

## SPECIAL FEATURES / CONTRIBUTIONS SPÉCIALES

# Dynamic Information for Entrants to the Highly Qualified Labour Market

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“...adolescents must make major occupational decisions on the basis of inadequate information. Furthermore, much of the information that does come to their attention is less meaningful than it might be because they do not have the background to interpret it properly.”<sup>1</sup>

Recent reports concerned with the link between postsecondary education and the labour market have stressed a need for better information on which students can base their career choices. Two controversial reports appearing during the past year were Statistics Canada's *Job Market Reality for Postsecondary Students* and Employment and Immigration's *Labour Market Developments in the 1980s*. The former report was intended to present labour market information to help secondary students consider career choices and options for further study, while the latter report noted that:

“There is an urgent need for the development of better labour market intelligence on prospective demand for and supply of workers in the aggregate, and by region, industry and occupation.”<sup>2</sup>

Each of these reports provoked a strong negative reaction from Canadian universities where there seems to be a presumption that emphasis on vocational skills is necessarily in conflict with other objectives of higher education. Earlier, an Ontario report had recommended that the government develop procedures to provide better information to students concerning career possibilities, earnings expectations and areas of excess supply or demand for graduates.<sup>3</sup> Such concerns are not confined to Canada. In the United States, the Carnegie Commission on Higher Education noted that

“If we are to rely [for labour market adjustments] in large part on the sensitivity of student choices of fields to occupational shifts, we need to provide students with the best possible information.”<sup>4</sup>

In Great Britain a research seminar recently concluded that “...the scarcest commodity in the market for highly qualified people appeared to be information.”<sup>5</sup>

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Reports such as these commonly argue the importance of labour market information for postsecondary students, but seldom consider the specific kinds of information that should be provided, how it can be collected, and how it should be interpreted and disseminated. It is the intent of this paper to pursue these questions a little further.

This paper deals almost exclusively with one category of labour market information: namely, information on cyclical and major secular changes in those labour markets dominated by graduates of postsecondary educational institutions. This approach therefore focuses on the supply side of the market and on *dynamic* rather than *static* information. *Dynamic information* refers to changes – such as changes in relative earnings or entrance qualifications which would lead potential employees to revise career choices – while *static information* deals with enduring conditions such as differences in the work environment of biologists and accountants. The rationale for emphasis on information about changes rather than static differences is to bring about *marginal* adjustments rather than substantial shifts in career choices. Such adjustments might include, for example, a slight increase in the proportion of postsecondary students in engineering and commerce or accounting with an offsetting decrease in architecture and law.

Detailed information is especially important for students in programs which can lead to a wide range of occupations. Consideration of alternative employment will include close comparisons of changes in starting salaries, working conditions, and potential development. Market signals or information on each of these features must be clear and accurate to encourage prompt and appropriate changes in occupational choices. Adjustment lags follow from a delay in receiving new information about labour market alternatives and in making a decision or response to such information. Market adjustments for professional occupations can be quite long both because of a long post-secondary program and because institutions or governments may be slow in taking action to offset socially undesirable changes in markets.

It is also important to have accurate information, not only to improve the allocation and speed of adjustment in the market for graduates, but also to maintain confidence in market information on the part of potential graduates. If provision of market information is to be an effective mechanism linking education and employment, then this information must be perceived to be reliable. For example, if in-course students observe an unanticipated (and unannounced) decline in demand for their services, it will take some time before confidence is restored in labour market forecasts.

Universities have often opposed manpower planning in the postsecondary sector. Few labour economists would advocate a planning approach, however, if the market mechanism would function more satisfactorily. This requires that the market should respond more quickly to shifts in supply and/or demand and the resulting changes in relative wages or salaries. Improving the operation of markets for highly qualified labour by providing better information can therefore serve as an alternative to the strict or severe form of manpower planning that is

eschewed by universities. The British seminar to which earlier reference was made noted that

“...a distinction must be drawn between providing much better labour market information on which the different interest groups could base their decisions, and government using that information to put pressure upon the educational system to follow a particular pattern. The first point to be settled then is whether or not *information can be improved enough for this in itself to have significant benefits through its effect upon decision making, without much further government intervention.*”<sup>6</sup>

While an emphasis on labour market information for postsecondary students assumes an economic model of occupational choice, this approach does not contradict psychological or sociological models. The economist’s emphasis is on marginal changes in economic conditions (such as relative earnings or expected unemployment rates) while other socio-psychological factors such as prestige and job satisfaction would continue to have their influence as well.

### **What kind of information is required?**

The kind of information required could be grouped in four categories: cyclical behaviour of markets; changes in occupational entry requirements; changes in occupations related to a given field of study; and market forecasts.

Some professional occupations experience more cyclical market behavior – in terms of relative earnings and availability of new jobs – than do other occupations. Potential entrants should know whether a specific market is at its peak or trough, but it is even more important that they be aware of and take these cycles into account. The “cobweb effect” of high prices followed by increased supply and falling prices is well-known in agricultural markets but this effect is not so commonly recognized in labour markets. Relative earnings for engineers, architects, and accountants appear to follow a fairly short cycle closely resembling the business cycle, while lawyers have experienced a much longer cobweb cycle based apparently on long lags on the supply side.<sup>7</sup> Students should be fully informed about such cobweb effects in labour markets, where lagged supply responses to changes in relative salaries result in strong cyclical changes in employment opportunities.

Changes in occupational entry requirements follow both from the cyclical behaviour just described and from secular changes. For example, the formal qualification for elementary school teachers in Ontario has changed from a Grade 12 certificate to a bachelor’s degree over the past twenty-five years as a response both to the excess supply and to pedagogical changes in the school system. Similar changes have occurred in the admission requirements for law school and in the professional training of accountants. Students should be aware that this phenomenon is due partly to “credentialism” or screening and that they should not expect to “use” all they have learned. Such a change in expectations would do much to reduce job dissatisfaction.

Changes have also occurred in alternative occupational opportunities following from a specific field of study. These include new occupations resulting from technological changes, as well as new “ports of entry” and changes in typical career paths. Chartered banks and other large financial firms traditionally took new employees into the firm only at the junior trainee level, but other ports of entry are now available — especially for persons with specialized academic skills. Students should also be aware of changes in long-term career paths, such as the change in job functions as engineers and accountants move into managerial positions. This requires that labour market entrants have wider occupational perspectives and preparation and an understanding of alternative career routes or paths. In the same sense, students need to understand the “internal labour market” concept and be able to distinguish “ports of entry” for different employers or professions. Students should also be aware of the opportunities and procedures for changing occupations, the costs and benefits for doing so at various stages in their careers, and the changing role and impact of paraprofessionals in the traditional “protected” occupations such as law and medicine.

Finally, students need detailed, current reports and forecasts of conditions in specific labour markets. Occupational decisions are based on expectations; current market information is important to the extent that it influences or shapes those expectations. Forecasts obviously have a more direct bearing on individual’s expectations, but information on existing conditions is more extensive and is often regarded as a more accurate indicator of future conditions than are occasional and questionable forecasts. Consequently there ought to be more and better forecasts augmented by more and current information. Forecasts are also necessary to anticipate changes in the *direction* of change; that is, to identify turning points or troughs and peaks on the market cycle.

### **How should information be obtained?**

There are three major groups of sources of economic information on markets for highly qualified occupations in Canada. These are the decennial census; the standard periodic surveys such as the annual consumer finance survey; the labour force survey and annual postsecondary statistics; and occasional surveys such as the 1972 highly qualified manpower survey and the Statistics Canada survey of 1976 graduates. The standard surveys provide basic data by occupation but there is insufficient detail and a considerable lag in obtaining and analyzing the data. Two other surveys which would have been valuable have been discontinued after only a short existence: the job vacancy survey and the occupational employment survey.

All of the surveys mentioned here have been conducted by federal departments. Since the market for highly qualified labour is mainly national in scope, it is necessary to have national data. Federal-provincial rivalries in the fields of manpower and education have been the cause of serious limitations on the collection, analysis, and dispersion of labour market information. One would hope, for example, that there could be a cooperative federal-provincial continuing survey of

postsecondary graduates rather than the separate, uncoordinated, *ad hoc* surveys conducted in the late 1970s by Statistics Canada and some of the provinces.

In addition to current surveys as sources of information, there need to be forecasts of the supply of and demand for graduates. Forecasting at this skill level is especially important because the long training periods result in longer cyclical movements and disequilibrium. There is also a more significant economic effect on other employment because market imbalances or changes in relative earnings have substitutability or complementarity effects on other occupations. Federal government forecasting programs such as the COFOR (Canadian occupational forecasting) model and FOIL (forward occupational imbalance listing) are to be augmented and superseded by the COPS (Canadian occupational projection system)<sup>8</sup> which will include both the demand and supply sides and will be influenced by qualitative information from employers as well as by quantitative data.

### **Will students respond to labour market information?**

There is evidence that students do have some of the detailed labour market information just described and that they do respond by making occupational changes. The Carnegie Commission answered the question of student responsiveness quite directly:

“There has been considerable disagreement about the extent to which student choices of fields of study are responsive to changes in the job market. . . On net balance, the evidence seems to reveal a considerable degree of student responsiveness to changes in relative job opportunities, but within a framework of rather substantial stability in overall patterns of student tastes and abilities. . . In addition to shifting among fields, students also shift among specialties within fields, often in response to job market changes.”<sup>9</sup>

Richard Freeman has examined the process of students' career choice in a study based on questionnaire responses to a survey of male postsecondary students in the Boston area in 1966-67. While the survey may be faulted because it is restricted in time, sex, and region, it nevertheless reports on the availability, quality, and effects of labour market information for what is at least a typical subset of college students. Freeman reported that:

For many students, career plans are amenable to change during college in response to new information or conditions. . . The time at which a student makes his career decision and his amenability to change varies according to intended area of specialization. . . Students in medical and scientific specialties, for example, tend to choose their careers before college. . . As a consequence, the scientific and medical markets can be expected to operate differently from those for non-scientists. Adjustments in supply will be slower, and more time will be required to attain equilibrium.<sup>10</sup>

He went on to note that:

There is substantial *diversity* in the alternatives of [i.e. for] students in most fields. One third of the potential engineering work force, for example, expressed a serious interest in non-scientific fields. Twenty per cent. of the medical and premedical students considered law or business as their closest alternative. . . In short, the characteristics and ability requirements of occupations do not constrain the possibilities of students to a narrow group of related fields. As a result, changes in the attractiveness of a particular occupation are likely to have widely dispersed effects on the market. . .<sup>11</sup>

Freeman also reported that most students were reasonably satisfied with the occupational information available to them at the time of their most recent career decision.<sup>12</sup> But there were also dissatisfied students:

. . . one in ten students views himself as inadequately informed about job opportunities, and one in seven anticipates changing career plans given additional information.<sup>13</sup>

Although the majority of students indicated that they had sufficient information for their career decisions, it is possible that their information was incorrect. A 1969 survey of Queen's University students, for example, found that ". . . over one quarter of the male students appear to have a very poor knowledge of [starting] salaries."<sup>14</sup> One result of this misinformation is that:

More male students enroll and remain in engineering compared with arts or commerce than would do so were information accurate. Hence imperfect information leads to a greater supply of engineering graduates (as of 1969) than would be the case if information were accurate . . . There appears to be some tendency for males to overenroll in commerce vis-à-vis social sciences because of poor information.<sup>15</sup>

Freeman concluded from his survey that students have accurate information about the characteristics of the five well-known professions (engineer, lawyer, doctor, professor, business) but his evaluations were based on rankings rather than absolute values.<sup>16</sup> He did, however, reveal an important factor in the formation of expectations which leads to resource misallocation, namely that students are excessively optimistic about their own income prospects: "On the average, students expect other [college-trained] workers to earn less than they themselves"<sup>17</sup> but they did have a fairly accurate knowledge of the average income for their chosen occupation.

The most significant finding related to the notion of marginal adjustments in the labour market was that there exists a large group of students who "appear willing to alter their plans when market conditions change". Their market characteristics include the following:

- a tendency to give serious consideration to alternative careers while in college. . .
- great dissatisfaction with the adequacy of information;

- a tendency to select a career at a relatively late date compared to other students. . .
- a substantial likelihood of majoring in a field unrelated to their anticipated vocation.<sup>18</sup>

### **To whom and how should information be provided?**

In the study just discussed, Freeman also found that the students' most important sources of career information were employment, college professors, and the public media, with guidance counselors receiving the lowest rating.<sup>19</sup> Information should therefore be directed not only to postsecondary students but also to other target groups. Parents, relatives, and teachers obviously should have up-dated information. The public media especially need to be provided with information on a detailed, continuing basis to avoid the distorted, dramatized reporting of conditions in the graduates' labour market that has occurred at least in the recent past. Leaders in each profession also need to know and to understand their own market conditions, and how these are likely to influence future supply and demand in their markets so they can make more informed public statements on their occupations.

Possibly the best source for intensive information about a labour market is employment in that market. This has been noted in Freeman's study, and other similar studies of occupational choice.<sup>20</sup> Various programs have been used and should be developed further to assist students to find employment during their study programs. The most common methods are cooperative education, work-study, and summer placement. Cooperative education is the combination of equal periods of formal study and closely-related employment, while work-study involves part-time employment concurrent with a study program. In each case more administrative effort and financial support from employers and governments would help to reduce student unemployment while improving students' information on labour market conditions.

### **Conclusion**

A summary of these several issues could not be phrased more succinctly than the position presented recently at a seminar on higher education and the labour market:

The slowness of the adjustment, of the flow of information to prospective students, and of the response of colleges provides a basis for policy intervention, notably manpower planning. . .What we are arguing is that the present state of affairs may correspond to an attempt on the part of students to make rational choices in difficult circumstances, and an attempt on the part of higher education institutions to respond to them. To the extent, however, that the choices and the response could be improved there is a role for manpower planning at least in the minimal sense of the provision of information . . .It should be added that insofar as such information is already collected, it needs to be widely disseminated in a form which is rea-

sonably comprehensible. Moreover, given our emphasis on rates of change of the stock and flow of graduates and their employment conditions, it is not a matter of the once-for-all acquisition of some facts, but of a continuous process of regular data collection.<sup>21</sup>

One may ask what it would cost to collect, analyze, and distribute such labour market information, and whether it is worth it. The cost of *not* following this course is the cost of increasing unemployment, underemployment, job dissatisfaction, reduced output, and skill shortages – or in other words, inefficient use of human resources.

One should also consider the implications for postsecondary educational institutions. Universities and colleges should accept and respond to the fact that virtually all students view postsecondary education as vocational preparation. This need not change what the institutions now offer but it should encourage those institutions to help students see that a liberal education (including mathematics and language) has been and will continue to be the most effective preparation for many occupations. The institutions should also be flexible enough to respond to student choices and the concomitant changes in enrolments. Most importantly, the institutions can assist in efforts to reduce cycles in occupational choices by helping to collect, analyze and distribute the information which influences student choices. In this way the institutions can develop a more predictable and stable future, and at the same time contribute significantly to more rational, stable performance of the labour markets for the highly educated occupations.

## FOOTNOTES

1. Walter Slocum, p. 273.
2. Task Force on Labour Market Developments, p. 88.
3. Ontario Economic Council, *Issues and Alternatives 1976: Education*.
4. Carnegie Commission on Higher Education, *College Graduates and Jobs*, p. 187.
5. Robt. Lindley, p. 169.
6. *Ibid.*, p. 156. Emphasis added.
7. Noah Meltz and David Stager, pp. 88-103.
8. Hon. Lloyd Axworthy, "The Canadian Occupational Projection System", January 11, 1982.
9. Carnegie Commission, *op. cit.*, pp. 163-165.
10. Richard Freeman (1971), p. 183.
11. *Ibid.*, pp. 192-193.
12. *Ibid.*, p. 194.
13. *Ibid.*
14. David Dodge and Neil Swan, p. 21.
15. *Ibid.*, pp. 23-24.
16. Richard Freeman, pp. 199-200.
17. *Ibid.*, p. 204.
18. *Ibid.*, p. 223.



19. *Ibid.*, pp. 195-196.
20. See, for example, Walter Franke and Irwin Sobel (1970), *The Shortage of Skilled and Technical Workers*, p. 301.
21. Maurice Peston, pp. 125, 137.

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