

POLICIES FOR AN INTERNET LABOUR MARKET

Peter Kuhn

The Internet is rapidly becoming a favoured medium of both employers and job-seekers. It seems likely to reduce frictional unemployment, increase productivity and, because it will force compensation to be tied more closely to productivity, it may increase wage inequality. What should policy makers do in the face of this important new technology? They should understand that traditional help-wanted indexes, which focus on newspaper job ads, are obsolete. They should instruct their statistical agencies to look for new measures of aggregate job search. And, with the Internet now providing job-matching services so cheaply, policymakers should reconsider government's role as a provider of these services.

L'Internet devient rapidement l'outil privilégié des employeurs comme des chercheurs d'emplois. Il semble en voie de réduire le chômage résiduel, d'accroître la productivité et, en liant plus étroitement cette dernière à la rémunération, il risque d'élargir les disparités salariales. Face à cet important changement technologique, que vont faire les décideurs politiques ? Ils devraient comprendre que l'outil traditionnellement utilisé pour dénombrier les chercheurs d'emplois, principalement axé sur l'analyse des petites annonces parues dans les journaux, est devenu caduc. Ils devraient obtenir de leurs agences statistiques qu'elles dénichent d'autres indices pour évaluer le nombre de chercheurs d'emplois. Et, maintenant que l'Internet a radicalement réduit les coûts de la cueillette de données sur le marché du travail, ils devraient se demander s'il est encore besoin que le gouvernement fournisse ces informations.

It has become a cliché to say that the Internet is changing the way we live and do business. Plenty of books and articles give advice on how to use the Internet as a news source, as a vehicle for political engagement, and for competitive strategies for e-commerce. But one domain of Internet activity that has received relatively little attention is the exchange of labour services

By April 1999, more than half (54 per cent) of adult Americans reported having access to the Internet. That's twice as many as three years ago (26 per cent in April 1996). By 1998, 12 per cent of Americans went online every day, up from three per cent in 1995. Given this rapidly growing level of Internet access, it's not surprising that Americans, and citizens of other developed countries, turn to the Internet when looking for work.

More than 2000 online job sites exist, the vast majority in the US. (For an updated list, see Internetpost.com.) These sites range from large omnibus sites like monster.com (claiming six million registered users, 2.8 million résumés postings, and 330,000 job listings), to more specialized sites like Meat and Poultry Online, Black Collegian, and Nevada-jobs.com. In 1999, US firms spent a total of \$411 million on

online recruiting, up from \$182 million the previous year.

Besides expanding in size, online job search sites have expanded in scope. Early uses of the Internet for job search consisted largely of electronic bulletin boards; these are essentially online versions of classified advertisements. In fact, the Internet's second most visited job site, careerpath.com, remains a consortium of some 90 newspapers providing linked, online versions of their print ads. But new services being added to some Internet job-search sites include: pre-screening of candidates to reduce the number of irrelevant applications seen by an employer, selective e-mail interaction between workers and candidates, expanded online information about the job and the firm to allow the worker to decide whether he or she would like to work there, online skills and personality testing of applicants, online interviews, video clips of the employee in action, enhanced worker and firm confidentiality, and hot links to an employee's previous employers. SkillsVillage.com lets employers see résumés of high-tech contract employees that are updated each week by the employee; these are also updated by the contractor's current employer to support the worker's claims.

According to a recent report by Forrester Research, upcoming trends in online search probably will include integration and consolidation of the many disparate sites, eliminating cumbersome duplication of postings for workers and firms. To some extent this process has already begun. WebHire.com, for example, provides links to the more than 2,000 job sites in its database, and charges employers a fee to recommend an appropriate subset for their postings. A distinct but related trend is the proliferation of highly specialized “boutique” sites, aiming for complete market coverage in labour market niches where specialized information is needed to evaluate very specific skilled occupations.

While it is relatively easy to count Internet job-search sites, their postings, and the number of visits to those sites, statistics on the number of people looking for work online are much harder to generate. This is especially the case for statistics that focus on the small fraction of the population that is unemployed. However, a study looking at US data from December 1998 reports that 15 per cent of unemployed job seekers and 7 per cent of employed workers regularly looked for work on the Internet. This figure rises dramatically if we factor in Internet access: 50 per cent of unemployed job seekers who have Internet access in their home regularly job-search online. By 1998, Internet job-search was already more popular than five of the nine active search methods recognized by the US Bureau of Labor Statistics in its monthly survey. Given rapid Internet expansion (especially into the ranks of workers who are more likely to experience unemployment), and the high conditional-use rates, these figures are probably much higher already and will continue to rise.

In short, the Internet already forms a significant component of both employed and unemployed workers’ search strategies, and can be expected to play an even larger role in the very near future.

A common theoretical tool that economists use to study unemployment is the “matching function.” For a given number of unemployed workers, and a given number of vacant jobs in a labour market, the matching function gives the number of new job matches that are consummated in a given period of time. In most applications, the matching function is assumed to be a fairly stable underlying feature of an economy over relatively long periods of time, summarizing the

“mechanics” of matchmaking in labour markets, given the country’s technology, communications, and other institutional arrangements.

While economists have long been preoccupied with measuring technological progress in the economy’s production function, it has not been traditional to think about technological progress in the matching function. Yet this is precisely what Internet job-search and recruiting might do: Simply by making it easier for appropriate workers and vacancies to “find” each other, online job-search might increase the flow rate of new job matches from any given pool of searching workers and vacancies.

If the Internet does constitute a substantial technological improvement in the matching function, what effects is it likely to have on the labour market? Clearly, an immediate, or “first-order” effect should be a reduction in unemployment. Unless the increased efficiency of an Internet search draws large numbers of new workers into unemployment to look for new jobs, and unless both firms’ hiring standards and workers’ reservation wages rise by so much as to completely eliminate this first-order effect, the equilibrium unemployment rate should fall. To some extent, this might have already happened: Could Internet-induced technological progress in the matching function help explain the “miraculous” combination of low unemployment, combined with low inflation now seen in the US?

Of course, the effects of the Internet on total unemployment are limited to the fraction of unemployment that is truly “frictional.” Experts differ widely on this question, but it is worth noting that many estimates of frictional unemployment do not adequately account for the tremendous heterogeneity in both workers and jobs. A common technique is to calculate a minimum amount of labour reallocation required to match existing vacancies and workers across a set of occupational categories. This generates a small amount of so-called “frictional” unemployment, but (because it treats all workers in the same occupation as perfect substitutes) it does so by arbitrarily matching persons with jobs where no meaningful gains from trade may exist. In fact, the “frictional” component of unemployment that can be reduced by an innovation like the Internet may be very significant.

Another way in which firms and workers might rationally take advantage of an Internet-induced increase in matching efficiency is to become more selective about whom they

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match with. In addition to reducing unemployment, Internet job-search should therefore raise the quality of the average job-worker match in the economy. In the closely watched aggregate productivity statistics, this will show up as “unexplained” productivity growth.

It is worth noting that the Internet’s effects on match productivity will stem not just from the greater number of firms a given worker can contact, or applications a firm can sample. In addition, especially as new capabilities are added to Internet job-search sites, the quality and depth of information each side acquires about the other before selecting a match can improve dramatically. By cruising a firm’s Web site, a worker can now acquire much more information about whether he or she would like to work there; similarly, firms can sample workers’ online résumés and check educational and other credentials with much greater ease. Home Depot stores in California have implemented a particularly creative use of the Internet in screening new employees: Job applicants who visit any of its 900 stores are directed to a computer kiosk, which administers a 40- to 60-minute interview. In addition to screening employees, the kiosks show videos that provide prospective workers with useful information about the jobs they would be asked to perform. Home Depot claims the system has reduced turnover among new employees by more than 10 per cent. Target, Inc. augments its online hiring “interview” with a series of personality tests, designed to assess characteristics like honesty, work ethic and flexibility. Interview results are transmitted over the Net to a contracting firm (Decision Point Systems), and within 10 minutes Target receives a concise synopsis of the employee’s suitability for various available jobs. Internet technology has the potential to improve match quality via deeper, as well as broader information transmission between firms and job candidates.

Many workers invest in a kind of education or training, then enter the labour market hoping to succeed or excel in their chosen field of specialization. Some will excel, others will perform adequately, while still others will have to try other lines of work. It is difficult (not just for firms but for the workers themselves) to forecast who the “stars”—and the underperformers—will be. Human capital is an inherently risky investment, and one that is very hard to insure or diversify.

In a world where workers are attached to firms for long periods of time, firms can play both a privately profitable and socially useful role by

providing insurance against finding out that one is not going to be one of the “stars.” By promising to offer all workers relatively similar wages—regardless of which ones turn out to be star performers—firms can hire, on average, a better pool of workers at lower average cost than firms that pay each worker according to his or her productivity. In such a scheme, the “stars” in a firm subsidize the underperformers, but it is a scheme that all workers voluntarily “buy into” before they know whether they will be a star or not.

But firm-sponsored “ability insurance” can work only if workers have substantial mobility costs. If it were not costly for workers to change jobs, it would be impossible to underpay the firm’s “stars” enough to provide meaningful insurance to those workers who do not turn out to be as productive: The stars would simply leave for another firm that was willing to pay them their true productivity. Thus, if the Internet substantially reduces the cost of finding new and better vacancies, it might reduce the amount of “ability insurance” firms can provide. Wage inequality will rise, as firms have no choice but to tie pay more closely to each individual’s productivity.

By improving information and reducing mobility costs, the Internet could well increase the variability of wages across any given group of workers. Just as distributing information about individuals’ genetic background might have adverse outcomes for the ability to insure health risks, this increased information might not be socially beneficial in all situations. It is, however, almost surely inevitable.

If the Internet can be expected to increase overall wage inequality, will it also exacerbate existing racial, ethnic and gender gaps in labour market outcomes? Considerable concern about this issue has recently been expressed in the United States, with a particular focus on the “digital divide” in access to technology across racial lines in the nation’s schools. National public policy, and some highly visible philanthropists, have already responded to this issue with the creation of various programs to distribute hardware, software, and technical skills to disadvantaged schools throughout the country. (For details on recent US federal government initiatives, see digitaldivide.gov.)

Is there also a digital divide in the use of technology to facilitate job search among unemployed workers, and will such a divide act to increase racial, ethnic and gender gaps in unemployment or wages? One study found that in the

US, while there is no significant gender gap, unemployed blacks and Hispanics are considerably less likely than unemployed whites to use the Internet to search for work.

But the results also predict future trends: The racial and ethnic gaps in Internet job search among unemployed workers are completely explained by differences in access to technology. In fact, if we focus only on unemployed persons with Internet access from home, Internet job search is considerably *higher* among blacks and Hispanics than among whites. As Internet access continues to expand, especially among minority groups, these high conditional-use rates suggest that the gender gap in electronic job search could soon be eliminated. Rather than exacerbating racial and ethnic unemployment differentials, the Internet—by providing a low-cost, more “objective” and anonymous alternative to informal networks—could, in fact, work to reduce these differentials.

A key economic statistic used to judge labour market tightness in many countries is the job-vacancy rate. Along with other indicators, it is used to make decisions on monetary and interest rate policy that can affect the financial well-being of all citizens. In countries like Canada and the US, where job postings with national employment agencies form only a small part of the available job pool, the best available estimate of the vacancy rate is the Help Wanted Index (HWI), which is calculated by summing the number of column-inches of job advertisements in newspapers.

This method of measuring vacancies is now obsolete. Indeed, a recent decline in the US HWI (between January 1999 and January 2000) is attributed by a number of economists, not to a weakening of labour demand, but to a shift in employers’ recruiting methods to the Internet. In response to this, the US Conference Board has started to compile data on Internet job postings, though the figures have not yet been integrated into the traditional HWI. Labour market data collection methods need to change to incorporate the online recruiting boom.

For much of the last century, governments throughout the developed world have operated regional employment offices. While one purpose of these offices is to administer unemployment insurance payments, they have also served as job posting sites designed to help unemployed workers find jobs. One rationale often given for this function was that the sites provided infor-

mation. Information, as a public good, might not be optimally provided by the private sector, a market imperfection that, it was argued, public employment agencies could attempt to remedy.

As has been pointed out, electronic commerce is *all about* selling information. In view of recent technological advances that reduce costs, and given appropriately designed pricing policies that both recognize and take advantage of the “publicness” of information, the Web is beginning to do an astonishingly good job of selling information for profit. The proliferation of private online recruiting and job search sites makes it clear that this logic applies to the labour market as well.

Is there still a rationale for public provision of services that match workers and jobs? This is a question that needs to be asked in national policy circles.

Much of what we read about the characteristics of the Internet—including the highly individualistic personalities of its pioneers and main proponents, and the pressure it creates to link pay much more closely to performance—leads one to suspect it will not be friendly to labour unions.

Still, at least two aspects of the Internet actually work in favour of unions. One obvious benefit of the Net as far as unions are concerned is its role as a union-organizing tool. As any student of the union-organizing process in North America knows, one of the most difficult tasks in organizing a new workplace is simply in making contact with the members of the potential bargaining unit. Without access to the plant’s personnel files, it is hard even to find out who the prospective members are; without physical access to the plant it is hard to get a message to these workers. Doing both these things without somehow alerting the employer to one’s activities (and thus setting off the firm’s counteroffensive) is next to impossible. The Internet potentially makes all these tasks much easier.

The second potential impact of the Internet on unions is less obvious, because—given the dominant form of unionism since the 1930’s—most of us are highly conditioned to think only in terms of industrial unions. Industrial unions are organized on a plant, or firm level, and tend to fare well in situations where workers are attached to a single employer for long periods of time. This kind of union does not benefit from the reduced mobility costs provided by online job matching services.

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A different perspective emerges, however, when we think in terms of an even older form of unions—craft unions. To see this, consider a labour market one might think of as being totally inhospitable to unions: high-tech contract workers. High-tech contract workers are, not surprisingly, high users of Internet job search techniques. They have no loyalty to any employer, but can be fiercely loyal to their particular craft or skill. Like medieval craftsmen, they also have an interest in regulating certain aspects of their trade and in finding a vehicle for the provision of quasi-public non-wage benefits, like pensions, health and disability insurance, that are more efficiently provided at larger scales. In response to these needs, craft-union-like institutions, like the Professional Association of Contract Employees (pacepros.com) have begun to emerge in these markets. To some extent, the ultimate form these organizations will take is still unclear: At this point, PACE neither operates a “hiring hall” nor attempts to set wages. It does, however, provide a wide variety of health and retirement benefits, and attempts to define a set of minimum employment standards via a “contract worker’s bill of rights” (cehandbook.com). While PACE and organizations like it are not (yet?) craft unions, it seems clear that, if unions succeed in the “new” labour market, it may be—paradoxically—by reverting to a more traditional, craft-based model, rather than the currently dominant “industrial” format.

One aspect of the Internet’s effect on labour markets that is of particular importance to smaller countries like Canada is its ability to make physical distance almost irrelevant, and to make the many laws and regulations restricting access to a country’s labour markets much less relevant. Online job search makes it much easier to find an appropriate job at a distance, and—with eased restrictions on the international mobility of highly skilled labour—makes it easier for those workers to physically relocate and take those jobs. Thus the Internet has the potential to exacerbate the “brain drain” problem faced by many countries, including Canada. It can also facilitate “brain gain” from countries where skilled workers are underpaid relative to Canada.

The largest border-smashing effect of the Internet, however, may have very little to do with the physical relocation of workers. As trade theorists have been pointing out since Paul Samuelson’s pathbreaking papers of the mid-twentieth century, international exchange of

goods (and in this case services) can have the same effect on a country’s labour markets as the physical movement of the workers producing those goods. Stories about data entry as well as more skilled clerical work being e-mailed from the US to Ireland and India for overnight completion are now well known, as is the international online market for programmers in Bangalore. Attempts to protect US (and Canadian) workers from competition with these foreign workers by asking agencies like the US Immigration and Naturalization Service to prevent their physical entry into the country are made largely irrelevant by the Internet.

In short, the advent of extremely cheap international communication via the Internet is making the labour market more and more international. There is little or nothing any one government can do about this.

Probably the wisest and safest advice to governments in a situation of such rapid change and great uncertainty as we are in today is the physician’s basic dictum: “Above all, do no harm.” Proposals to interfere with the natural growth of Internet recruiting sites, and with their natural evolution into more comprehensive “career networks,” and to forcibly prevent the international flow of labour and labour services made possible by the Internet should, in my view, be ruled out. It is impossible to imagine regulators interfering in these rapidly evolving markets with anything like the flexibility and the up-to-date knowledge required to do anything more than simple obstruction and harm.

Failing direct intervention in the online job market, there remain, however, three useful things governments can and should do in response to these developments. The first of these involves changing the way governments collect labour market statistics. At the very least, since the traditional help wanted index, based on column-inches of newspaper job ads, is now obsolete, an updated version of this statistic should be created to better inform national policy decisions, including those on monetary and fiscal policy. But the effects of the Internet on labour market statistics can go way beyond this. Every day, vast amounts of information on labour market processes and transitions are collected as a byproduct of online job-search activity. As these activities expand, and as the population of online recruiting firms eventually becomes more stable, the state could consider asking the surviving firms to supply reasonable amounts of non-confidential data to supple-

ment its own collection of labour market statistics used in making policy. Such reporting requirements should involve the smallest possible response burden from the firms involved.

Another way in which government employment statistics could usefully adapt to the rise of Internet recruiting is to incorporate information on Internet search into the standard job search questions asked in surveys like Canada's Labour Force Survey each month. Internet search is already more common than most of the traditional search methods on which the US Bureau of Labour Statistics collects information in the Current Population Survey. Statisticians will also need to decide which forms of Internet search constitute "active" search in order to decide which workers, in the Internet age, will be counted as unemployed. And because it is possible that the biggest impact of the Internet is on job search by *employed* workers, government statisticians should consider asking Internet search questions of all labour force participants, not just the unemployed.

A second possible government response to online recruiting relates to public employment services, such as the Canada Employment Centres (CEC's). With most Internet recruiting sites now offering their services completely free of charge to workers, it is important to ask whether the state needs to remain involved in this activity at all.

Finally, unlike the job matching business, the business of primary, secondary and post-secondary education cannot be easily and quickly abandoned by the state in either the short or medium run. Nor would most Canadians support such a policy. Yet in a world where—due in part to a decline in "ability insurance"—compensation will probably be tied more and more closely

to productivity, the task of training a productive work force will be even more important than it once was. In this area, therefore, I would argue that public policy has no choice but to be active, adaptive, and bold.

An essay on the effects of the Internet on labour markets is, of course, not the place to tackle the difficult and contentious issue of education reform. A small, but recent shred of evidence on this issue might, however, be worthy of mention. According to a report in the *Los Angeles Times*, in the past decade, the low-income, 100-per-cent-minority elementary schools of Inglewood, Calif., have increased the mathematics and reading performance of their students to levels that surpass those in nearby schools in Beverly Hills. This change was accomplished not by raising teacher pay, nor by reducing class sizes. It was accomplished by "an intense focus on basic reading skills, constant testing to detect students who fall behind, and relentless teacher training." Proponents of this program say the key to success was high standards and expectations, for both teachers and students.

Of course, the precise formula for educational improvement probably will remain a subject of debate for years to come. What is beyond dispute, however, is that in a world where product and labour markets are increasingly international, the future of any country ultimately depends on the quality of human capital produced by its families and schools.

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Cut gas taxes? The current low level of fuel prices provides little incentive to reduce fuel consumption. Taxes on fuel are higher than in the United States, but significantly lower than in most other OECD countries. Although there is no recent quantitative study on cost recovery in the transport sector, it is generally recognised that the costs of externalities associated with road traffic exceed revenues from fuel taxes in Canada. A study sponsored by the Ontario Roundtable on the Environment and Sustainable Development estimated the total external costs (including those resulting from climate change) of car and truck use to be around C\$12 billion in 1994, compared with C\$2 billion for other

transport modes. Correspondingly, the highest increase in user charges required in order to cover external costs was found to be for urban passenger cars. Since that date, price incentives have probably been twisted further towards road transport. With shrinking public-sector budgets, subsidies to urban public transit have been reduced over the 1990s, substantially increasing its price, while road maintenance and construction have not faced the same decline in funding levels as have other transport modes. As in the United States, the resistance to an increase in fuel price is intense.

OECD Economic Surveys: Canada, September 2000

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