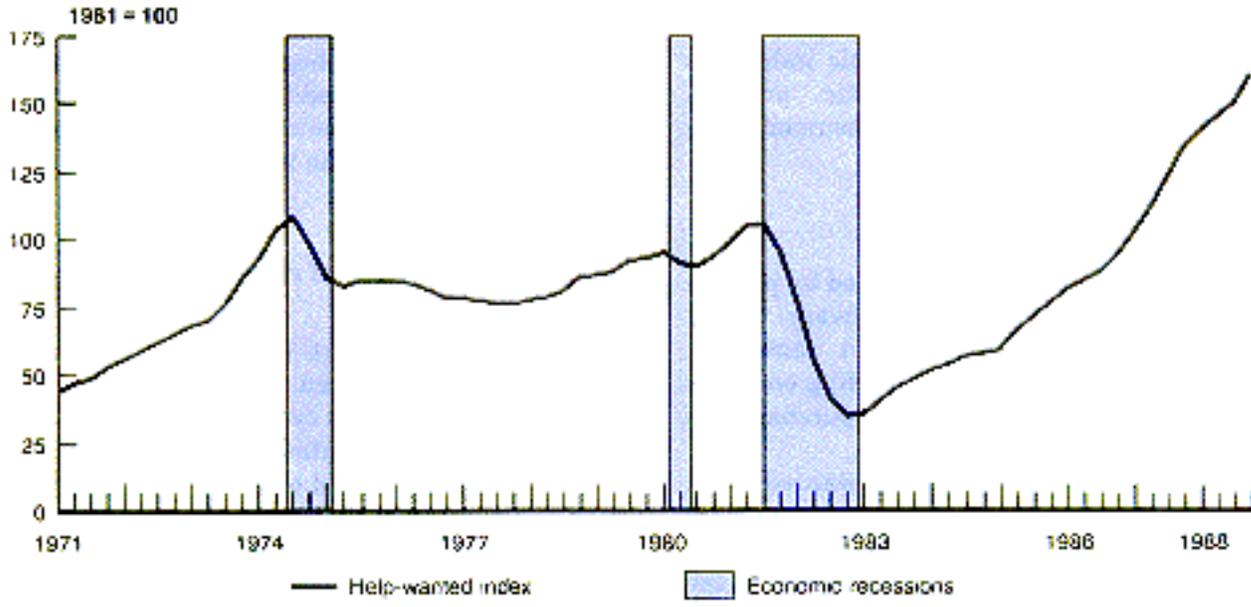
Source

Perspectives on Labour and Income, Autumn 1989, Vol. 1, No. 2 (Statistics Canada, Catalogue 75-001E). This is the fifth of six articles in the issue.



The Help-wanted Index (trend-cycle)

The index declines sharply at the onset of each recession and continues to drop until the recovery starts.



Help-wanted Index and Trend-Cycle of the Employment Ratio

During periods of growth in labour demand, the employment ratio rises, especially for the young.

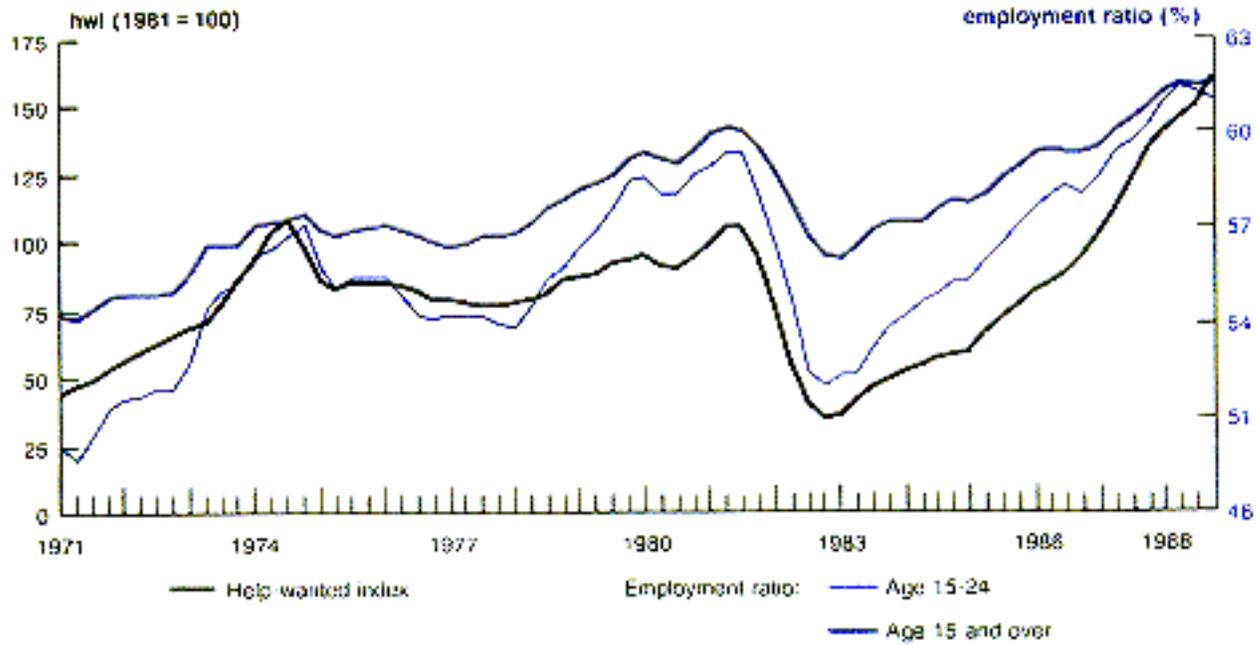


Table 1

Cross-correlation Coefficients: the Help-wanted Index and the Employment Ratio, 1971-1988

HWI leading employment ratio by --- month(s)	Help-wanted index and the employment ratio				Number of observations
	Total	Men aged 25 and over	Women aged 25 and over	Youth (aged 15-24)	
8	.66	.09*	.31	.73	208
7	.69	.09*	.33	.77	209
6	.72	.08*	.34	.80	210
5	.74	.07*	.36	.82	211
4	.76	.06*	.38	.85	212
3	.78	.05*	.39	.86	213
2	.79	.03*	.40	.87	214
1	.79	.02*	.42	.88	215
0	.79	-.00*	.43	.88	216
- 1	.78	-.00*	.42	.87	215
- 2	.77	-.00*	.41	.86	214
- 3	.75	-.01*	.40	.84	213
- 4	.73	-.01*	.39	.83	212
- 5	.71	-.02*	.38	.80	211

Source: Help-wanted index; Labour Force Survey.

** These coefficients are not significant at the 1% confidence level. All remaining coefficients are significant at the 1% confidence level, meaning the chances are about 99% that an association exists between the index and the employment ratio.*

For further information, see note on data analysis at the end of the article.

Help-wanted Index and Trend-Cycle of the Unemployment Rate (inverted)

During periods when the demand for labour declined, the unemployment rate increased.

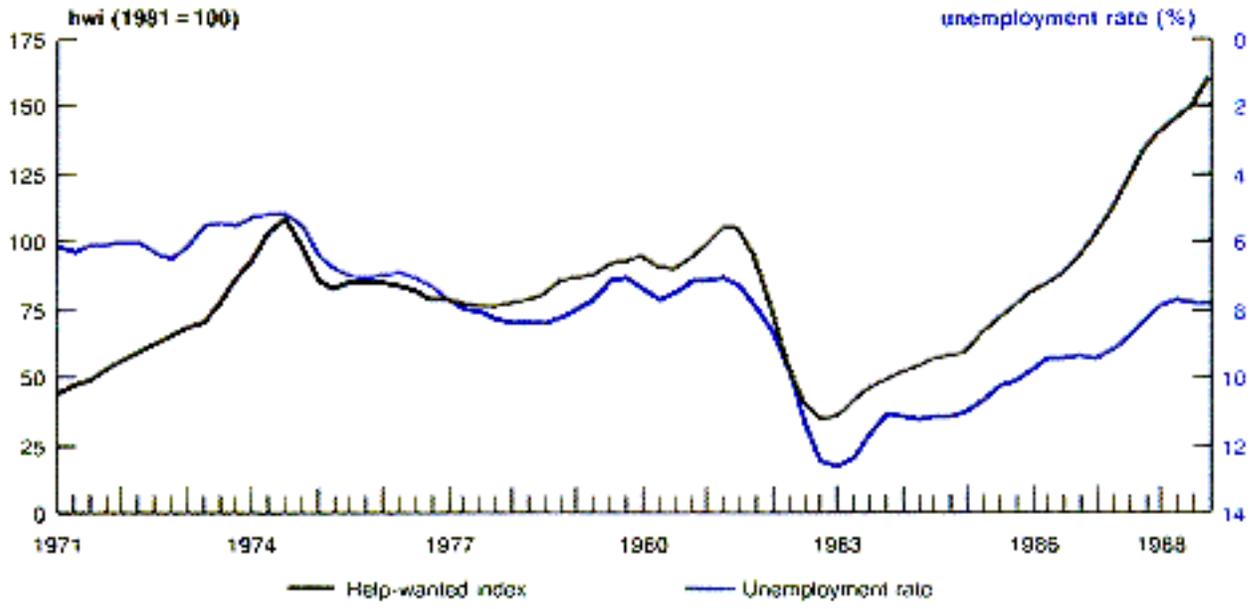


Table 2

Cross-correlation Coefficients: the Help-wanted Index and the Unemployment Rate, 1981-1988

HWI leading unemployment rate by --- month(s)	Help-wanted index and the unemployment rate				Number of observations
	Total	Men aged 25 and over	Women aged 25 and over	Youth (aged 15-24)	
8	-.86	-.87	-.89	-.81	88
7	-.90	-.88	-.89	-.85	89
6	-.92	-.89	-.89	-.88	90
5	-.93	-.89	-.87	-.91	91
4	-.93	-.87	-.85	-.93	92
3	-.93	-.85	-.82	-.94	93
2	-.92	-.83	-.79	-.95	94
1	-.90	-.79	-.75	-.95	95
0	-.88	-.76	-.71	-.94	96
- 1	-.85	-.72	-.68	-.93	95
- 2	-.82	-.68	-.64	-.91	94
- 3	-.79	-.64	-.59	-.89	93
- 4	-.75	-.59	-.53	-.87	92
- 5	-.70	-.53	-.48	-.83	91

Source: Help-wanted index; Labour Force Survey.

For further information, see note on data analysis at the end of the article.