Skills Research Initiative
Initiative de recherche sur les compétences

Imperfections in the Market for Skilled Workers

Rafael Gomez (York University)
Morley Gunderson (University of Toronto)

Working Paper 2006 C-10

Human Resources and Social Development Canada/Ressources humaines et Développement social Canada
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Abstract

The paper identifies and suggests policies to deal with the barriers and market imperfections that can inhibit skill development. Such skill development is crucial to take advantage of the new opportunities and to convert challenges into opportunities so as to foster productivity, innovation and competitiveness in the new world of work. The paper deals with barriers and imperfections that inhibit both the *development or production* of the appropriate skills and human capital formation at all levels of the skill distribution (including the less skilled), as well as the effective *utilization* of existing skills (e.g., immigrants, retirees). Particular attention is paid to the barriers or imperfections that are subject to a degree of policy control, as well as the trade-offs that are involved in removing such barriers since many exist because they serve other broader purposes. Emphasis is placed on understanding the underlying *causal* relationship between the imperfections and market adjustments so as to predict future changes as those causal relationships change and to predict the effect of policy initiatives that may alter the imperfections or barriers. The paper begins by discussing the imperfections arising from the *demand* side of the labour market. It then turns to the various dimensions of the *supply* side of the labour market, emphasising the barriers and imperfections that inhibit the appropriate supply response to adjustment pressures and the need for skill formation. The various dimensions of labour supply include labour force participation, retirements, immigration and emigration, regional and occupational mobility, school-to-work transitions, hours of work, intensity of work and human capital formation in areas such as job search and labour market information, mobility, education and training. *Institutional* barriers and imperfections that inhibit the matching of labour demand with the various dimensions of labour supply are then outlined. The analysis of this paper suggests that policy initiatives in the area of human capital and skill development should involve a three-pronged approach: 1) *identify* the barriers and imperfections that inhibit the private parties from adjusting, 2) *reduce* the government imposed barriers that are the (often unintended) consequence of government policies and programs, 3) *facilitate* the removing of barriers and imperfections that arise from the actions of the private market participants. Policy initiatives in each of these areas are discussed.

Résumé

Les auteurs proposent des politiques visant à régler les obstacles et les imperfections du marché qui peuvent nuire au développement des compétences. Le développement des compétences est essentiel si nous voulons saisir les nouvelles occasions et convertir les défis en occasions de manière à stimuler la productivité, l'innovation et la compétitivité dans le nouveau monde du travail. L'étude porte sur les obstacles et les imperfections qui entravent *le développement ou la production* des compétences appropriées et la formation de capital humain pour toutes les catégories de main-d'œuvre (y compris la moins qualifiée), ainsi que l'*utilisation* efficace de la main-d'œuvre qualifiée existante (p. ex. les immigrants et les retraités). Les auteurs se penchent particulièrement sur les obstacles et les imperfections qui font l'objet d'un certain degré de contrôle politique ainsi que sur les compromis à faire si l'on supprime ces obstacles, puisque ceux-ci servent souvent d'autres grands objectifs. Ils s'emploient à comprendre la relation *causale* sous-jacente

entre les imperfections et les adaptations sur les marchés de manière à prévoir l'évolution future de ces relations causales et les conséquences de ces initiatives stratégiques, qui peuvent modifier les imperfections ou les obstacles. Les auteurs commencent par examiner les imperfections découlant du côté de la *demande* du marché du travail. Ils passent ensuite aux divers aspects du côté de l'*offre* du marché du travail, en mettant en relief les obstacles et les imperfections qui nuisent à la réaction appropriée de l'offre aux pressions à l'adaptation et au besoin de formation d'une main-d'œuvre qualifiée. Parmi les divers aspects de l'offre de main-d'œuvre, notons la participation de la population active, les départs à la retraite, l'immigration et l'émigration, la mobilité de la main-d'œuvre entre les régions et les professions, la transition de l'école au travail, l'horaire de travail, l'intensité du travail et la formation de capital humain dans divers domaines tels que la recherche d'un emploi et l'information sur le marché du travail, la mobilité, les études et la formation. Les auteurs décrivent ensuite les obstacles *institutionnels* et les imperfections qui empêchent le jumelage de la demande de main-d'œuvre aux divers aspects de l'offre de main-d'œuvre. Dans leur analyse, les auteurs avancent que les initiatives stratégiques dans les domaines du capital humain et du développement des compétences devraient faire l'objet d'une démarche à trois volets : 1) *cerner* les obstacles et les imperfections qui empêchent l'adaptation des entités du secteur privé; 2) *réduire* les obstacles imposés par le gouvernement qui sont la conséquence des politiques et des programmes gouvernementaux (sans que cela soit l'intention visée); 3) *faciliter* la suppression des obstacles et des imperfections découlant des gestes des participants du secteur privé au marché du travail. Les auteurs abordent les initiatives stratégiques dans chacun de ces domaines.

INTRODUCTION

There is general recognition that in the global market place, countries like Canada must compete on the bases of high productivity and high value-added. This is especially the case since countries which were once low-wage and low-productivity are increasingly becoming low-wage but *high* productivity. As well, when the prices of goods and services are more and more set on world markets, human capital and high skills become an increasingly important component of comparative advantage. This is especially the case in the knowledge and information economy where human capital is crucial. Technological change and trade liberalisation have also been skill-biased, therefore putting a premium on skill development. In fact, the availability of skilled labour embodying considerable human capital likely induced much of the endogenous technological change of the computer revolution starting in the mid 1970s – a transformation that relied upon skilled labour (Beaudry and Green 2005). This in turn fostered the subsequent skilled wage premium and higher returns to education. In essence, human capital formation is not only necessary to *respond* to the changes – it may *foster* the endogenous changes in technology that can sustain productivity, innovation and competitiveness. In this area, supply may create its own demand with increases in the skilled labour pool fostering technological change that is complementary to the skilled labour (Acemoglu 1996, 1998, 2002).

Professional and technical labour services of skilled labour that were once thought of as protected from import competition are no longer protected given the increased outsourcing of business and technical services. The greater wage inequality that is occurring implies that there is a premium to skill development to obtain the higher wages from moving up the skill distribution. Providing persons at the lower-end with the skills to move up the skill distribution should reduce the wage inequality by both reducing supply at the lower-end and increasing it at the higher end. The increased emphasis on active labour market adjustment (as opposed to passive income maintenance which can retard such adjustment) is crucial for reallocating labour from declining to expanding sectors so as to enhance productivity and competitiveness. Such a reallocation facilitates solving *both* downside adjustment problems (plant closings, layoffs, unemployment and underemployment) as well as upside adjustment problems (vacancies, skill shortages, production bottlenecks) by reallocating labour from sectors experiencing the downside problems to those experiencing the upside problems, reducing excess supply in the former and increasing supply in the latter.

Market imperfections and barriers can inhibit such reallocations and hence hamper productivity, innovation and competitiveness. Resulting labour shortages foster bottlenecks that can lead to inflationary wage increases and have negative effects not only on the firms experiencing the shortage but on other employees as well as on "upstream" suppliers and "downstream" customers. Reducing such bottlenecks is especially important in a world of just-in-time production and high-quality production, and that can affect interactive cluster developments.

Increasing the hours of work and work intensity of incumbent workers to fill the shortages can lead to trade-offs involving negative consequences in terms of work-family balance, stress, and health and safety risks.

Clearly skill development and human capital formation are crucial for productivity, innovation and competitiveness in the new world of work, especially where brain is replacing brawn. In such an environment, it is important to identify and suggest policies to deal with the barriers and market imperfections that can inhibit skill development to take advantage of the new opportunities and to convert challenges into opportunities. That is the purpose of this paper.

There are two aspects of skills related to market imperfections, both of which will be analysed here. The first relates to barriers and imperfections that inhibit the *development or production* of the appropriate skills and human capital formation at all levels of the skill distribution (including the less skilled). The second pertains to the effective *utilization* of existing skills (e.g., immigrants, retirees). While both are important, the latter is particularly important since it involves the use of skills that have already been produced.

Particular attention is paid to the barriers or imperfections that are subject to a degree of policy control, as well as the trade-offs that are involved in removing such imperfections since many exist because they serve other broader purposes. Emphasis is placed on understanding the underlying *causal* relationship between the imperfections and market adjustments so as to predict future changes as those causal relationships change and to predict the effect of policy initiatives that may alter the imperfections or barriers.

The paper begins by discussing the imperfections arising from the *demand* side of the labour market related to the fact that the demand for labour is a derived demand, derived from the demand for the firms' products and services. It then turns to the various dimensions of the *supply* side of the labour market, emphasising the barriers and imperfections that inhibit the appropriate supply response to adjustment pressures and the need for skill formation. The various dimensions of labour supply include labour force participation, retirements, immigration and emigration, regional and occupational mobility, school-to-work transitions, hours of work, intensity of work and human capital formation in areas such as job search and labour market information, mobility, education and training. *Institutional* barriers and imperfections that inhibit the matching of labour demand with the various dimensions of labour supply are then outlined. The paper ends with a discussion of the various legal, institutional and policy changes (especially those that are under a degree of government control) that may alleviate the barriers and imperfections that lead to adjustment problems and that inhibit skill formation.

Throughout the paper a distinction will be made between a market failure and a market imperfection. A market failure, strictly defined, occurs when the actions of market participants affect the utility function of consumers or the production function of producers and the market does not automatically extract payment (i.e., an externality exists). In such circumstances, markets fail to allocate resources efficiently. In the extreme, the good may have public good characteristics in that its benefits are equally available to all and use by one does not detract from use by others (nonrivalrous consumption) and the market cannot exclude non-payers (non-excludability). In such circumstances the good will not be produced in sufficient amounts even though its social benefits may exceed its social costs. There is a clear potential rationale for government intervention in such circumstances since the market does not produce the socially optimal amount of the good.

In contrast to market failures, where markets do not exist, under market imperfections markets exist but they function under imperfections and barriers that inhibit (but do not preclude) markets from the efficient allocation of resources. Market imperfections can reflect real barriers (risk, transactions costs, uncertainty) or artificial barriers (restrictions on entry, the unintended side effects of other government interventions). The rationale for government intervention here is much more circumscribed since many of the barriers are real and it is not obvious that governments can overcome such real barriers. That depends upon whether governments can "grease the wheels" of market adjustments in a cost effective fashion. Their role in the removal of *artificial* barriers, however, can be more proactive. This is especially the case when the barriers arise sometimes as an unintended consequence of other government policies.

DEMAND SIDE IMPERFECTIONS

Conventional economic analysis argues that demand shocks emanating from the product markets (and hence shocks to the derived demand for labour in the labour market) should lead to labour supply responses to those shocks. For example, an increase in the world price of oil and gas should lead to a resource boom in Alberta and this would increase the derived demand for labour in that province. This in turn should lead to short-run increases in wages that would attract a labour supply response (perhaps from the unemployed or the underemployed or from outside of the labour force or from other provinces) which should then reduce the wage to its long-run equilibrium. If this does not occur, it is likely due to supply-side barriers or imperfections that inhibit the appropriate labour supply response.

Although most labour market imperfections relate to imperfections that inhibit supply side responses or matching of supply and demand, imperfections can also arise on the demand side of the labour market. This is important because the demand for labour is a derived demand, derived from the demand for the firm's products and services. Hence, the link between conditions in product markets (including their imperfections) and the labour market is important[1], as is the feedback from imperfections in the labour market to the ability of firms to meet their product market needs. Labour demand is also affected by cyclical and seasonal factors as well as "mega-projects" and one-off, temporary, unanticipated demand shocks. The demand side imperfections are listed (roughly) in order of their importance (as perceived by this author).

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[1] The importance of product market changes and rigidities in affecting labour markets is emphasized, for example, in Bassanini and Ernst (2002), Boeri, Nicoletti and Scarpetta (2002), Nicoletti, Haffner, Nickell, Scarpetta and Zoega (2000), Nicoletti, Scarpetta and Boylaud (2000) and Seldeslachts (2002)

Macroeconomic Cyclical Demand Fluctuations

Cyclical downturns can have negative effects not only on unemployment, but also on human capital formation. This is especially the case since youths who enter the labour market in such downturns carry a more permanent negative legacy or scarring into their subsequent employment (McDonald and Worswick 1999). As well, cyclical downturns can inhibit matching of new skilled graduates who graduate in the midst of a recession and who may have to find work doing something else entirely unrelated to their field. During the subsequent cyclical upturn, they may never recover the lost opportunity of using their school knowledge as employers turn to graduates of more recent vintage. The same could apply to immigrants with post-secondary degrees. These cyclical phenomenon compound the fact that *recent* cohorts of young males in Canada are experiencing dramatic persistent declines in their *initia*l earnings when they enter the labour market and these are not being offset by more rapid earnings growth (Beaudry and Green 2000). Immigrants who enter in periods of high unemployment also have more difficulty in assimilating into the labour market – even more than the normal greater difficulty experienced by more recent cohorts of immigrants (Abdurrahaman 2003, Abdurrahaman and Skuterud 2005). This latter effect suggests some reconsideration of the move away from gearing immigration to the business cycle. The negative effects of cyclical downturns in the economy suggests that such downturns have substantial social costs not only from the lost output and employment, but also because of their negative effects on skill formation, especially for youths and immigrants.

Discriminatory Preferences Affecting Labour Demand

As indicated previously, the demand for labour is a derived demand, derived from the demand for goods and services produced by firms. It is also derived, however, from the preferences of various stakeholders that influence market transactions including not only employers and customers, but also families, educational institutions and co-workers, and these preferences may reflect discrimination and stereotypes. The conclusion that discrimination prevails is reached in virtually every study that reviews the evidence on discrimination[2].

Discrimination in turn can affect the skill development of the groups who are the target of discrimination and stereotyping. It can do so by reducing the returns to human capital formation via reduced wages and employment opportunities. It is true that reduced wages and employment prospects also lower the opportunity cost of the human capital formation, but this is for a much shorter period than the period over which the returns are obtained. It is also true that acquiring education and training that is labour market oriented can be an important signalling device to signal commitment to labour market activities and thereby break down stereotypes and statistical discrimination; however, this is a cost put on minorities that is not placed on majorities.

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[2] The conclusion that discrimination accounts for some of the differences in the labour markets outcomes of minority and majority groups is explicitly stated, for example, in reviews by Altonji and Blank (1999, p. 3191), (Gunderson (1989, p. 51), Holzer and Neumark (2000, p. 499) and Jarrell and Stanley (2004, p. 828).

Competitive market conditions should inhibit employers from being a prominent source of discrimination since there is little long-run survival value in bypassing the opportunity to hire discriminated-against groups (hereafter "minorities") at wages that are much lower than the wages of groups who are not discriminated against (hereafter "majorities"). Alternatively stated, firms that do not discriminate but hire the cheaper but equally productive minorities should be more profitable and expand relative to those that discriminate and overpay by hiring majority workers. This need not occur, of course, if markets are not competitive in which case excess profits can be used to indulge any preferences. In that vein, policy initiatives that foster competitive forces in product as well as labour markets are an important weapon in the battle against discrimination. This is buttressed by the empirical evidence indicating that discrimination is smaller where employers are subject to more competition in their product and service markets.[3]

Competitive market forces are less likely to be effective in combating discrimination that emanates from customers who may be willing to pay to have their discriminatory preferences indulged. If a customer is willing to pay to be served by a male waiter rather than an equally capable female waitress, then markets (including employers who do not have discriminatory preferences) will in fact respond to meet those preferences. Even here, however, competitive market forces will mean that higher prices have to be paid for indulging such discriminatory preferences, and this can reduce the amount of discrimination that gets manifest in market transactions.

Competitive market forces are also less likely to be effective in combating discrimination that emanates from within households or educational institutions (e.g., if girls are streamed to be nurses and not doctors, or if an unequal sharing of household tasks inhibit women from taking full advantage of market opportunities[4].) In that vein, policy initiatives that facilitate a more equal sharing of household tasks (e.g., parental leaves, childcare) can alleviate discriminatory outcomes, as can policies to reduce discriminatory stereotyping in schools and training institutions.

Discrimination can also emanate from co-workers who are reluctant to work along side of or especially be supervised by minorities. As with customer discrimination, employers who themselves do not discriminate may have to respond to these preferences. The competitive market oriented response would be to replace the workers who discriminate with the (presumably cheaper) minorities. But such adjustments can take a long time and be disruptive in the process.

Responding to discriminatory preferences is a market failure since the market fails to reflect social preferences, at least to the extent that society deems discriminatory outcomes to be inappropriate. As such, policy initiatives to combat discrimination (including the fostering of

[3] Evidence that competitive market forces in the private sector dissipate discrimination is provided in Ashenfelter and Hannan (1996), Black and Brainerd (2004), Black and Strahan (2001) Hellerstein, Neumark and Troske (2002) and Meng (2004).
[4] Hersch and Stratton (1997) provide evidence indicating that hours devoted to housework have a negative effect on wages even after controlling for individual fixed effects.

competitive market forces) are an appropriate response not only in their own right, but also because they can reduce the distortions that otherwise inhibit human capital formation and skill development of groups who are subject to discrimination.

This is the case for all types of discrimination including that which is based on race, sex, ethnicity, color, religion, marital status, disability, sexual orientation, and age (all of which are enumerated in the human rights codes of all jurisdictions in Canada). The issue of age discrimination will likely take on increased importance in the coming years given the aging population and the contentious issues around mandatory retirement. If mandatory retirement is banned by legislation, age discrimination issues will be more prominent given that there will be issues of reasonable accommodation as well as more monitoring and evaluation of older workers and adjustments in their pay and pensions. The same will apply if firms voluntarily eliminate their own mandatory retirement policies perhaps in response to impending skill shortages[5].

In essence, barriers to the utilization of skills of older workers due to age discrimination will be more prominent in the near future given the larger proportion of the population that is older, as well as the fact that larger proportions of that population may continue working and for a longer period of time. This can be an important source of skills as well as mentoring capabilities for the skill development of younger workers, but it will require dealing with the barriers related to stereotypes on the productivity of older workers. The empirical evidence[6] suggests that there is not a substantial decline in the productivity of older workers, in part because declines in some areas (e.g., strength, reaction speeds, mobility, vision and hearing) are generally easily accommodated and offset by enhancements in other areas (e.g., caution, experience, leadership skills). There is usually more variation in productivity within age groups than there is across age groups. The issue of dealing with age stereotypes will be particularly difficult, however, since it does not appear to attract the moral outrage as does many other forms of discrimination. As indicated by the Ontario Human Rights Commission (2000, p. 7, 39):

> Partly because of the recognized social utility of retirement policies and partly because of the differing attitudes to age discrimination, the legal and normative approach to age discrimination appears to be less critical and rather accepting of the practice…Age cases tend to be treated differently than other discrimination cases, particularly when the case involves retirement issues. The most noticeable difference from a human rights perspective is the lack of moral opprobrium linked to age discrimination which, in comparable circumstances would generate outrage if the ground of discrimination were, say, race, sex or disability.

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[5] Survey evidence from the Conference Board of Canada (2005, p. 11) indicates that 55 percent of companies that had a mandatory retirement policy intended to eliminate it in the near future.
[6] Reviews of that literature are contained, for example, in Jablonsky, Kunze and Rosenblum (1990), Posner (1995), Richter (1992), Rosen and Jerdee (1995), and Sterns, Sterns and Hollis (1996).

Dynamic Monopsony

Market imperfections can also give rise to monopsonistic behaviour on the part of firms in their labour markets, leading to "equilibrium shortages" whereby employers will not raise wages to reduce shortages. Firms that are monopsonists in the labour market are so large relative to the size of the local labour market that they have to raise wages to attract additional workers. As such, they have to pay the higher wage to their existing incumbent workers for reasons of internal equity, or they will suffer problems of morale if they are paid less than the new recruits. In such, circumstances their marginal cost of expanding their workforce rises faster than the wage they have to pay to the new recruits; the cost of a new recruit is the higher wage plus the wage adjustment for the incumbent workforce.

In such circumstances, monopsonists will rationally hold back on the hiring decision. They will report vacancies and skill shortages at the going wage rate but do nothing to reduce them because the cost of doing so is so high. The market imperfection here arises because labour markets are not competitive but rather are dominated by this particular employer that is effectively a wage setter and not a wage taker. The firm does not have to be large; it only has to be large relative to the size of the local labour market so that it dominates that market. This is more likely when labour is not mobile or well-informed about outside opportunities and hence is tied somewhat to the firm.

There is general agreement that the "old fashion" monopsony of a "one-industry town" dominated by a single employer is not common given improved transportation and communication. Nevertheless, market frictions and imperfections (immobility, lack of information) can give firms an element of *dynamic* monopsony power whereby their wage decisions affect turnover and *flows* of applicants and quits (Manning, 2003). As well, firms that have asymmetric or private information on the value of their employees (and especially higher skilled employees) may have a degree of monopsony power over them in that they are somewhat tied to their employer since other firms have less information on their value (Acemoglu and Pischke 1998). As such, their mobility may be restricted. Ironically (and as detailed subsequently) while this is a market imperfection, it can induce employers to be willing to pay for at least some of the general training of their employees, since their restricted mobility means that they are less likely to be able to leave for other employers who may otherwise poach – the other employers are not as informed about the true value of the employee.

Quasi-Fixed Hiring Costs, Labour Demand and Job Protection Policies

Another demand side phenomenon relates to the fact that the firm's derived demand for labour may adjust very slowly to demand changes in the product market because of the presence of various adjustment costs related to employer search, training, and terminations. The latter can be particularly important because expected termination costs become factored into the hiring decision, creating quasi-fixed costs of hiring. Many of these adjustment costs are affected by policy initiatives. Such costs can foster the retention of redundant employees during contractions but also the reluctance to hire and train new employees even to fill shortages during expansions. As such, the net impact on unemployment is theoretically indeterminate. The international evidence[7] generally finds that the employment protection legislation reduces employment overall; that is, the saving of the jobs of protected "insiders" is more than offset by the reduced new hiring of "outsiders" and especially youths. It also leads to more "non-standard" employment used to absorb the shocks without having to hire new permanent workers. As well, it reduces entry into the labour force as well as more dropping out of the labour force because of the lack of new job creation, with this "disguised" unemployment not showing up in the unemployment statistics.

Replacement Demand

Replacement labour demand will be increasingly important to replace the skills lost from the retiring baby-boomers. This is especially important since it can involve a loss of "institutional memory" as well as skill development from mentoring of younger co-workers. Such loses can be especially important in the knowledge intensive jobs (e.g., many public occupations including education and health) where early retirement at 55 has been prominent and yet their accumulated human capital is still usable. Uncertainties prevail, however, over how large that loss will be given such factors as uncertainties over the banning of mandatory retirement as well as the effects of public and private pensions.

This is not a market failure in the conventional sense, since the market participants have an incentive to obtain and respond to information that the replacement demand will be high due to the large number of retirees (the market failure from the *public goods* nature of such information will be discussed subsequently). The uncertainty is real and the real resource cost required to reduce that uncertainty is real. As such, it is likely optimal for firms and workers to devote *some* – but perhaps a limited amount of – resources to determining and responding to the expected replacement demand. It is simply not possible to assert that employers are not planning sufficiently for replacement demand and succession planning associated with impending retirements, without pinpointing a precise market failure as to why their actions are not optimal. And such a precise market failure is not obvious (except for the public goods nature of information discussed subsequently). While not an obvious market failure, there are barriers (discussed subsequently) that inhibit market adjustments of the participants in this area.

Demand Shocks Interacting with Supply Rigidities

While these demand shocks are normally met by labour supply responses, this may not occur if the shocks interact with policy induced labour market rigidities. Rather, the demand shocks may lead to high and long duration unemployment. This has been a common explanation

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[7] Empirical studies and reviews of the effect of employment protection legislation include Addison and Grosso (1996), Addison and Teixeira (2001, 2003), Addison, Teixeira and Grosso (2000), Bentolila and Bertola (1990), Bertola (1990), Bertola and Ichino (1995), Blanchard and Wolfers (2000), Grubb and Wells (1993), Lazear (1990), Nickell (1997), Nickell and Layard (1999) and OECD (1999a, 1999b).

for the dramatic rise of European unemployment, especially of long duration and for youths who are "outsiders" and not protected by the regulations that induced the rigidities in the first place[8]. These "outsiders" may be less skilled youths rather than skilled workers unable to obtain jobs, but the resulting unemployment of the youths can inhibit them from acquiring on-the-job experience and skills. The legislatively induced rigidities that characterize European labour markets by themselves did not create the high structural unemployment since those rigidities were there when unemployment was low. Rather, the *interaction* of the demand shocks and the rigidities led to the high structural unemployment since the labour markets were too rigid to accommodate the shocks. This is in part a demand side phenomenon since without the demand shocks the rigidities would not have created the unemployment. For example, the extensive job protection provided to incumbent workers in Europe means that it is costly to lay off incumbent workers. This in turn deters firms from hiring new workers who thereby experience long periods of "wait unemployment" queing for the protected "insider" jobs. Clearly, such prolonged periods of unemployment can discourage human capital and skill formation both by reducing labour market experience and on-the-job training, and by reducing the incentives to invest given the interruptions in the expected benefit period over which to appropriate the returns.

SUPPLY-SIDE IMPERFECTIONS

To a large extent, the previously discussed demand changes will lead to adjustment problems that can inhibit skill development and human capital formation only if there is an inadequate supply response in the labour market. Hence, knowing the barriers and imperfections that inhibit an appropriate supply response are crucial for understanding adjustment problems that can inhibit skill development and lead to persistent shortages and perhaps underemployment and over-qualifications at the same time. These supply-side imperfections occur in various areas (again listed in rough descending order of perceived importance – the exception being the three life-course transitions which are listed in sequential order, although the retirement transition is likely the most important):

- life-course transitions (school-to-work, to-and-from the household, and work-to-retirement and perhaps back from retirement);
- human capital formation;
- regional and occupational mobility;
- immigration and brain-drain issues;
- claw-backs in transfer programs;
- lack of incentives for firms to innovate in the area of human capital development and skill formation.
- distributional issues;

[8] The extensive European literature on the interaction of the demand shocks and labour market rigidities includes Belot and Van Ours (2000, 2001), Bertola, Blau and Kahn (2002a), Blanchard and Wolfers (2000), Coe and Snower (1997), Elmeskov, Martin and Scarpetti (1998), Nickell (1997), Nickell and Layard (1999) and Nunziata (2001).

- tax issues re human capital investment decisions;
- hours of work;

School-to-Work Transitions

There are three main labour force transitions over the different phases of the life-cycle: the school-to-work transition; transitions between the labour force and household often in response to issues related to work-family balance; and work-to-retirement transitions. In each of these phases, barriers exist that inhibit smooth transitions and hence the effective use of skills.

With respect to the school-to-work transitions, young people (especially young males) are finding it increasingly difficult to obtain well-paying jobs when they first enter the labour market (Beaudry and Green 2000) and this initial negative experience appears to have a permanent negative legacy or scarring effect on their subsequent employment (Beaudry and Green 2000 and McDonald and Worswick 1999). To a certain extent this reflects the labour market realities of the new world of work as non-standard employment is increasing in its various forms including:[9] part-time work; seasonal employment; casual, temporary work on limited-term contracts; self-employment; temporary-help agencies; on-call work; telecommuting; and home working.

To a large extent the rise of non-standard employment reflects the flexibility needs of employers – a just-in-time workforce to meet their just-in-time delivery needs. It also, however, can meet the flexibility needs of employees at all phases of their lifecycle: facilitating the school-to-work transition with many forms of non-standard employment effectively being the new probationary periods; work-family balance issues (associated especially associated with child-care but increasingly with elder-care) for two-earner families that are now the norm; and work-to-retirement transitions and perhaps transitions back to the workforce, especially in the form of bridge jobs that span those transitions. The rise of non-standard employment, however, also has occurred in part because of increased regulations on standard employment. And while it is tempting to try to remedy that by extending coverage and protections to non-standard workers it is not clear that this will not simply exacerbate the trend towards even more non-protected non-standard workers.

The concern for youths making the school-to-work transition is that rather than being a stepping stone to more standard employment, the initial experiences with non-standard employment will simply foster continuation into those often more precarious jobs and that this in turn will deter skill development and human capital formation. The empirical evidence, however, suggests that this is not a paramount concern. Evidence from Fang and Gunderson (2005) and Gomez and Gunderson (2005b) indicates that few workers categorize themselves as *always* non-standard workers, and it tends to decline sharply with age. As well, there is no strong

[9] Non-standard employment is analysed, for example, in Chaykowski (2005), Fang and Gunderson (2005), Gomez and Gunderson (2005b), Kapsalis and Tourigny (2005), Saunders (2005) and Vosko, Zukewich and Crawford (2003).

relationship between skill level (as measured by education) and doing non-standard work. Kapsalis and Tourigny (2005) document that of the non-standard workers in 1999 about half remained as non-standard workers two years later by 2001, and that about 60% of persons who entered the workforce did so through a non-standard job. Non-standard employment is clearly a common way to enter the labour market and non-standard workers are disproportionately likely to be non-standard workers in subsequent years. However, there is considerable movement from non-standard to more standard employment. International evidence from Europe[10] and the U.S[11] generally suggests that temporary-help agency jobs and limited-term contracts do improve the subsequent labour market outcomes for low-skilled workers, but much of this evidence is for welfare recipients and the low-skilled rather than skilled workers, and it deals mainly with temporary-help agencies. Overall, neither theory nor the limited evidence that is available suggests that school-to-work transitions through non-standard employment are a substantial barrier to subsequent labour market success or skill development. Certainly, it does not suggest a policy response of deterring non-standard employment for that reason, especially because non-standard employment arose in part because of policy initiatives to regulate standard employment (albeit employment protection policies protecting standard workers are rather light in Canada, compared to Europe, further suggesting that non-standard employment concerns do not really have a serious impact in Canada). (OECD 2004, p. 72).

There is evidence, however, to indicate that initial negative experiences in the labour market for youths (emanating from factors other than non-standard employment) are likely to have a legacy of longer-run state-dependent effects (discussed previously as a by-product of business downturns). As well, there is evidence that youths may drop out of school "too early" and therefore bypass the opportunity to obtain substantial returns to completing key phases of education and skill upgrading (Oreopoulos 2003a, 2003b). Canadian evidence, for example, indicates that there are substantial credential effects associated with graduating from key phases in the education process (Ferrer and Riddell 2002). Dropping out prior to those critical completion phases may reflect barriers such as the inability to finance education, or peer pressure to drop out, or the lack of accessibility

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[10] European evidence on the positive effects of such non-standard employment is provided in Amuedo-Dorantes et al. (2005), Andersson and Wadensjo (2004), Booth et al. (2002), Gerfin et. al. (forthcoming), Ichnio et al. (2004), Kvasnicka (2005), and Zijl (2004). Based on UK data, for example, Booth et al. (2004, p. F212) conclude "workers can effectively use fixed-term jobs (and, to a lesser extent, seasonal-casual jobs) as stepping stones to permanent work. Their evidence suggests different effects for fixed-term jobs compared to seasonal-casual work, and between men and women. Specifically, they find that for both men and women, fixed-term temporary jobs tend to lead to more permanent jobs and have only a negligible negative impact on wages. Seasonal – casual work, however, does not tend to lead to permanent work and has a more substantial negative effect on wages, especially for men.

[11] U.S. evidence on the positive effects is found in Corcoran and Chen (2004), Ferber and Waldfogel (1998), Heinrich, Mueser and Troske (2005), Lane, Mikelson, Sharkey and Wissoker (2003) and Segal and Sullivan (1997), but not in Autor and Houseman (2005). Since the latter is the only study that uses the preferred methodology of random assignment, however, it should not be dismissed as an outlier.

to good schools. This suggests that policy attention may be merited in such areas as compulsory schooling laws, funding assistance, expansion of accessibility (for example by facilitating transfers colleges to universities) and public campaigns against dropping out.

Transitions To and From the Household

After the school-to-work transitions, another set of life-course transitions typically involve transitions to and from the labour market and the household, often in response to childbearing and childraising, but increasingly in response to pressures for eldercare. Such transitions are predominantly made by women and they can involve prolonged interruptions from labour market activity. This in turn can affect skills development and human capital formation in a number of inter-related and important ways[12].

First, the periods out of the labour market mean that labour market experience and on-the-job training is not acquired during those periods. Second, labour market skills may depreciate when not used. Third, firms may invest less in the training and career prospects of women in anticipation of such interruptions, and women may invest less in their own skill development and human capital formation for the same reasons -- essentially since the benefit period from which to recoup their investments is shortened by such interruptions. Fourth, women may invest more in education that is more complementary to household work and less in education that is labour market oriented.

Women may be caught in a Catch -22 in such situations. If they the leave the labour force for such family responsibilities, their skill development and human capital formation may be adversely affected for reasons outlined. If they do not leave the labour force because of the family responsibilities, they likely will bear a disproportionate share of household work (Gunderson and Muszynski 1990, p. 26) and that can have negative effects on labour market outcomes as discussed previously. As well, being more tied to their household, women may not be as mobile and hence may not engage in the skill development or human capital formation for which they could reap the full benefits if they were more mobile.

In that vein, the labour codes of various jurisdictions, as well as employment insurance legislation, contain provisions that can facilitate transitions into and out of the labour force. This can be the case, for example, for provisions that allow for parental leave and that guarantee the return-to-work to the previous employer. This can encourage skill development by securing the benefit period over which the costs of human capital formation are amortized.

Clearly, there are a range of barriers, many emanating from within the household, that either mean that women will disproportionately make transitions between the labour market and the household, and/or bear a disproportionate share of household tasks if they do not leave the labour force for family responsibilities. In either case, their skill development and human capital

[12] Based on U.S. data, for example, O'Neil and O'Neil (2005, p. 22) estimate that labour force withdrawal for child-care or family responsibilities is associated with an 8% reduction in wages for both men and women; however, 55% of women and only 13% of men have ever withdrawn for those reasons.

formation is adversely affected. These are not market failures or even market imperfections, since labour markets are simply responding to this different behaviour (except for discrimination as discussed previously). They are barriers to skill formation and human capital development, however, and they are barriers that can be affected by "family-friendly" work-practices and policy initiatives that can foster such practices. The policy initiatives include parental leaves and childcare policies.

<u>Work-to-Retirement Transitions and Possible Transitions Back to the Labour Force</u>

At the other end of the life-cycle, work-to-retirement transitions are increasingly important given the ageing population and the possibilities of labour shortages associated with the large number of impending retirements. In addition to the possibility of age discrimination discussed previously, a number of barriers can inhibit the transitions from the labour force to retirement and possibly back from retirement. These barriers can inhibit human capital formation directly by the possible loss of such accumulated skills and mentoring capabilities; they are simply eliminated from the labour market. And they can have an indirect effect by shortening the benefit period from which to recoup the investments (by individuals or firms) in human capital and lifelong learning. The barriers (many of which are induced by laws and policies) include[13]:

- ➢ An age cap of 65 in the human rights code of some jurisdictions that exists to accommodate mandatory retirement but that means that persons over the age of 65 do not have the normal protection against age discrimination;
- ➢ Private employer-sponsored occupational pension plans that often have subsidized early retirement benefits and penalties to delayed retirement. While such practices may have been appropriate when downsizing was a priority, they are certainly questionable when the concerns are shifting towards skill shortages.
- ➢ Provisions in public pension systems that discourage delayed retirement, such as:
    - Claw-backs, whereby benefits are reduced if income is earned, in various public pensions such as Old Age Security (OAS), the Spouse Allowance as part of OAS, the Guaranteed Income Supplement (GIS), and provincial supplements (although these would not be relevant for higher-income skilled workers)
    - The requirement in CPP to "substantially cease working" in order to be eligible for early retirement benefits at age 60.
- ➢ Private Registered Retirement Plans which do not allow contributions passed age 70
- ➢ Claw-backs in the personal income tax credit at age 65
- ➢ Claw-backs in various disability programs that can be particularly relevant for older persons given their high rate of disability, e.g.,:
    - Workers' compensation
    - Canada Pension Plan – Disability component

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[13] For further discussion of such barriers see Gunderson (1998). For an elaboration on the disincentives in our existing public pension system see, for example, Gunderson (1998), Milligan (2005), and Shillington (2003) and references cited therein.

- Social Assistance (although not relevant for higher-income skilled workers).
- Possible full claw-backs of income tax credits for disability expenses if people return to work

Mandatory retirement also seems an obvious barrier to the continued labour force participation (and hence the continued use of the accumulated skills) of those who are required to retire at that age. Given the increasing number of knowledge workers with higher education, this can be a potentially important loss not only of their accumulated skills but also of their mentoring capability that can foster the skill development of junior employees. It can also deter life-long learning by reducing the benefit period over which to amortize the cost of such learning. Even if it is only retirement from that particular job, the retirees may find it difficult to obtain alternative employment given their age.

While seemingly a barrier to retaining such accumulated human capital, the matter is more complex[14]. This is so because mandatory retirement is generally a voluntary contractual arrangement entered into between employers and relatively more advantaged employees or their union, in return for the quid pro quo of a degree of job security until retirement and pension security upon retirement. Mandatory retirement may inhibit human capital use and mentoring by requiring people to retire, and it may inhibit human capital development by shortening the benefit period over which to amortize the cost of human capital formation. On the other hand, it may foster human capital development by opening job and promotion opportunities for younger workers with newer skills, and by fostering deferred wages and pensions that discourage turnover and the loss of human capital. The appropriate barrier removal discussed previously in this area was to:

- Ban mandatory retirement by removing the age cap in human rights codes when they still have them, so that the normal protection against age discrimination exists for such older workers;
- Exempt *bona fide* retirement or pension plans and possibly collective agreements from the ban so that mandatory retirement is effectively allowed as long as it is accompanied by a retirement or pension plans and possibly a collective agreement.

Those two steps – altering various pension and tax-transfer programs so that they do not unduly restrict transitions to retirement, and removing the age cap in human rights codes to provide protection against age discrimination, but effectively allowing mandatory retirement under certain conditions – would go a long way to facilitate transitions to retirement and the retention of skilled older workers to fill impending skill shortages.

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[14] For discussions of the rationale for allowing mandatory retirement as part of private contracting between employers and employees and their unions, and the unintended consequence of banning mandatory retirement, see Gunderson (2004), Gunderson and Hyatt (2005) and Gunderson and Pesando (1980).

Human Capital Formation

The area that receives the most attention with respect to imperfections in the market for skilled labour is with respect to imperfections in the human capital market, especially with respect to education and training. A range of possible imperfections are involved: poaching issues; credit constraints and the inability to use human capital as collateral for a loan; wage fixing constraints that inhibit paying for training; wage compression that inhibit appropriating the returns; difficulties in distinguishing training as a joint product; asymmetric information and monopsony power; spillover externalities; social benefits from education; diversification difficulties; and tax issues..

Poaching Problem:

The poaching problem occurs when firms do not have an incentive to pay for generally usable training (training that enhances productivity in firms other than those providing the training) because they may lose the trained employee to such firms that don't train but bid for trained workers by paying a wage premium for their enhanced productivity. In such circumstances the firm that provides the training may have to double pay: they pay for the training, and then they pay the training wage premium to keep the trained worker. Faced with that prospect, they will not provide training that is generally usable in a variety of work environments; they will only pay for or provide training that is company specific in that it enhances worker productivity only in their own workplace. The concern is compounded by the fact that in the new world of work, training that is generally usable in a range of work environments is preferred given the broader-based job classifications and the uncertainty over the changing nature of work.

The obvious retort to the poaching problem is that workers should have an incentive to pay for generally usable training since they appropriate the benefits in the form of higher expected wages and more employment opportunities. The market imperfections then shift to ones that inhibit employees from paying for training, perhaps by accepting a lower wage during the training period.

Credit Constraints and Inability to Use Human Capital as Collateral:

Employees may be inhibited from paying for training if they are credit constrained and cannot afford to pay for the training either directly or indirectly by accepting a lower wage during the training period. The issue is compounded by the fact they cannot use their human capital as collateral to secure a loan since that collateral cannot be repossessed if the loan is in default (debtors' prisons having been abolished). This is unlike a loan for a house or car where the house or car can be used as collateral because they can be repossessed if the loan is in default.

That this may be a realistic possibility and not just a theoretical curiosity is evidenced by the fact that drop-outs likely "drop-out too soon"[15]. That is, drop-outs are not necessarily "losers" who cannot absorb the education and stay with the process. If *they* were to complete schooling, their returns to additional education would be greater than the average returns. They may drop out for any of a number of reasons: peer pressure; a lack of proximity to schools or ability to transfer; low compulsory school leaving ages; or because they are credit constrained and cannot afford the education or to borrow (given the constraints on borrowing, as discussed previously).

Wage Fixing Constraints:

Employees may also be inhibited from paying for training if wage fixing regulations inhibit them from accepting lower wages in return for the training. This is often discussed in the context of minimum wage legislation, although the limited empirical evidence in this area is not in agreement. The evidence tends to suggest that minimum wages inhibit training, but the evidence is not conclusive[16]. Furthermore, it is not clear that minimum wage jobs provide much training, and training exemptions can exist in minimum wage legislation to allow wages to be below the minimum if the job is a training one. Although the effect of wage fixing on human capital formation is most often discussed in the context of minimum wages (and hence relevant for the skill formation of the less skilled subject to minimum wages and not the more skilled who would not be subject to minimum wages) it could also be relevant to other forms of wage fixing such as equal pay legislation which could cover higher skilled workers.

Wage Compression:

While wage fixing at the bottom of the wage distribution can inhibit employees from "purchasing" training by accepting a lower wage during the training period, wage compression at the top of the distribution can also inhibit them from appropriating the benefits in the form of higher wages. Such wage compression can come about for a number of reasons, including egalitarian pressures in union environments, and political pressures in the public sector. In essence, overall wage compression can inhibit both the paying for training and the appropriation of its returns (Acemoglu and Pischke 1999).

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[15] Evidence that drop-outs likely drop out too soon and could otherwise obtain an above-average return to additional education is provided, for example, Card (1999, 2001) and Oreopoulos (2003b).

[16] Evidence that minimum wages have a negative (albeit small and often statistically insignificant) effect on training is found in Grossberg and Sicilian (1999), Hashimoto (1982), Leighton and Mincer (1981) and Neumark and Wascher (2001) for the US. Acemoglu and Pischke (2003) find no effect in Germany while Converse et. al. (1981) find a positive effect in the US. For Canada Baker (2005) generally finds negative effects of minimum wages on training, but the results are often imprecisely measured and not robust. He concludes that the data is inadequate to provide a true test of the relationship.

Spill-over Externalities from Training:

Markets may not provide the optimal amount of training if such training generates spill-over externalities to third-parties. This could occur, for example, if the training of certain workers reduces skilled bottlenecks that otherwise inhibit the employment of complementary workers. The complementary workers may be unemployed because of the bottlenecks or they could be underemployed because their own skills are not fully utilized because of the bottlenecks. In theory, they should have a market incentive to make side-payments for the training of others to close those bottlenecks, but in practice it is not obvious how such market transactions would occur. The more likely solution is that employers would also likely have an incentive to close the bottlenecks through a number of possible ways: importing skilled labour; placing a huge skill premium to attract skilled labour; or breaking the job down into components that can be filled by less skilled labour. While these market transactions are likely to "internalized the externalities" and dissipate the bottlenecks, it is certainly feasible that they may be imperfect mechanisms, with the skill bottlenecks persisting for a considerable time.

Social Benefits or Externalities from Education:

There is a growing literature suggesting that the social returns to higher education are considerably higher than the private returns since education has positive externalities or spill-over effects on third parties that are not part of the private returns [17]. Review of that evidence have placed the social returns to third-parties to be in the neighbourhood of 0.07 to 0.10 which is similar to the private returns, so that the total social returns to society are effectively double the private returns. This suggests substantial underinvestment in education from societies' point of view to the extent that the private decision is based only on the private returns and not the spill-over effects on third parties. This in turn provides a theoretical rationale for public subsidies to higher education. Such subsidies and financial assistance are already prominent, however, and they can have a regressive element in that the subsidies disproportionately go to higher income individuals and their families who tend to acquire the most education. To the extent that these spillovers are higher at higher levels of education where knowledge *generation* is occurring, this suggests that Canada may be missing out on some of these spillover effects by its disproportionate amount of investment in post-secondary non-university education compared to university education[18].

Those externalities or spill-over effects can arise from a variety of sources:

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[17] Reviews of the evidence of social returns to education and discussions of the mechanism whereby they are generated are given in Behrman and Stacy (1997), Davies (2002), McMahon (1997, 1999, 2001), Riddell (2002), Wolfe and Havemen (2001) and Wolfe and Zuvekis (1997).

[18] Coulombe and Tremblay (2005) also highlight the importance of basic literacy and numeracy skills for enhancing labour productivity and growth. They emphasize that these skills can be imparted early in the education system as well as part of life-long learning for those who have left the education system. Even earlier child development initiatives are also emphasized by Heckman (2000) and others, emphasizing that this is where life-long patterns are often established.

- Spill-over effects can occur as the education of some can affect the productivity of others. Knowledge simply spills over to others; when you learn, I learn, and (hopefully) vice versa. Knowledge has public-goods aspects: its use by some does not preclude its use by others (non-rivilrous consumption), and it is difficult to exclude non-payers (non-excludability)[19]. Such spill-over effects are most evident in areas such as cluster developments and neighbourhood and peer effects (e.g., Duranton and Puga 2003, Moretti 2004a,b, Vernon 1966).
- Reductions in crime, in part by providing viable market alternatives to criminal activity (Grogger 1998 and Lochner and Moretti 2004).
- Increased participation in what would be considered socially desirable activities such as voting, volunteering and civic activities in general[20].
- Improvements in health, family planning, parenting skills and subsequent child outcomes, and hence a savings in social resources that may otherwise be directed into those areas (evidence reviewed in Riddell 2003).
- Reductions in unemployment and the likelihood of falling below poverty (Oreopoulos 2003a) and the associated saving in public expenditures associated with such events.
- Improved schooling outcomes for the children of the more educated (Oreopoulos, Page and Stevens, 2003).
- Higher tax revenues generated by the higher income from education (Collins and Davies 2001, Davies 2002).

Diversification Difficulties:

Human capital and skill development can be a risky venture for individuals and/or firms given the uncertainties associated with this investment. The uncertainties stem from a number of factors: technological change that can make skills obsolete; globalization that can provide offshore substitute skills either embodied in imports or more directly through offshore production (including increasingly in business services); industrial restructuring that can give rise to a loss of industry-specific human capital; and plant closings that can give rise to a loss of firm-specific human capital.

In financial markets, risk is reduced by holding a portfolio of uncorrelated assets, or preferably negatively correlated assets such that if the returns on one asset declines the returns on the other increase. For human capital, however, such diversification is difficult. In fact, individuals often have their human capital investments tied in with other investments in a very undiversified fashion. They are linked to their current labour market earnings so that if a person looses their job they may lose their base wage as well as some of the return to their human capital investment. If the job losses affect their whole community, they may also lose investments in their home and the social capital of their community. If they have investments in their firm (stock options or partial ownership) these are at risk, as may their pension funds if they

[19] Such endogenous growth models, like those of Lucas (1988) and Romer (1986, 1990), and their implications for skill development, are described in Gunderson (1996).

[20] Hanushek (2002) and Riddell (2002) review that evidence. Recent studies include Acemoglu and Angrist (2001), Dee (2003), Milligan, Moretti and Oreopoulos (2003).

are in defined benefit plans. (In that vein, defined benefit plans may not expose individuals to much investment risk, but they can expose them to portability risk and risks associated with firm insolvency. The opposite is the case for defined contribution plans).

In essence, individual workers may have their investment in skills and human capital tied in with their other forms of capital investments – housing capital, social capital, and retirement capital – all tied in with their expected earnings stream associated with their current job. This is the opposite of a diversified portfolio.

Yet diversification of human capital is difficult. Possible mechanisms for diversification, many of which can be affected by public policy, include:

- In decisions to invest in employee ownership of firms or in worker buyouts of failing firms[21] consider the risk of putting even more eggs in one basket by exposing worker financial capital to an already poorly diversified portfolio. This must be traded off against the possibility that such employee investments can change the incentive structures and thereby reduce the risk of the plant closing.
- Acquire broad-based, generic skills that are usable in a variety of workplaces and that provide the foundation for subsequent life-long learning.
- While choosing a partner whose skills and human capital investments are perfectly negatively correlated with yours (e.g., marry the person who is likely to displace you at your job!) is not likely to be a socially desirable or viable policy recommendation, some diversification can and does occur through family human capital decisions. Certainly the increasing proportion of multiple earner families provides considerable diversification in the case of job losses to one member. In that vein, relying on a single earner who specializes in labour market tasks while the other specializes in household tasks may be a perfectly rational household decision, but it can expose the family to more risk if the person who specializes in labour market tasks loses their job. And it can expose the person who specializes in household tasks to risk associated with the lack of, or obsolescence of, labour market skills if the marriage dissolves.
- While there are difficulties of diversification in human capital investment decisions, it is still the case that investment in human capital itself is likely to be the best insurance against the risk of earnings loss associated with job loss, skill obsolescence, technological change or being at the bottom of the increasingly polarised wage distribution. The best defence is a good offence in this area.

Tax Issues re Human Capital Investments:

A full treatment of the implications of the tax system on human capital formation is beyond the scope of this analysis. While taxes should not be considered a "market imperfection" they nevertheless can have important implications for the decision to invest in human capital formation and hence skill development[22]. Amongst those (partial equilibrium) implications are:

[21] These risk trade-offs pertaining to employee ownership and worker buyouts in the Canadian context are discussed in Gunderson, Sack, McCartney, Wakely and Eaton (1995).

[22] The implications of taxes for human capital skill formation are discussed, for example, in

- Progressive income taxes can deter the decision to invest in human capital formation since the tax write-off comes when the investment is being made. That expense is mainly the forgone income which generally comes early in the person's career when their income and hence tax rate is low, while the benefits come later in their career when their income and hence tax rate is high.
- Many direct expenses (books etc,) are not tax-deductible and this can deter human capital investments.
- Income taxes generally reduce the incentive to work because the substitution effect (whereby the tax reduces the monetary returns to work, or lowers the opportunity cost of not working) dominates the income effect (whereby the reduced after-tax income fosters additional work to restore lost income). This is strongly so for females, although slightly in the opposite direction for males, so that on net they reduce the incentive to work. This in turn reduces the benefit period from which to recoup the costs of human capital formation and this deters such skill formation.
- Working in the opposite direction, income taxes reduce the rate of return to investment in physical capital more than human capital given the (implicit) expense deduction of foregone earnings in human capital investments.
- Subsidies are likely more prominent for higher education than for training and this may bias human capital investments in the direction of education more than training.

Information Problems with Respect to the Nature of Training:

Information problems may make it difficult for markets to develop to "buy and sell" training. This is especially the case with on-the-job training produced by employers often as a by-product of the production process and purchased by employees by accepting a lower wage during the training period. It is often simply difficult to know how much training is provided in a workplace, especially indirectly as a by-product of the production process (Holtman 1971). Nevertheless, some workplaces are known as good for providing training and to a certain extent this will be internalized into market prices (compensating wages in return for training).

Asymmetric Information and Monopsony:

Employers may have private information on the productivity of their workforce that is not available to other employers. Such asymmetric information gives employers a degree of monopsony power over their workforce since they are somewhat tied to such employers with the private information (Acemoglu and Pischke 1998). This may inhibit employees from paying for general training because they cannot easily market their worth to other employers, given that such information on their productivity is not generally public and may be hard to reveal outside of their own employer. Ironically, in such situations where employees do not have an incentive to pay for general training since it cannot easily be marketed, employers have an incentive to pay for at least some general training for that very same reason – employees cannot easily leave for other employers given the asymmetric information problem. As discussed previously, the degree

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Davies and St. Hillaire (1987), Davies and Whalley (1991), Eaton and Rosen (1980) and Gunderson and Thirsk (1994).

of monopsony power possessed by the existing employer gives them an incentive to pay for some general training, given the reduced mobility of their workforce.

Regional and Occupational mobility

Market imperfections can inhibit the regional and occupational mobility of labour and this can be an important factor in the market for skilled labour, and especially for inhibiting the reallocation from declining to expanding sectors and regions. This can be especially important since *reallocating* existing skills and human capital that has already been produced can be much less expensive than *producing* it. In many cases, however, the market imperfections reflect the real resource cost of regional mobility including transactions costs of moving as well the psychological costs of uprooting families and leaving communities. Mobility between Quebec and the rest of Canada may be inhibited by language differences, but these involve real and not artificial barriers. Occupational mobility may be restricted by the real resource costs of acquiring additional education and training. In these circumstances, markets may be working as well as they can, given these real costs.

In other circumstances, however, regional and occupational mobility may be inhibited by artificial barriers, many of which may be government induced[23]. Self-governing bodies in the different provinces are responsible for the *occupational licensing and certification* in various professions and trades. Kleiner (2006), for example, estimates that approximately 25 percent of the U.S workforce is covered by government regulated licensing laws, with the number likely being similar for Canada. Licensing can entail the recognition and certification of various components: formal education requirements including foreign education; training and experience periods; recognition of certificates, licenses or credentials acquired elsewhere; prior learning and experience recognition (PLAR); and residency requirements including differential fees for residents and non-residents. While such licensing and certification is generally recognized as necessary (or at least useful) to protect the public, there is also a danger that such self-governing bodies excessively restrict entry into the profession so as to sustain higher pay. As strongly stated by the recent Immigration Legislative Review Advisory Group (1998, p. 36):

> "Each province at some stage in its history created bodies that were empowered to regulate access to trades and professions in the province through licensing and registration requirements. These associations have operated in an extremely independent manner, often free of political scrutiny and accountability. Many have used their role as protectors of the health and safety of consumers as a guise to protect the interests of their members through exclusionary entrance requirements. This has made inter-provincial mobility for all Canadians extremely difficult, and has created even greater barriers for immigrants, who are viewed as a threat to the earning power of the members of some professional associations, and as unknown quantities with unknown qualifications by other bodies."

[23] Barriers to inter-provincial mobility are discussed in Gunderson (1994) and HRDC (2001) and references cited therein.

Barrier removal in this area could include such policies as common or standardized education requirements and licensing exams. Mutual recognition agreements in areas of education, licences and certificates, and credential recognition as well as prior learning assessment and recognition (PLAR), could facilitate mobility, as could relaxing of residency requirements. Having consumer groups or representatives of the general public on self-governing licensing bodies, could serve as a check on excessive restrictions on entry into the profession while at the same time as representing the public interest. Restricting the use of "grandparent clauses" whereby current practitioners in the profession are exempt from more stringent entry requirements (e.g., requiring a university degree or some new specialized training) could serve as a check to ensure that the more stringent requirements are in the public interest and not used to protect incumbents by "pulling-up-the ladder" behind them.

Similar *licensing and certification issues occur in the trades* and they can also be a barrier to the inter-provincial mobility of skilled labour. The types of trades that are licensed or certified can differ by province as can the licensing and certification requirements. Inter-provincial standards and mutual recognition as fostered by the Red Seal program can facilitate barrier removal in this area.

Preferential hiring and procurement on the part of governments can also be a barrier to inter-provincial mobility. Local residents may be favoured for public sector jobs as may local producers in the awarding of contracts. The granting of permits for natural resource or construction projects may also be conditional upon preferences being given to hiring local employees. While these requirements can exist for other reasons, they can deter the inter-provincial mobility of labour and hence the reallocation of skills.

Features of the *education system* may differ across provinces in ways that deter mobility. Credits may be lost upon moving because of differences in curriculum or testing or uncertainty around the acceptance of credits. Explicit or implicit quotas can exist within universities and they may have residency requirements with respect to financial aid. Obviously, these conditions exist for other reasons; nevertheless, they can deter labour mobility.

Perhaps the most prominent and controversial barrier to mobility arises because of *government transfer and income security programs* such as unemployment insurance and social assistance. Mobility may be deterred because of residency requirements and limits on transferability. But the most important channel is likely to be through the fact that passive income support encourages people to stay rather than leave declining regions and industries, and it may encourage youths to leave school and live on periodic bouts of work and EI. In such circumstances skills are not reallocated to their most valued use, and human capital development through education is deterred. In contrast, active adjustment assistance programs tend to foster skills moving in the direction of basic market forces from declining industries and regions to expanding ones. This is the case, for example, for the Employment Benefits and Support Measures (EBSMs) under Part II of the EI Act that favours the reallocation or formation of skills and human capital through such measures as job search assistance, labour market information, training, and mobility allowances.

There is not a consensus in the empirical literature on the extent to which features of EI have deterred mobility. Most studies find that they do[24]. However, some recent evidence suggests that features of EI that are most likely to deter mobility (regionally extended benefits and regional differences in qualifying requirements) have only a small effect on deterring such mobility (Day and Winer, 2001, p.38). Furthermore, even if there is some effect on the general workforce it is likely to be small for high-skilled workers who are not likely to rely on such income maintenance programs (Audas and McDonald, 2003. p.31).

While immobility can be considered a market imperfection resulting in part as an unintended by-product of EI, it is also the case that markets by themselves will fail to provide the socially optimal amount of EI. This is so because *private* markets for insurance against unemployment are not likely to develop because of the conventional problem in insurance markets of adverse selection and moral hazard[25].

Clearly, the reallocation of skills through mobility can be deterred as an unintended consequence of government income maintenance programs like employment insurance. However, this is not likely to be an important factor for skilled labour since it tends not to rely on such programs. Furthermore, government programs in this area arise in part because of market failures associated with adverse selection and moral hazard that inhibit private markets from providing employment insurance. As such, the market imperfections emanating from any reduced mobility due to EI must be considered against the market imperfections that inhibit private markets from developing in this area in the first place.

<u>Immigration and Brain Drain Emigration</u>

As indicated previously, there is considerable empirical evidence indicating that recent cohorts of Canadian immigrants are having increasing difficulty assimilating into the labour market (Abdurrahaman and Skuerud 2005 and references cited therein). This loss of skills may be attributed to a number of factors, many of which could be labelled as market imperfections. There may be increased discrimination given that many of the recent immigrants are also visible minorities. They are often coming from source countries where their language and education is different, giving rise to the problem of recognizing foreign credentials. Similar problems can arise in recognizing their foreign labour market experience as part of any prior learning assessment recognition (PLAR). Although not a conventional market imperfection, the rising wage inequality and the "hollowing out" of the middle of the occupational distribution means that immigrants may have difficulty making any leap from the bottom to the top, given that the "middle" has been hollowed out.

It is important to emphasise, however, that the recognition of credentials and foreign experience is a difficult issue, especially given the different education and training systems.

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[24] Benjamin, Gunderson and Riddell (2002, pp. 561-566) and Gunderson and Riddell (2001).

[25] In the context of EI, these insurance issues are discussed in Gunderson and Riddell (2001).

Employers have an incentive to recognize such credentials, especially to fill skill shortages, and this will be easier as more immigration comes from such countries and information on the credentials is accumulated. While they have an incentive to recognize such credentials, individual employers do not have an incentive to bear the full cost of determining the worth of such credentials in general. As well, there may be a concern that self-regulating licensing and certification bodies may be overly stringent in recognizing foreign credentials as a way to protect the income of the incumbent professionals by restricting that source of entry into the profession. As such, there would appear to be a role for governments to assist in the recognition of foreign credentials, especially because *recognizing* credentials that already exist is certainly cheaper than *producing* such costly skills.

Emigration issues can also give rise to problems especially associated with the brain drain. The market failure problem occurs with respect to the brain drain when individuals receive publicly supported education and then go to another country that pays a skill premium for such education and has lower taxes. In such circumstances, an externality or market failure occurs to the extent that the market has not extracted payment for the cost of their education, some of which was born by the general public. The issue can be particularly acute for countries like Canada that have low user-charges for their education system (i.e., it is extensively subsidized out of higher taxes) but are proximate to countries like the US that have higher user-charges but that also have greater pay inequality with skill premiums to compensate for the high user-charges. In such circumstances, there is an incentive for individuals to acquire their education in the low user-charge country and "cash in their chips" by moving to the high skill premium country that also has lower taxes. There would be no social problem (i.e., externality) if individuals paid for their full education (and assuming that there were no other spillover benefits to others) including through the use of tying student loan-paybacks to earned income via the tax system. In such circumstances, we would simply be exporting "brains" and those who benefited by the brain development would pay for it. In fact, it may be considered a good export industry in the sense that it is a "clean" industry with few pollution or other externalities.

Such a brain drain could be stemmed by having full user charges (i.e., full tuition) although this gives rise to the concern that it may restrict access to only those who can afford to pay. It could also be stemmed by lower taxes and higher skill premiums although that has obvious implications since this would apply to all workers and not just those we risk losing to the brain drain (Finnie 2001).

Claw-backs in Transfer Programs

One of the largest potential pools of labour to fill skill shortages and to provide human capital especially in the form of mentoring and institutional knowledge is in the retired workforce. That is the large pool of baby-boomers who are retiring and about to create the potential labour and skill shortages, also provides the potential to fill many of those shortages by returning to the labour market or to phase into retirement perhaps by engaging in bridge jobs. In essence, the group that is creating the challenge also holds the opportunity to meet the challenge.

Such a response, however, is inhibited by the high claw-back rates that many seniors face as benefit payouts are reduced if they continue to earn labour market income[26]. Such claw-backs prevail in various components of the public pension system including the Old Age Survivor (OAS) grant, the income-tested spouse allowance of OAS, the federal Guaranteed Income Supplement (GIS), and provincial supplements such as the Guaranteed Annual Income System (GAINS) in Ontario. The Canada/Quebec Pension Plan does not have a clawback, but those who access the early retirement feature (between 60 and 65) are required to "substantially cease working." Since the GIS and provincial supports are for low-income persons they are unlikely to deter skilled workers from labour force activity, although they can affect the less skilled.

<u>Lack of Incentives for Firms to Innovate in Human Capital Area</u>

Although not commonly discussed as such, a potential market failure in the area of human capital development may occur to the extent that firms do not have the full incentive to engage in *innovations* in this area. With respect to physical capital innovations and research and development they do have the incentives because they can appropriate the returns through patents. However, in the human capital area they do not have such an incentive to innovate since they cannot "patent" their innovation. The innovating firm will bear the full cost of the innovation, but they cannot reap the full benefits because successful innovations will be emulated by competitors while unsuccessful ones will not be emulated (Gunderson 1986, p. 127).

Whether this is just a theoretical curiosity or a real-world practical issue is an open question. While such a barrier to innovation may be more of an issue with respect to workplace and human resource practices in general, they are not likely to be substantial in the area of firm-level innovations in the area of human capital formation and skill development.

<u>Distributional Issues</u>

It is well-known that while perfectly functioning markets can yield efficiency (i.e., the largest pie) there is no guarantee that they will yield an equitable distribution of income (i.e., a pie that is divided equitably). In fact, the opposite may be the case if dispersion of income is regarded as a necessary ingredient to provide incentives to innovate and work intensely. In essence, a mal-distribution of income can be regarded as a market failure to achieve the broader social objective of distributional equity, especially if market forces bypass the most vulnerable. The concern is compounded if market forces also lead to inter-jurisdictional competition by governments, pressuring them to reduce their costly social programs and regulations to attract and retain the increasingly mobile capital and business investment and the jobs associated with that investment (Gunderson 1998a, Gomez and Gunderson 2005a). Equity oriented programs

[26] The claw-backs and other disincentives embedded in our *public* pension system are discussed in Baker, Gruber and Mulligan (2003), Gunderson (1998b) and Mulligan (2005). Similar disincentives to continue working exist in the early and postponed retirement features in many of our *private* pension plans (Pesando and Gunderson, 1988), again leading to the loss of a potential pool of skilled human capital.

that do not have positive feedback effects on efficiency may be victims of such market pressures in the political arena.

Such distributional concerns can be legitimate in their own right. But they can also have feedback effects on efficiency. While income dispersion can foster incentives, it can also foster social instability and costly expenditures in areas such as transfer payments, health expenditures and crime prevention in a society of "haves" and "have-nots." Guaranteeing a share of the pie can also reduce resistance to otherwise efficient changes.

Human capital and skills development can be an appealing way to assist the more disadvantaged for a number of reasons. It can enable them to earn their income rather than receive it as a handout, and that is generally preferred by donors (taxpayers) as well as recipients. It can foster self-sufficiency and possibly reverse a downward (and perhaps inter-generational) spiral of state-dependence upon transfer programs. As well, higher levels of basic education tends to foster subsequent training[27], facilitating the life-long learning that is increasingly important given changes over the life-course.

Unfortunately, there are obstacles. The hollowing out of the middle income jobs that has occurred means that training and human capital development for the disadvantaged may not do much good if such reasonable paying jobs are not available. They simply may not have the skills to make the leap to the high paying jobs, which means the best they can do is work in the generally low-paying service sector. The empirical literature also suggests that training and other human capital development programs generally have very low rates of return for the more disadvantaged workers[28]; that is, there likely is an equity-efficiency trade-off. Certainly, a full-employment and growing economy is likely to help the most disadvantaged, but there is no guarantee that a rising tide raises all boats – it may simply raise all yachts and not help those who are anchored to the bottom.

Importantly for the specific topic at hand – imperfections in the market for *skilled labour* – government intervention *for equity reasons* is generally not justified, as it would be for unskilled labour. Skilled labour is generally not disadvantaged or vulnerable, even if underemployed. Furthermore, skilled labour is generally more knowledgeable and informed and hence less likely to be subject to market imperfections that arise for these reasons.

Hours of Work

Regulations on hours of work and overtime can also be considered a government induced market imperfection that inhibits the full use of skilled labour. Employers often want to work

[27] The positive relationship between education and subsequent training is found, for example, in Altonji and Spletzer (1991), Lowenstein and Spletzer (1997, 1998, 1999), Lynch (1992) and Parent (2003).

[28] See Friedlander, Greenberg and Robins (1997), Gunderson (2003a), Heckman, Lalonde and Smith (1999), Heckman, Roselius and Smith (1994), Lalonde (1995), Leigh (1995), Riddell (1991, 1995) and Warburton and Warburton (2002).

their skilled workforce long hours in part to amortize the quasi-fixed costs associated with recruiting, hiring and training such workers. This can be further fostered by the fact that ceilings in payroll taxes, beyond which such taxes are not paid, can encourage employers to work their skilled workers long hours (since no further payroll taxes are paid because they are at the ceiling) rather than hiring new workers and incurring such payroll taxes.

Governments may try to inhibit such long hours through various regulations such as maximum hours regulations and requirements to pay overtime pay. The intent may be to "protect people from themselves" by inhibiting them from working long hours in the hope that this may balance work and family commitments. And, the intent may be to encourage worksharing through the possibility that reduced hours of existing employees may foster new hiring. Whatever the motives, the result may be a restriction of the use (long hours) of skilled labour and this could be considered an imperfection in the market for skilled labour.

IMPERFECTIONS THAT INHIBIT MATCHING OF SUPPLY AND DEMAND

Market imperfections that impede human capital and skill formation can arise not only from the demand side and the supply side of the market, but also from institutional, legal and other factors that can inhibit market mechanisms such as wages from matching supply and demand. A number of these were already discussed. Occupational licensing and certification procedures were discussed in the context of possibly restricting entry and hence supply into an occupation. Wage compression fostered by unions could inhibit paying for training by accepting a lower wage in return for training and reducing the skill premium that otherwise would yield the benefits from training. Other institutional barriers that may also inhibit the matching of supply and demand can also inhibit human capital and skill formation.

Imperfect Information and Information Asymmetries

Decisions on investments in human capital and skill formation require information for making such decisions (Expert Panel on Skills 2000, Romer 2001, Sangster 1999). Information is needed on such factors as demand forecasts, and possible supply responses, preferably at the local level and in a timely fashion. Private markets will not likely provide the socially optimal amount of such information since information has the twin characteristics of public goods: use by one does not detract from use by others (non-rivilrous consumption); and the market cannot exclude non-payers (non-excludability).

Certainly, these are matters of degree as markets do obviously produce information in response to the demands for information (Roy, Henson and Lavoie 1996). Private employment agencies and head-hunting firms clearly provide such information and serve a matching function, but these tend to exist only for high-level positions. Job finding portals like Monster.com serve a similar function throughout the occupational spectrum, generating revenues from advertisement. Nevertheless, the public goods nature of labour market information is such that the market will not likely provide a socially optimal amount. Hence, there is a role for governments to "grease the wheels" of market adjustments by providing such information through such mechanisms as the COPS forecasting or by supporting Sector Council initiatives (Gunderson and Sharpe 1998).

Lags in the Institutional Responses to Market Signals, Leading to Cob-Web Adjustments

Even with such information, numerous lags can exist for there to be a supply response to such information, for example with respect to shortages. It may take time for employers to recognize that they have a shortage and to adjust wages, especially under collective agreements which may not reopen for some time and where there may be pressure for wage compression. Further lags may exist for employees and/or perspective hires to recognise the pay premiums. Lags can also exist in the education and training system since they also have to recognize the market signals, establish or alter their programs to respond, acquire new equipment for the new needs and line up appropriate personnel to train and educate in the area. Perspective students and trainees also have to recognize the signals, and there can be considerable lags between when they enter a program and when they graduate, and when they obtain a job.

By the time these supply responses come to market the shortage may have disappeared. As well, if large numbers have entered at the same time in response to the market signals, they may flood the market at the same time leading to cobweb cycles of shortages leading to wage increases which lead to lagged supply responses which then may flood the market leading to depressed wages, leading to subsequent shortage with the cycle continuing (Freeman 1975, 1980). If the parties recognize such a danger they may not respond to the market signals, with the shortages persisting because the parties are uncertain as to how others will respond.

Lack of Incentives Within Educational Institutions

While educational institutions can contribute to lags in the supply response to changing demands, there can also be broader imperfections arising from the lack of incentives within educational institutions. Crowded classrooms in courses and fields that are popular because they meet the demand for marketable skills are often met by quantity restrictions and the raising of entrance requirements, effectively reallocating students to courses and programs that are not in such high demand[29]. Tuition increases in such fields with marketable skills are now being used to ration scarce spaces, but that effectively encourages a reallocation to fields where tuition is effectively subsidized (implicitly sometimes because students in those fields are not likely to be able to obtain well paying jobs to afford tuition increases) – again subsidizing the acquisition of less marketable skills. Teachers often have little incentive to teach in courses where there is high student demand since it effectively means more grading and student interaction. Budgets are often reallocating from units that meet market demands because they are sometimes regarded as

[29] Romer (2001) discusses the response of increasing entrance requirements, along with imperfect information on the returns, as barriers to increasing the supply of science and engineering students working in research and development, which he regards as crucial for innovation and competitiveness.

being able to raise their own revenue, and reallocated to units that don't meet market demands because they otherwise have no revenue sources.

Clearly, the lack of incentives (or worse – the perverse incentives) that can prevail in educational institutions can be an imperfection or barrier that inhibits human capital formation and skill development.

Wage Rigidities Leading to Employment and Not Wage Adjustments

When demand shocks occur, wage rigidities can often lead to quantity (employment) rather than price (wage) adjustments. If the demand shock is negative, the employment reduction (i.e., unemployment) means that skills and human capital are not utilized because they are unemployed. Furthermore, this unemployment can lead to the deterioration of skills that are not being used and augmented by on-the-job training and experience. In that sense, wage rigidities can be a market imperfection that can impede the effective use and development of skills and human capital.

While wage rigidities would seem to be an irrational response of market participants since small wage adjustments would seem less disruptive and more preserving of skills and human capital when compared to all-or-nothing employment changes, wage rigidity can exist for perfectly rational reasons on the part of market participants. As such, the adverse effect on skills of wage rigidity must be traded-off against these other rationales. The rationales for wage rigidity can include:

- Rigidities from collective agreements where wages are generally fixed until the contract is re-opened, often not for fairly long periods of time (a factor which provides certainty to both parties, especially with respect to strikes);
- In situations of collective bargaining where unions respond to the preferences of the median union voter, that voter may be an "insider" with seniority and a reasonable degree of job security and hence may have little incentive to accept small wage concessions to avoid layoffs;
- In situations of asymmetric information where employers have better information on their true ability to pay, unions may rationally try to deter bluffing by compelling employers to absorb negative demand shocks through layoffs since layoffs are also costly to the firm, while wage concessions are generally not costly;
- Income loss from unemployment is supported by employment insurance while wage losses are not supported;
- Even in a declining domestic industry where there is a risk of plant closing (perhaps because of foreign competition and substitute products), unions may rationally engage in an "end-game" strategy of "milking a dead cow" and not engage in wage concessions to avoid a plant closing. This is so because they know that new firms are not likely to enter the industry (given that it is in decline) to compete with the existing firm on the basis of lower wages. In such circumstances, unions may try to extract as much rent as possible from shareholders, since new capital investments won't thereby be deterred, as the capital stock will not get replaced in any case.

POLICY IMPLICATIONS

Clearly, there are a wide range of market imperfections that can impede labour market adjustments in the area of human capital formation and skill development. Many are often the unintended by-product of other government policy initiatives that serve other social purposes that may be thwarted if the policies change to favour skill development. Hence it is important to understand the various trade-offs that are involved and to determine the magnitudes of the trade-offs so as to guide evidence-based policy making.

While there are a wide range of market *imperfections*, there are very few situations where there are well-defined market *failures* defined as situations where the actions of some participants affect the utility of consumers or the production of producers, and a market does not exist to extract payment (i.e., externalities exist). Some of these situations were outlined, including externalities from education, the public goods nature of labour market information, and spill-over effects that deter innovation in skills and human capital development. But other areas where markets are alleged to fail, were more uncertain. The poaching problem is an issue for general training, but raises the question of why employees do not pay for such training. Furthermore, the poaching problem ironically may be mitigated by the fact that other market imperfections may inhibit the turnover of trained workers from firms that provide the training. In such circumstances, employers may be willing to pay for some general training even if it can be used in other workplaces. Market failures to deal with equity or distributional issues are potentially severe problems for other areas such as adjusting to the forces of globalization, free trade, industrial restructuring and technological change, but they are generally not issues when it comes to high-end skill development amongst workers who generally would not be labelled as vulnerable.

As well, many of the so-called market imperfections reflect real factors associated with risk, uncertainty and transactions costs – they are normal frictions of markets in operation. Government intervention to offset them requires a careful evidence-based assessment of whether the benefits of offsetting them are greater than the costs.

The analysis of this paper suggests that policy initiatives in the area of human capital and skill development should involve a three-pronged approach:

1) *identify* the barriers and imperfections that inhibit the private parties from adjusting,
2) *reduce* the government imposed barriers that are the (often unintended) consequence of government policies and programs,
3) *facilitate* the removing of barriers and imperfections that arise from the actions of the private market participants,

<u>Identify Barriers and Imperfections and Trade-Offs Involved</u>

The first step involves *identifying* the barriers and imperfections that inhibit labour markets from operating properly in the area of skill development and human capital formation. Markets themselves will generally provide the appropriate signals and incentives; that is the purpose of markets. As indicated throughout this report, however, there may be barriers and imperfections that inhibit such adjustments, and identifying them is an important first step. Identify the trade-offs involved in removing barriers and correcting imperfections is also an important aspect of the identification phase. This may require a cost-benefit type analysis of the purposes served by the government policies compared to their unintended consequences from the barriers and imperfections that may result.

It is important to remember, however, that governments will have difficulty predicting future skill development needs and in "second-guessing" the market so as to develop policies to alleviate those needs. The market participants themselves have incentives to predict such needs and to respond to them since the competitiveness of firms and the earnings of individuals depend upon responding to these needs. As such, governments should focus on identifying well-defined market failures and market imperfections that inhibit the private parties themselves (employers and employees) from adjusting to the uncertain needs. Government policy initiatives should first ask how the private market participants themselves will respond, and then build the policy initiatives *residually* around *well-defined* failures or imperfections in the private market responses. When faced with an emerging issue (e.g., impending skill shortages), the government response should not be: What government policies should be put in place to deal with the issue? Rather, it should be: How will private market participants deal with the issue, and what is the *residual* (but perhaps very important) role for government policy initiatives. The response should not be one of social engineering and throwing money at the problem, but rather, one of clearly identifying barriers and imperfections that inhibit the private parties from dealing with the problem. Markets should be judged innocent until proven guilty, and their guilt should be well-defined and documented.

<u>Reduce the Government Imposed Barriers</u>

Once the well-defined market failures and imperfections are identified, the next step is to reduce the imperfections and barriers, with governments focusing first on those barriers and imperfections that are the (often unintended) consequence of their own policies and programs. Getting your own house in order is a first step prior to getting other houses in order. Bringing no harm to others is a first step in helping others. Knowing when to get out of the way is as important as knowing when to intervene. Since the policy initiatives that gave rise to the (unintended) barriers and imperfections usually exist for other reasons that generally serve broader social purposes, then information from a cost-benefit type analysis should be used to determine how far to go in the barrier removal.

A number of unintended consequences that government policy initiatives may have on skill development and human capital formation were illustrated throughout the report. They include:

- The age cap of 65 in the human rights code of some jurisdictions that exists to accommodate mandatory retirement but that means that the continued employment of persons over the age of 65 may be jeopardised by the fact that they do not have the normal protection against age discrimination
- Provisions in public pension systems that discourage delayed retirement, such as:

- Claw-backs in various public pensions such as Old Age Security (OAS), the Spouse Allowance of OAS, the Guaranteed Income Supplement (GIS), and provincial supplements.
- The requirement in CPP to "substantially cease working" in order to be eligible for early retirement benefits at age 60, and with actuarial penalties for those who work beyond age 70.

➢ Private Registered Retirement Plans which do not allow contributions past age 70
➢ Claw-backs in the personal income tax credit at age 65
➢ Claw-backs in various disability programs that can be particularly relevant for older persons given their high rate of disability, e.g.,:
- Workers' compensation
- Canada Pension Plan – Disability component
- Social Assistance
- Possible full claw-backs of income tax credits for disability expenses if people return to work

In the area of mandatory retirement, the policy recommendation that flows from this analysis is to:

➢ Ban mandatory retirement by removing the age cap in human rights codes when they still have them, so that the normal protection against age discrimination exists for such older workers
➢ Exempt *bona fide* retirement or pension plans and possibly collective agreements from the ban so that mandatory retirement is effectively allowed as long as it is accompanied by a retirement or pension plans and possibly a collective agreement.

By granting occupation licensing and certification powers to self-governing bodies, governments may have unintentionally allowed restrictions that inhibit the effective use of skills and human capital, especially in the professions and trades – areas where shortages are most prominent. Barrier removal in this area could include such policies as:

➢ Common or standardized education requirements and licensing exams.
➢ Mutual recognition agreements in areas of education, licences and certificates, as well as credential recognition as well as prior learning assessment and recognition (PLAR)
➢ Relaxing of residency requirements
➢ Having consumer groups or representatives of the general public on self-governing licensing bodies, could provide a check on excessive restrictions on entry into the profession while at the same time as representing the public interest
➢ Restricting the use of "grandparent clauses" whereby incumbent members of the profession are exempt from more stringent entry requirements could serve as a check to ensure that the more stringent requirements are in the public interest and not used to protect incumbents by "pulling-up-the ladder" behind them.

Governments should also examine the (generally unintended) barriers to the use and development of skills that can come about from other government policies such as:

- Preferential hiring and procurement policies;
- Tuition subsidies that are lost through the brain drain;
- Education policies that differ across provinces and deter mobility (e.g., credit transfers, explicit or implicit quotas, residency requirements with respect to financial aid);
- Language regulations and language services;
- Encouraging worker ownership as part of business bailouts – a policy that goes against the principle of diversification since it ties up their financial capital with their already undiversified human capital, retirement capital, community capital and base earnings.

Obviously, these conditions exist for other reasons; nevertheless, they can deter labour mobility and the associated reallocation of skills.

With respect to passive income maintenance programs, governments should consider the negative effects they have on human capital formation because they:

- Can encourage the "stay" option and hence discourage mobility of skills
- Reduce the incentive to work and hence the utilization of human capital as well as its further acquisition through accumulating labour market experience and on-the-job training

Active adjustment assistance programs, in contrast, encourage human capital formation as well as the mobility of skilled labour. However, these benefits must be assessed relative to their costs. While passive income maintenance programs can have these negative effects on skill formation, this is not likely to be prominent for higher skill levels since such persons tend not to access such programs.

Ceilings on payroll taxes beyond which such taxes are not paid, can have the unintended consequence of encouraging employers to work their higher-paid skilled workers long hours (since no further payroll taxes are paid because they are at the ceiling) rather than hiring new workers and incurring such payroll taxes. While this implies more use (i.e., longer hours) of skilled workers, it is not optimal since it is in response to the government imposed constraint of the payroll tax ceiling, rather than a response to market forces. Furthermore, it may discourage the hiring of new workers, and therefore deter their skill development. Governments may then try to inhibit such long hours through various regulations such as maximum hours regulations and requirements to pay overtime pay. The result may be a restriction of the use (long hours) of skilled labour and this could be considered an imperfection in the market for skilled labour.

<u>Facilitate Removing Barriers And Imperfections Faced By Private Market Participants</u>

Once the government imposed barriers that lead to negative consequences for the effective use and development of skills and human capital are dealt with, then there is a role for government policy to facilitate the removal of barriers and imperfections faced by private market participants -- barriers and imperfections that were identified earlier in the identification phase. In effect, the government role here is to correct for well-defined market failures and imperfections and to "grease the wheels" of private markets in the areas of skill development and human capital formation.

There are, however, two caveats. First, while there may be a *potential* rationale for government intervention, the *actual* rationale will depend upon whether an imperfect market solution may be better than what is likely to be an imperfect government solution. Governments may face many of the same issues, and they have efficiency issues of their own. Second, a rationale for government *intervention* does not necessitate government *production.* It may be more efficient for governments to outsource the delivery to private or NGO delivery agents.

Examples of such facilitating of private markets in this area were provided earlier in the text and included:

- Given the evidence that many "drop out too early" and could get higher returns by staying in school, policy initiatives may be merited in areas such as financial assistance, school access, facilitating transfers from colleges to universities, and even public campaigns against dropping out, to offset other negative peer pressures;
- Encouraging "family-friendly" work-practices and policy initiatives that can foster balancing work-family responsibilities;
- The provision of labour market information in a timely and decentralized fashion, given the public goods nature of information;
- Fostering innovation in areas pertaining to workplace skills development, given the lack of incentive for individual firms to innovate in these areas.

The previous discussion implied there was an ordering of the three-pronged set of policy initiatives to facilitate human capital development and skill formation, those initiatives being: (1) First to *identify* the barriers and market imperfections, (2) Second to *remove* the (often intended) barriers created by other public policies, (3) Third to *facilitate* private market responses in this area. The ordering was not meant to imply a sequencing in time, but rather to highlight that identification of the issues and trade-offs is necessary before other actions are taken. As well, removing the barriers created by existing government policies would seem a logical precursor before requiring or even facilitating the responses of the private market participants. While there is this logical ordering, all three initiatives – identifying barriers and imperfections, removing government imposed barriers, and facilitating private market responses -- can and should go on simultaneously.

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