

Population, Pyramids and Promotional Prospects

DAVID K. FOOT

*Department of Economics and Centre for Industrial Relations
University of Toronto*

and

ROSEMARY A. VENNE

*Doctoral Candidate, Centre for Industrial Relations
University of Toronto*

Le concept très répandu, de mobilité verticale de carrière au sein d'une grande entreprise, est peut-être hors de portée pour plusieurs 'baby boomers' canadiens. Les calculs que présente cet article indiquent que l'adéquation entre la structure d'âge de la main-d'oeuvre et la pyramide hiérarchique de l'entreprise fut à son meilleur à la fin des années 1970, et que d'importantes différences sont apparues au cours de la décennie 80, où la génération des 'baby boomers,' en pleine force de l'âge, débordait des échelons intermédiaires des organisations. Ces résultats concordent avec d'autres de recherches qui se sont intéressées au vieillissement de la population et aux perspectives d'avancement au sein de populations à faible croissance, ainsi qu'avec les conclusions d'études portant sur les cas de carrières bloquées et de plafonnement dans l'emploi. Aussi, la flexibilité des organisations en matière de ressources humaines est d'autant plus entravée que débute une pénurie d'employés de premiers échelons provenant de la génération, beaucoup plus petite, des 'sans bébé'. Les principales solutions sont l'aplatissement des hiérarchies organisationnelles et l'adoption de cheminement de carrière en spirale. Les conséquences sur les politiques du personnel et les politiques publiques de ces changements sont esquissées. Une attention soutenue à la planification des ressources humaines et des politiques publiques appropriées sont nécessaires pour accommoder les changements dans la structure de main-d'oeuvre au Canada.

The widely-held concept of upward career movement in a tall organization hierarchy may be out of reach for many Canadian baby boomers. Calculations presented in this paper indicate that the closest match between the age structure of the labour force and a typical hierarchical organization pyramid occurred in the late 1970s, and that over the 1980s a substantial mismatch has emerged, with the baby boomers saturating and overflowing the middle ranks of the organization hierarchy during their prime working years. These results are in concurrence with other research findings that have examined population aging and promotion prospects in slower growing populations, with case studies concerning career blockages, and with employee 'plateauing'. In addition, human resource flexibility in organizations is being further hampered by the emerging shortage of entry level workers coming from the much smaller baby bust generation. The major solutions involve flattening organization hierarchies and adopting and rewarding spiral career paths. Various personnel and public policy implications of these changes are explored. A strong emphasis on human resource planning and supportive public policies are needed to accommodate the inevitably changing structure of the future Canadian labour force.

I Introduction

The baby boom generation has been the subject of considerable attention. Be-

cause of its sheer size in North America, it is easy to document historically the enormous impact the baby boom has had on society and its institutions, which have

often been stretched to their limits to accommodate its requirements. Some would say the baby boom generation has changed the shape of these institutions. Jones (1980) views this generation as a tidal wave effecting massive changes in society's institutions as it ages, causing disruption, for example, in schools and the labour force. Similarly, Russell (1987) documents the myriad of institutions that will be affected by the baby boom over the next half century.

The baby boom generation in Canada is defined as those born during the high fertility period from post World War II to the mid-1960s (1947–1966). Following this period, fertility rates declined to below replacement levels resulting in a subsequent 'baby bust' generation (1967–1980). During the 1960s and 1970s labour force growth in Canada reached unprecedented levels (over 3 per cent per annum) due in large part to the baby boom entering the labour force (see Foot, 1987). No other country in the Western World approached these rates of labour force growth.¹ Over the 1980s, with the baby bust generation entering the Canadian labour force, average annual growth has slowed considerably, despite an economic boom that has characterized much of this period.² These new trends can be expected to continue as the much smaller baby bust generation continues to enter the labour force over the 1990s.

Corporate hierarchical structures with a broad base of entry level positions were well designed to accommodate wave after wave of new labour market entrants over the postwar period, and especially over the 1960s and 1970s. However, over the 1980s they are gradually becoming less appropriate as shortages of entry level workers gradually become more widespread in the economy. Over the 1990s it is likely that, unless modified, these structures will prove to be inadequate for the new labour force environment. This emerging 'mismatching' between organization structures and the labour force is the foundation for recent concern over the promotional prospects for

the large baby boom generation.

The labour force experiences of the baby boom cohort, and more specifically their likely decreased promotional prospects in the years ahead, are the focus of this paper. This is a relatively new concern. Recently, both demographers and human resource planners have expressed interest and concern over possible blocked career paths and 'plateauing' for this large generation (see, for example, Keyfitz, 1973; Malkiel, 1983; Walsh and Lloyd, 1984; and Bardwick, 1986). This paper relates the baby boom generation in the labour force to a typical organization hierarchy and develops an empirical measure of the 'mismatch' between the two. The discrepancy between labour force age structure and the typical organization hierarchy is then examined, both historically and in the future. The implications for human resource planning for individuals, organizations and the society are then outlined, with particular attention to the baby boom generation in the 1990s.

The paper is arranged as follows. Section II is devoted to a brief review of the diverse literature relevant to this issue. The following section develops the empirical measure of the 'mismatching' between the labour force and the typical organization hierarchy, with the results, both historically and into the future, being presented in Section IV. Some implications of these results are then outlined in Section V. A concluding section summarizes the main findings.

II Theory

Individuals work within organizations. Consequently, individual career paths and promotional possibilities are largely determined by organization structures and behaviour. Organizations in turn are influenced by the 'external environment'. This especially includes demographic developments, over which both individual and organizational decisions effectively have no control. The monitoring of this external environment as an input into these decisions has become an important focus of

the literature in human resource planning (see, for example, Kochan and Barocci, 1985; or Dolan and Schuler, 1987).

At the individual level, a number of researchers (for example, Keyfitz, 1973; Cantrell and Clark, 1982; and Denton and Spencer, 1982; 1987) have explored the relationship between the rate of population growth and the promotional prospects for individual employees. Using US life tables with various steady state rates of population growth, Keyfitz (1973) concluded that a 2 percentage point decrease in the growth rate resulted in an average delayed promotion of 4 1/2 years for employees in the middle levels of organization hierarchies. Cantrell and Clark (1982) extended this idea to include the impacts of labour force participation rates on promotional prospects. More recently Denton and Spencer (1987), in an update of their earlier (1982) work, examined the impact of both population and labour force changes on promotional prospects. Using population projections for Canada under a variety of 'realistic' assumptions with regard to fertility, mortality, immigration, labour force entry, participation rates, and retirement, they conclude that, 'to the extent that age matters in promotion prospects, the baby boom generation suffers some disadvantages as a result of its size'. This conclusion is rather robust: other demographic or participation rate assumptions make little difference to the age of promotion over the next 25 years – for that period they note that 'the die is already cast'.

The relationship between individual promotional opportunities and organization structures has only recently received attention in the literature. Jones (1980), notes that 'the baby boom will find that just as there once was not enough room for all of them to climb onto the occupational ladder, there later will not be enough room at the top. As each person tries to climb up the business and professional hierarchies, he or she will find other baby boom competitors blocking the way ... crowded on the first steps of management [they] will be forced

to stay right there'. He then goes on to explore some of the implications: for example, longer climbs to the top will become commonplace, frustration will become acute, the mid-career job switch could become a way of life, and emphasis will be increasingly placed on job rotations, and the 'psychic benefits' of work.

Morgan's (1981; 1985) case study actually documents the problem of blocked career paths for the decision-making group of the Canadian federal public service. For approximately a decade (1965–1975) this organization experienced rapid expansion during which time there was considerable career advancement, with promotions according to seniority being the norm. This rapid expansion was followed by a period of slow growth. Having been recruited at entry levels over the previous decade, the bulge of baby boomers advanced to middle management positions and, subsequently found that there was, in Morgan's terminology, 'nowhere to go'.

Bardwick (1986) refers to this phenomenon as the 'plateauing trap'. She notes that the fundamental factors determining overall rates of promotion are impersonal; they have nothing to do with individual competence and they cannot be changed by any individual. While plateauing is inevitable for most employees, it is occurring sooner for the baby boomers due to the large size of their cohort group. As a result of these promotional blockages, employee frustration and a serious problem with morale emerges. Possible solutions to this problem are outlined, including psychological counselling for employees and changes in organization culture, such as retraining and lateral transfers.

Implicit in these analyses are the dual assumptions of linear individual career paths and pyramidal organization hierarchies. Driver (1979; 1985) argues that these two concepts are linked. He points out that there are alternative career paths and associated organizational structures and cultures. He presents a classification of four individual career concepts linked uniquely

Table 1
Career paths and associated characteristics

Career Path	Direction of Job Movement	Number of Occupations	Organizational Structure	Reward Systems
Steady state	None	One	Rectangular	Tenure, fringe benefits
Linear	Upward	Two	Tall pyramid	Promotion, power
Spiral	Lateral/upward	Five (?)	Flat pyramid	Reeducation, retraining
Transitory	Lateral	Many	Temporary teams	Variety, time off

SOURCE: Adapted by the authors from Driver (1985).

with four organizational structures (and, ultimately, cultures). (See Table 1.)³

The first two career paths are the most familiar. Briefly, the steady state career represents a lifelong career path where an employee is committed to an occupation for life (for example, a minister of religion or a professor). Since there are many employees at the same level, the associated organization structure is almost flat with an accompanying culture that emphasizes tenure, seniority and fringe benefits. The linear career path is perhaps most pervasive in North America today. Here the employee seeks upward movement towards the top of a tall, increasingly narrow pyramid structure with numerous salary levels. Changes in occupation are infrequent, with promotions and accompanying salary increases and bonuses the main measures of career success.

The next two career paths may be less familiar. The spiral career, which combines mainly lateral moves with a few vertical moves, is associated with a moderate number of changes in occupation over a lifetime. The supporting organization structure is a flat pyramid with a few, broad levels. Here the emphasis is on occupational flexibility with liberal opportunities for lifelong re-education and retraining. Last, the transitory career is characterized by a 'consistent pat-

tern of inconsistency,' with frequent occupational change and lateral mobility. The associated organization structure consists of temporary teams and the organization culture revolves around variety and possible breaks between assignments.

Driver (1985) touches on the relevance of these concepts for the baby boom. After noting that demographic boom and bust conditions strongly affect work mobility – a proposition that was established by earlier writers – he concludes (for the US) that 'the bust generations born in the 1920s and 1930s carry an image of high mobility and demand [but] the 1940s and 1950s generation [that is, the baby boom] have faced a world of fierce competition, low demand and mobility'.⁴ The former group entered management during a period of economic expansion when a disproportionate increase in white collar and middle management jobs occurred (see Bardwick, 1986). This small birth cohort experienced rapid promotions up the increasingly tall hierarchies. According to Bardwick (1986) these economic conditions held sway long enough that they came to be viewed as the norm and formed the basis for the expectations of today's baby boomers. Thus it is not surprising that these linear expectations are supported by MBA and similar programs that have a strong linear career focus.

However, given the current demographic situation and recent organizational restructuring (for example, the shrinking of middle management positions, see Naisbitt and Aburdene, 1985) the linear focus of these programs is increasingly at odds with reality. Recent graduates who now face the 'career blocking' or 'plateauing' phenomenon identified by Morgan (1985) and Bardwick (1986) are becoming increasingly frustrated as their linear expectations clash with reality. They are on a collision course and in Driver's (1985) evaluation 'organizations are [currently] geared to reinforce precisely the wrong career concept from a societal point of view'. With the peak of the baby boom recently graduating from these programs, this linear career 'crisis' (as termed by Driver, 1985) can only become worse over the 1990s.

The following sections document this assertion quantitatively by developing an index of the 'mismatch' between the labour force and organizational structures based on the linear career concept. A subsequent section then reviews possible policy implications for the 1990s and beyond.

III Measuring the 'Mismatch'

Concerns with the way organizations are structured in modern society are not new. Recently, however, several writers have identified the hierarchy as the major focus for criticism. Kochan and Barocci (1985) discuss the traditional system of work organization that arrays jobs into a hierarchy of distinct classifications. Naisbitt (1982), after pointing out that hierarchical structures dominate current industry, argues that they are out of step with, and no longer workable in, the new information economy. He presents hierarchies as rigid structures that slow down the information flow in an organization. Other writers (Crocker, Charney and Chiu, 1984; and Walton and Lawrence, 1985) also characterize North American industry as hierarchical in structure and question its value for the organi-

zations of today.

A possible relationship between this structure and the structure of the labour force has been largely ignored. Recently, Foot (1987) proposed that 'the very nature of the pyramidal organizational structure may be dependent on a pyramidal labour force to support it'. He notes that up to 1980 the postwar Canadian labour force largely displayed a pyramidal age structure that could support the pyramidal organization hierarchy and accompanying linear career concept. He suggests that while these concepts have been appropriate for the 1960s and 1970s they are becoming increasingly under pressure over the 1980s and that this trend will continue into the 1990s as the aging of the large baby boom generation and the entry of the much smaller baby bust generation radically change the shape of the labour force age structure.

Under the linear career concept, there is a close positive association between age and level in the hierarchy. Widespread promotion on the basis of seniority – a common feature of most labour-management agreements (see Morgan, 1981; and Freeman and Medoff, 1984) – secures this relationship. Alternatively, following Cantrell and Clark (1982), the relationship can be viewed as discrete manifestations of the continuous lifecycle earnings process which produces age-earning profiles that rise over most of one's career. Consequently, the comparison of the age structure of the labour force with the pyramidal hierarchical structure of the modern organization can provide an indication of the coincidence or conflict between career paths reinforced by hierarchical organization structures and those actually experienced by individual employees.

To derive an empirical measure of the extent of mismatching, it is first necessary to develop a representation of a typical organization hierarchy. Following in the spirit of Keyfitz (1973) and Denton and Spencer (1987), six career levels are considered.⁵ A pyramidal hierarchical structure then identifies the percentage of employees at each level (see Table 2).⁶ The numbers

Table 2

A 'representative' pyramidal organization hierarchy (percentage distribution of employees)

Level	Total
6 (top)	2.8
5	8.3
4	13.9
3	19.4
2	25.0
1 (bottom)	30.6
Total	100.0

show that under these conditions the 'representative' pyramidal organization hierarchy contains 30.6 per cent of employees at the bottom level, 25 per cent at the next level and so on to the top of the hierarchy where 2.8 per cent of the employees are located.

To develop a measure of how closely the labour force distribution matches this hierarchy, it is then necessary to relate the hierarchical levels in Table 2 to age groups in the labour force. Six ten year age groups were chosen, the lowest being the youth aged 15 to 24 years and the highest being aged 65 years and over.⁷ These age groups are obviously mutually exclusive and exhaustive. By encompassing the entire labour force, a measure of the hierarchical mismatch for the entire society can be developed.

The statistical literature is replete with aggregate deviation measures. The most popular is the sum of squared deviations (on which 'standard deviations' and 'least squares' regression are based).⁸ This measure can be used to derive a squared deviation index (*SDI*) of the mismatch between the observed labour force distribution in each year and the representative hierarchical distribution summarized in Table 2 as follows:

$$SDI_t = S \sum_i (H_i - L_{it})^2$$

where i indexes the age groups, H_i are the 'representative' hierarchical distribution percentages (Table 2), L_{it} are the observed labour force distribution percentages in

each time period t and the scaling factor S is chosen so that the index takes on the value 1.0 at its minimum value. A relatively high value for this index indicates a substantial mismatch, while a relatively low value (near 1) indicates closer coincidence of the observed labour force and hierarchical distribution.

IV Results

The *SDI* index was calculated for the Canadian labour force for the historical period from 1961 to 1986 and was projected a further 25 years to the year 2011 using one of Statistics Canada's recent population projections.⁹ The calculations follow the suggestions of Cantrell and Clark (1982) and the procedures of Denton and Spencer (1987) by incorporating labour force participation rates. For the projection period, these age specific rates were set at their 1986 values, which was the most recent census year and the starting year for the population projection.¹⁰

The results are presented in Chart 1.¹¹ The years when there was the closest coincidence between the labour force distribution and the representative organization hierarchy occurred over the late 1970s. The general U-shape of the index indicates that over the 1960s and 1970s, a gradually improved match between the labour force and organization hierarchy emerged as wave after wave of baby boomers entered the labour force, thus filling out the lower levels of organization hierarchies and reducing the index of mismatching. By 1976 the peak of the baby boom born in 1960 reached the minimum labour force age of 16 years and by 1982 the last of the baby boomers born in 1966 reached this age.

Over the 1980s the trend has been dramatically reversed as the aging early baby boomers experienced mismatching in the middle career levels and the smaller baby bust generation began entering the lower levels of the organization hierarchies. Therefore, over the 1980s mismatching takes two dominant forms. First, there is a

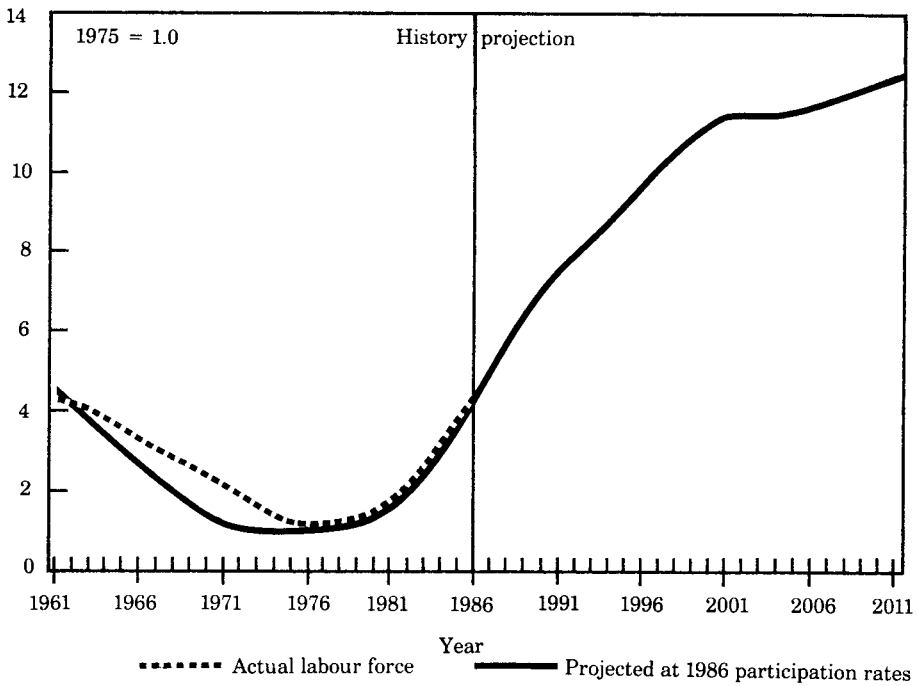


Chart 1 Squared deviation index (SDI) of mismatching, Canada, 1961-2011

scarcity of younger employees at the bottom career levels. The emergence of 'Help Wanted' signs in retail establishments where younger workers often start their careers (often in part-time positions) is evidence of this form. Second, there is a surplus of middle-aged employees in the middle career levels, which explains the recent concerns with career blocking and plateauing. By 1986 these calculations suggest that the mismatching is already worse than it has been throughout much of this historical period. Moreover, this trend is projected to continue through the 1990s and into the next century, when the degree of mismatching will be at unprecedented levels.¹² In essence, the mismatching problem, that is emerging over the 1980s represents a reversal of the trend of the previous two decades, and can be expected to intensify over the 1990s and into the next century. It is important to remember that the baby boom cohort in Canada encompasses a 20 year span. Since most people work for approximately 40 to 45 years, the baby

boom generation from beginning to end impacts on the labour force for a span of at least 60 years. Hence the mismatch and associated career blockage problems are likely to persist for a long time unless corrective action is taken.

V Implications

These conclusions, based on the SDI measure of the mismatch between the labour force and organization structures, verify not only the theoretical results of Keyfitz (1973), Cantrell and Clark (1982) and Denton and Spencer (1982; 1987), but also the more case-based works of Jones (1980), Morgan (1981; 1985) and Bardwick (1986). By the early 1980s, the entire baby boom generation had become of labour force age. The more slowly growing labour force over the 1980s, due in large part to the labour force entry of the following smaller baby bust generation, began intensifying the problems of slower promotional opportunities and increasing ages of promotion

at each level in organization hierarchies. This led to blocked career paths, or the plateauing of the baby boom generation. And the situation is not going to improve. In fact, over the 1990s with continuing slower labour force growth, the problem can be expected to intensify as baby boomers continue to accumulate in the middle career levels with 'nowhere to go'.

These findings also provide dramatic verification of Driver's (1985) contention that currently 'organizations are geared to reinforce precisely the wrong career concept - the linear concept - from a societal point of view'. While it is likely that some organizations will continue to maintain structures and cultures that foster the linear career path, many linear oriented organizations will adapt to this new reality by flattening their tall pyramidal organizational structures. A motivation may be to reduce the importance of promotions by reducing the number of hierarchical levels (Bardwick, 1986). When there are fewer levels, less upward movement is possible and much of the employee's attention is directed laterally rather than vertically; in other words, employees are encouraged to move from the linear career path towards the spiral career path.

The likely resurgence of the spiral career path in North America, where the pressures from the baby boom generation are the most intense, will intensify education as a lifelong process and likely see the emergence of the 'generalist'. The employee with a solid training in basic skills and a variety of experiences who can be flexible and move laterally into new positions, is likely to be the most challenged and productive to his or her employer. Lateral swaps or exchanges are likely to become much more common. For example, employees plateaued as Directors of Marketing, Communications and Human Resources may well be rotated to provide new challenges for each employee. In this way, lateral moves are both a solution to an individual employee's plateauing problem, as well as to the entire cohort of employees at that

particular organizational level.

And, of course, the 'sensible' employer will recognize these employee contributions and reward the employee appropriately even though no promotion to the next hierarchical level has taken place. In other words, employers who wish to keep their potentially plateaued employees challenged and productive will make sure that lateral as well as vertical moves are reflected in the financial rewards of the employees. With fewer levels in the hierarchy, each level will carry a much broader compensation range. Consequently, the broader pay level as a result of hierarchical flattening will provide the opportunity for monetary rewards to be provided even though there has been no elevation of the employee in the corporate structure.

Other changes for both employers and employees will also be necessary. Employers will likely have to provide more information and support services to assist employees in establishing career 'paths' (as distinct from career 'ladders') as they adapt to the new work environment. In addition, it will be increasingly necessary for employers to provide and purchase more training and education services to facilitate preparation for occupation changes associated with lateral moves. Employees for their part will find it advantageous to encourage and use these services rather than to resist their introduction.

On the human resource planning side, far more attention will need to be paid to programs designed to encourage lateral movement. Information bases will need to be expanded to include data on employees' 'other' skills and interests; policies to encourage the use of educational and training opportunities outside of the employee's current responsibilities will need to be developed; exchange programs must be designed so that employees are encouraged to seek out other employees and positions that may be of interest for lateral moves; and salary structures that position employees in the organization hierarchy may have to be abandoned because an employee who

has been rewarded for three lateral moves may well have a higher salary than the 'boss' who may be in the higher level position as a result of one vertical (or promotional) move.

Other changes within organizations are likely to be more subtle. Success in the workplace is likely to be redefined to include the variety of positions held as well as their level in the organization hierarchy. Reducing hierarchical levels may reduce formality, make leaders more accessible, improve communication and information flows, and lead to a more participatory style of management. See Naisbitt (1982); Naisbitt and Aburdene, (1985); and Walton and Lawrence (1985) for an elaboration of these arguments. Increased concern for team work and 'followership' rather than leadership is likely to emerge. Emphasis will need to be on the opportunities for increasingly independent and challenging work – embracing challenge and mastering it will have to be rewarded. Extended study leaves or sabbaticals may become necessary to achieve these goals; as may employee access to improved health and recreation facilities.

This is only a representative and by no means exhaustive list of the changes that can be expected. The key ingredient, however, is the likely transformation of the corporate hierarchy and the workplace in North America over the 1990s and beyond from tall pyramids and linear career paths to flatter pyramids and spiral career paths. This transformation is likely to be accompanied by a much greater emphasis within organizations on human resource management issues than in the past.

Changes are also likely outside of individual organizations. Several public policy issues dealing with the baby boom in the labour force will need to be addressed. To facilitate the spiral career path it will be increasingly necessary for educational institutions, especially post-secondary institutions, to offer timely and relevant courses. Naisbitt and Aburdene (1985) predict a boom in adult education as the new

information society transforms people into 'lifelong learners'. This boom will be fuelled to a large extent by the baby boomers as would-be career changers, by people upgrading in fast-changing fields and as a preparation for lateral career moves. Courses will need to be scheduled at times that do not conflict with work (for example, on evenings and weekends) and redesigned into compact, modular courses that can be completed during a short-term leave (for example, three weeks). Teaching methods will also have to change, as the older student often has different 'expectations' than the younger student. Not only do they have more life and work experiences to draw on, they also are more likely to face and recognize a higher opportunity cost on their time (especially if the workload continues to pile up back at the office). In addition, since employers are likely to be willing to pay the fees for these students, educational institutions will be provided with an opportunity to broaden (and increase) their funding bases. The myriad of possible effects on educational policies deserve careful consideration and cannot be adequately explored here.

In the case study of the federal public sector, Morgan (1981; 1985) recommends early retirement as one measure to ease the career blockage problem. Early retirement incentives and flexible retirement policies, such as easing the employee into retirement by allowing employees to become part-time mentors or consultants, are becoming more common. Bardwick (1986) refers to the latter as 'transitional retirement' policies and recommends that these part-time employees should receive a proportionate fraction of their salary and benefits. Of course, the removal of mandatory retirement provisions and the introduction of various flexible retirement policies, such as has been recently introduced into the Canada/Quebec Pension Plan, could work in the opposite direction by allowing employees to remain longer in the senior levels of the organizational hierarchies.

Another public policy that can poten-

tially impact on the promotional prospects of the baby boomers is immigration. Immigration policy in Canada has often been influenced by labour market considerations, and, more recently, has been presented as a solution to population aging and low fertility. However, Foot (1986) has pointed out that because people are most geographically mobile in their early working lives, currently more than half of the immigrants are approximately the same age as the baby boomers. The similar age distribution of these two groups is potentially intensifying the career blockage problems for the baby boom generation. As a way of ameliorating this situation, Foot (1986) recommends an 'age-directed' component be added to Canada's immigration program that would be directed at younger age groups, corresponding to the age range of the baby bust generation.¹³ Moreover, bringing in a larger share of younger immigrants would have the benefit of alleviating the shortage of entry level workers and, consequently, would contribute to a lessening of the mismatch at the lower end of the hierarchy.

VI Conclusions

The baby boom generation in Canada (1947-1966), by its sheer size has had an enormous impact on society and its institutions. This paper focussed on the workplace experiences of the baby boom generation; in particular, their promotional prospects. The widely held concept of a linear career (meaning upward career movement in a tall organization hierarchy) is likely to be out of reach for many baby boomers.

A measure of the extent to which the Canadian labour force deviates from typical organization hierarchies indicates that over the 1960s and 1970s the mismatch between the labour force and the hierarchical pyramid was lessening as a result of wave after wave of baby boomers entering the lower levels of corporate hierarchies. These calculations suggest that the closest match between the two structures occurred in the late 1970s and that over the 1980s a sub-

stantial mismatch has been emerging. The baby boom generation is saturating and overflowing the middle ranks of the organization pyramid during their prime working years.

These results concur with other research findings from studies that have examined population aging and promotion prospects in slower growing populations and from studies concerning career blockage and employee plateauing. In addition, the reduction in youth unemployment and the appearance of 'help wanted' signs in retail establishments indicate that human resource flexibility in organizations is being further hampered by the emerging shortage of entry level workers who come from the much smaller baby bust generation.

Moreover, these new trends are not likely to be transitory. The inevitable aging of the Canadian population into the 1990s and beyond is likely to intensify further the mismatch that has emerged over the 1980s. As a result, changes in policies for the individual, the organization and, ultimately, society are likely to be both desirable and necessary.

The major changes involve flattening the pyramidal structure of organization hierarchies and changing employee career paths from the linear to the spiral concept. In addition, specific human resource planning policies to deal with the promotion squeeze that the baby boom generation will continue to experience are necessary. A strong emphasis on human resource planning is needed by all organizations to accommodate the inevitably changing structure of the future Canadian labour force. Finally, these changes also impact on a variety of public policies such as education, retirement and immigration. It is important that decisions taken in these areas be consistent with the changes taking place in the population, organizational pyramids and promotional prospects of the nation.

Notes

- 1 See, for example, Bean, Layard and Nickell (1986)

- who document labour force growth rates for OECD countries. Their numbers indicate that over the 1960s the only other country to exceed 2 1/2% average annual growth was Australia, while over the 1970s the closest country with annual growth still 1/2% below that of Canada was the US. These are the two other countries in the world with a baby boom generation comparable in relative size to that of Canada.
- 2 Macroeconomic booms are usually characterized by an increase in participation rates and hence labour force growth.
 - 3 For an analysis of the personality traits and values associated with these career concepts in Canada see Bourgeois and Wils (1987).
 - 4 The situation in Canada would be delayed a few years when compared to the details set out in Driver (1985:249-50).
 - 5 In reality there may be more levels in a typical organization, although Bardwick (1986:39-40) uses examples with six levels. The purpose here is to aggregate to an economy-wide measure, where six broad levels are sufficient to demonstrate the arguments.
 - 6 The shape of the organization hierarchy as represented by a smooth-sided triangle may not be entirely accurate. Bardwick (1986) notes that actual hierarchical structures often have indentations and a disproportionately large base. Nonetheless, the triangular shaped structure is a good representation of the typical large organization where each successive and smaller level leads to fewer promotions and greater plateauing.
 - 7 Some modifications were necessary for earlier years (up to 1971) where only four age groups could be used - 14-24, 25-44, 45-64 and 65 and over.
 - 8 Another measure is the sum of absolute deviations. Since this measure produces very similar results to those presented below (see Foot and Venne, 1988), it is not reported here.
 - 9 The population projection, available over 1986-2011, assumes constant fertility at current levels of 1.67 children per woman, gradually increasing life expectancy, immigration at the postwar average of 140,000 persons per year and emigration at 0.25% of the population.
 - 10 For comparison, an historical projection (or backcast) using constant 1986 participation rates is also included on Chart 1, along with the SDI calculated using the actual or historically observed participation rates. This backcast provides a guide to the usefulness of an SDI based on constant participation rates.
 - 11 Since 1975 was an overlap year for the Labour Force Survey (LFS), the index based on the 'old' LFS was spliced with that of the 'new' LFS for that year to produce a continuous series.
 - 12 The 'flattening' of the index in the first decade of the 21st century reflects the entry of the children of the baby boomers - the so called baby boom 'echo' generation - which provides some relief at the entry levels of the 'representative' hierarchy at that time. Beyond the end of this projection period, the baby boom generation will begin reaching retirement age (that is, those born in 1947 reach age 65 in 2012), which will also contribute to some flattening of the index.
 - 13 Consequently, this 'age-directed' component could have an automatic 'sunset' provision when the children of the baby boomers reach the labour market in the first decade of the 20th century.

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