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Retirement, Individual Performance and Labour Market Structures

Abstract

This paper discusses the relationship between the labour market structure occupied by an individual and the process of retirement. Labour market structures are characterised by their employment relations and the resulting (implicit) employment contracts. Employment contracts determine how individual performance will be linked to wages and other job rewards and they may specify the conditions governing the termination of the employment relationship. These features of the employment contract are important for the retirement process. They will determine the costs and benefits of retirement by creating the link between age-related changes in the performance of the individual and the benefits obtained from work. The contract may further determine under which conditions retirement is forced upon the individual. Three types of employment contracts are considered:

1. employment contracts for single tasks, the scenario assumed in standard neo-classical labour economics;
2. employment contracts for single jobs, typical of much industrial production work; and
3. employment contracts for careers, typical of internal labour markets. These three types are shown to have quite different consequences for the retirement process as they determine how the timing of retirement is related to individual performance, to the availability of public pensions, to the creation of private pensions, and to the existence of mandatory retirement.

Introduction

Perhaps the most important concern when considering the consequences of the changing age distribution in Western societies is the impact of these changes on the overall level of economic and social welfare in society and on the distribution of welfare among age groups. A popular worry is the possibility that a growing number of economically dependent elderly will become a major burden for a declining number of young. The likely changes in the age distribution seem easy to predict - more older people and fewer younger people - because changes in the age distributions can be projected without much uncertainty over a substantial period of time. However, demographic change alone does not determine the social and economic consequences of a changing age distribution. The rates of work-force participation for different age groups are crucially important. These rates presumably account for most of the variation in the balance between economically dependent and independent population groups, assuming that being out of work remains the main determinant of individual economic dependency.

Projecting future trends in age specific work-force participation rates is less straightforward than projecting future age distributions. It is well known that the work-force participation rates of the elderly have changed markedly in many countries in the last decades; in most countries they have declined. It is less well understood why they have changed. There is agreement among researchers of these processes that the rates of work-force participation respond to availability of pensions (and hence to public policy about pensions), but the rates presumably also respond to a host of other

institutional and economic forces such as the organisation of classes and the labour market, the performance of the economy, and so on (e.g. Guillemard 1982). The exact manner in which participation rates respond to these forces is not well known. Nevertheless, if we are to make useful projections of the consequences of the ageing society we need to understand the mechanism responsible for the variation in rates of work-force participation of older people.

Work-force participation rates are evidently closely related to retirement rates when the focus is on the elderly. In fact, a simple definition of retirement would be that it is the process of entering a state of not working and not looking for work - this is the definition of being out of the work-force (unemployment, in contrast, is not working and looking for work). However, in the retirement literature, definitions of retirement usually are more involved, e.g. retirement is "withdrawal from one's business or occupation .. usually accompanied by a pension" (Atchley 1982). Such definitions suggest something different from simply leaving the work-force. With the broader definition of retirement someone could retire from his or her usual line of work, but remain in the work-force in a new occupation. Also, it would be possible for an older person to leave the work-force temporarily (for example because of a spell of illness) and not retire in the sense of deciding to withdraw from one's occupation. These types of events correspond to what most would allow to be included in the concept of retirement. They suggest that rather than simply equating work-force non-participation and retirement, retirement should more broadly be construed as an age related decline in a person's involvement with his or her usual line of work.

The more involved definitions lead to more ambiguity. Nevertheless, a theory of retirement that would account for changes in work-force participation in old age, needs a conception of retirement that refers to something broader than being out of the work-force at a point in time. The desired concept should allow for retirement being a gradual process for some, involving a gradual reduction in the amount worked, and should include processes where retirement from one's usual line of work is followed by entry into a new occupation.

Theories of the retirement process should explain why people leave their usual line of work and why they often, thenceforth, will look no longer for this type of work. It is a commonplace observation that some retire because they feel they are better off not being involved in paid work, or being less involved. Retirement is then the outcome of an individual choice. The choice presumably is the outcome of a comparison of the benefits available when not working or working fewer hours than before (in the form of pensions and the pleasure of leisure), to those benefits received when the individual maintains his or her current level and type of work (in the form of wages, social status and enjoyment of work). When retirement is the result of such an individual choice, people would change the initial decision, if changes in the welfare in and out of work revert the initial comparison.

Retirement based on comparisons of individual welfare in and out of work is not the only type of retirement. Not everyone retires because they want to retire. Some retire because they have to. They may be unable to work because of poor health or they may have been forced to retire because of a mandatory retirement requirement. When the retirement is forced upon the individual in this manner, it is evidently not a result of a single individual's choice based on a calculation of benefits from working and not working. Some other actor will be involved in making an assessment of the person's ability to work or enforcing a mandatory retirement requirement. Thus the process is more complicated and contingent. Further, if the retiree feels he would be better off in the work-force than remaining in involuntary retirement, the return to work usually has to be to a different line of work

than the one retired from. This new line of work will presumably often result in a change in social and economic welfare.

When retirement is voluntary, comparisons of rewards from working to benefits available when not working triggers the retirement decision. The rewards obtained from work are specified in some type of employment contract (that may be implicit) both with respect to level of pay and other benefits and with respect to how these benefits depend on individual effort and performance. When retirement is voluntary, the employment contract therefore will be crucial for the process. When retirement is not voluntary, the employment contract is again decisive. It will contain the mandatory retirement requirement in force, if any, and the employment contract may specify the minimum standards of performance that would force retirement because of lack of ability to work.

The employment relationship, as specified in an employment contract, is then crucially important to the retirement process and in turn for work-force participation rates among the elderly. It is of course not the only thing that matters. Benefits available when not working (or working less) provide the other main component in the decisions that result in retirement. These benefits are presented by the system of pensions and other support in a society. The organization of pension and welfare institutions depend on a number of social and political forces and may be only weakly related to the composition of the labour market that determines the distribution of employment relations. Clearly, to predict future trends in the retirement process one has to understand both components of the retirement decision. However, while important work has been done on the design of pension systems (Myles 1984), little attention has been focused on the role of employment relations in the retirement process.

The main task of the paper is to specify in which ways the employment relationship influences the retirement process. It will be argued that the employment relation is crucial for the timing of retirement, for the relation between individual performance and retirement, and for the degree to which retirement is voluntary. Further, the nature of the employment contract will be argued to be a crucial predictor of whether the individual will look for work again, i.e. the degree to which retiring from one's usual line of work becomes permanent withdrawal from the work-force.

The distribution of employment contracts in the labour market of a society produces a mix of retirement processes for that society. These processes in turn determine work-force participation rates among the elderly. Future work-force participation rates therefore reflect the future distribution of employment contracts. Changes in the distribution of employment contracts in turn are produced by changes in the labour market as occupations and industries grow and decline. Thus the economic and social consequences of an ageing society are directly dependent on the future structure of the labour market.

I will develop the main theme of this chapter - the relation between the employment contract and the retirement process - in the next section. Before this is done, it may be useful to note a limitation of the argument. The focus on the link between the employment relationship and the retirement process suggests retirement is a process for the employed only. If the work-force in a society has a high proportion of persons not involved in an employment relationship, as would be the case in an agrarian society, the discussion of this chapter would be of little use for understanding the involvement of the elderly with work.

Clearly the large majority of the population in modern industrial society is employed. Further, the usual conception of retirement is indeed associated with leaving the employed part of the work-force. The self-employed may retire too by withdrawing from a line of work, but they have no employers and no employment contracts. Stepping down from work is therefore a

decision to cease active involvement with a piece of property. The property may be sold, transferred to heirs, eliminated in a business failure, or the management of the property may have been delegated to others. Regardless of the reason, the decision to cease active involvement in work is a change in the relation between the self-employed and his or her property. Clearly such a change is brought about by a very different mechanism than those that account for withdrawal from an employment relationship. Consequently, the retirement process is structured very differently for the self-employed.

In fact, it can be argued that historically, the very idea of retirement is closely linked to the emergence of labour markets and the modern employment contract in modern industrial society. There were, in former time withdrawals from work that appear to be forms of retirement in the modern sense. Indeed, retirement contracts specifying the benefits to be received in retirement for a peasant or artisan and his spouse were common in many parts of Europe. However, the social construction of these retirements in former times was quite different from the modern retirement process. The withdrawal from active involvement with a piece of property was ordinarily part of an intergenerational property transfer. A major consideration governing the timing of retirement was the need to maintain the link between a family and a piece of property (Sørensen 1988). Stepping down shortens the time until a new heir can take over and therefore increases the likelihood the link will be preserved. The retirement contract thus is likely to come into being where preserving the link between family and property is a concern (where some type of unigeniture is attempted) and may be especially likely where this link can be threatened, for example because of a legal requirement of divisibility (as became common in the 19th century), or where demographic problems made the availability of heirs an issue (for example after the Black Death). Retirement did not exist where there was no property (for the poor or the clergy) or where the need to induce an heir to take over would not be a concern (for kings). In any event the considerations governing retirements in these instances (never very common) were very different from modern retirement where the concerns for the intergenerational transfer of property usually plays no role[1].

Employment relations and labour market processes

The analysis of the relation between employment relationships and the nature of retirement processes seems not to have been an important concern in the sociological literature on retirement. There are a few contributions from economics, particularly Lazear (1979) is directly concerned with the issues discussed here. Employment relations and employment contracts are, on the other hand, one way in which to characterise labour markets. There is, both in sociology and economics, a large literature on labour markets emphasising employment processes and earnings determination in different segments of the labour market. This literature is of general relevance for the analysis of retirement processes.

Much of the relevant labour market literature can be seen as an attempt to

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[1] It is interesting to note that considerations of preserving the social status of the family across generations now involve the early and middle part of the life course. This phase is crucial for the socialisation of children and the resulting transfer of human and cultural capital. Transfer of physical property on the other hand involves the end of the life course. In this manner retirement has lost its relevance for maintaining status and social position across generations. Elders have less to give children in modern times and the retirement process has little impact on their descendants.

improve on, or revise, the standard or orthodox neoclassical economic theory of labour market processes with its strong and presumably quite unrealistic assumptions about the nature of labour markets. It is an observation frequently made that both the theoretical power and the empirical inadequacy of standard theory derive from the application of standard price theory to labour market processes. This application assumes that labour is a commodity like any other good. Sellers and buyers of ordinary goods engage in a multitude of single transactions in markets characterised by a large number of sellers and buyers and perfect information. They are assumed to have perfect information and maximise their utilities. Supply and demand schedules establish prices for the commodities that in equilibrium clear the market.

With labour as the commodity, the single transactions presumably are about the execution of well-defined single tasks and the prices established form wages. Employment contracts then are like sale contracts.

Labour markets with these properties seem rare, though there are situations that approximate to them: for example, the daily auctions for work that exist or have existed for dock workers. The empirical inadequacy of the basic assumptions of the standard theory is well known and there is a huge literature on the economics and sociology of labour markets that attempts to provide more realistic scenarios for their description and understanding. This literature includes numerous attempts, in recent years, also by neoclassical economists, to generate theories of the basic processes that make more realistic assumptions about the nature of labour markets. Major approaches include work abandoning the assumption of perfect information; approaches abandoning the assumption of maximising behaviour and pointing to the importance of norms, customs and political processes; and, approaches abandoning the assumptions of employment contracts being like sales contracts.

The modification of the assumption of employment contracts being like sale contracts for single tasks is of main interest here. Empirically, it is a commonplace observation that employment relationships tend to be established not for single well-defined tasks, but for jobs where tasks are not well-specified in advance. Rather than specifying tasks in advance, the employee grants the employer the right or authority to direct his or her activities. Also, the expected length of the employment relationship in jobs is typically not specified in advance. It is of major relevance for the resulting labour market process whether the employer or the employee typically has the initiative in terminating the employment relationship. Employment relations where the employee has little job security may be said to be open, since jobs are freely available to outsiders. Open employment relationships will generate labour market processes that approximate to those derived from the assumption of employment relationships being like sales contracts. When, in contrast, the worker typically has high job security, employment relations may be said to be closed to outsiders. Closed employment relations generate quite different labour market processes from open employment relations. In particular, they pose an incentive problem. One solution to this problem is to establish promotion systems. This means that employment contracts will be made to cover a sequence of jobs, or a career.

It can be shown (e.g. Sørensen 1983) that the degree of openness of employment relationships governs the level and distribution of wages and job rewards, the typical pattern of career trajectories, and the typical patterns of job shift and employment shift, including unemployment. For retirement processes, the main argument to be presented is that the nature of the employment relationships influence this process in two ways. First, the employment relationship and the resulting employment contract determine how closely variation in individual performance over time is reflected in the wage rates received in the job. The

more open the employment relationship, the more closely performance variation will be related to the wage rate, because the more likely it is that the link between performance and wage rate can be enforced. This in turn will control how ageing will influence the benefits received from work. Second, the less closely performance variations are linked to earnings, the more likely it will be that retirement will be forced upon the employee. There are a number of variations around this main relationship. These variations will occupy much of the discussion to follow.

I shall first review the consequences for the retirement process of the scenario of contracting for specific tasks assumed in standard economic theory. Next, I discuss the retirement implications of the scenario where the employment relationship is established for a job. Finally, I consider the implications of the scenario created by contracts for a set of jobs over time, or a career.

Task specific employment contracts

The exchanges established in markets for commodities are exchanges of money for single specific goods with well-known properties. As already noted, transactions presumably are for single tasks when the purchase of labour by firms is of this nature. One can imagine a number of workers bidding for payments for performing these tasks while a number of firms are offering payments for the performance of tasks. When an agreement is reached, the task is performed and the worker will look for another task (not necessarily with the same firm) while the firm will offer another task to the labour market. Firms will be in competitive equilibrium when the price for a task (that constitutes a wage to the worker) equals the increase in the value of the product produced by performing the task, or the marginal product.

When workers are employed only for the execution of specific tasks, market competition will generate wage rates that will inform about the ability of workers to execute the task and their preference for the task. Workers may be willing to accept a lower wage for a task that is particularly pleasant according to Adam Smith's principle of compensating differentials, and firms may be forced to pay a higher wage for tasks that are considered unpleasant. Firms may also wish to engage in preferences for particular types of workers (males, whites) where these preferences are not related to workers' productivity, but they would have to pay these workers more than the market wage, and these discriminating firms therefore should be driven out by competition from firms that do not discriminate. Aside from compensating differentials and short term discrimination, the main source of variation in wage rates should be the productivity of the worker.

Productivity is a question at least of physical strength and/or intellectual ability. The degree to which individual variations in these capacities are reflected in wage rates depends on the requirements of tasks. Other things equal, if only variation in physical and intellectual functioning is relevant, we should expect career trajectories that are quite flat. If physical strength is a main requirement, careers should peak in young middle age and then decline. There is disagreement about the amount of age dependency in cognitive abilities, but agreement that some decline in intellectual fluidity affecting the ability to perform new tasks might come about. This also would produce a declining career with age. This suggestion of overall flat careers that are declining after young middle age can be quite misleading, because productivity is presumably not only a question of variation in physical and intellectual functioning. It is also a question of the skills of the worker.

Human capital theory suggests differences in productivity cause skill differentials that are the results of training in schools and in jobs. With the scenario of task specific employment contracts, such training should be general, that is, not tied to a specific task or set of tasks with a single employer (Becker

1964).[2] The cost of general training is borne by the worker. In equilibrium, differentials caused by skills therefore exactly compensate for training costs. The result is equal accumulated life time earnings for everyone, except for the variation due to compensating differentials, ability and other resources that affect training costs (like family background).

Human capital theory allows specific predictions about the shape of the career. Since investment in skills should be undertaken in the early years (when training costs are smaller and the period over which the returns are received longer), careers predicted from human capital theory show rapid growth in the early years as the amount of training declines and the returns of the higher productivity is obtained. Career trajectories should be flat in the middle years and decline in older years as performance declines. The amount of curvature depends on the amount of investment in human capital. The less investment, the flatter the careers. The main patterns predicted from human capital are observed. However, this does not necessarily mean that the labour market structure assumed in the neoclassical economic theory exists everywhere. The same predictions about the shape of career patterns can be derived from quite different assumptions, implying closed employment relationships (Sørensen 1977).

For retirement processes, this scenario allows quite straightforward predictions. Market competition generates individual wage rates that reflect individual productivity. Employers do not worry about measuring and predicting individual performance because wage rates provide all the needed information about performance. To the extent that performance declines with age, wage rates decline, but in the neoclassical scenario, there will always be employment available (minimum-wage laws may of course here interfere). Thus the retirement decision is a simple choice of the worker based on a comparison of the current wage rate and other rewards obtained from work with the income and other benefits obtainable outside of the work-force. The latter benefits should be largely a question of the availability of public pensions, private savings, and the value placed on leisure. With employment contracts for single tasks there, of course, are no incentives for employers to create employment-related private pension systems and the like.

The timing of retirement in this scenario then is a question of the wage rates for the particular individual at specific ages and the availability of public pensions and other benefits outside of the work-force at these same ages. Individual differences in wage rates will produce variation in retirement ages. For example, with higher levels of education, retirement should be later, all things being equal. Furthermore, retirement is likely to be a gradual process. Workers optimising their total welfare should adjust their labour supply to the relation between the wage rates they can obtain and the benefits available from not working. This gradual reduction in labour supply will be reinforced by age-graded availability of public pensions.

Sociologists of the labour market have often modified the neoclassical scenario by suggesting that labour markets are segmented by barriers to labour mobility. These barriers prevent the equalisation of demand differences in the labour market so that similar individual endowments produce unequal wage rates. If such segmentation indeed is produced by persistent demand differences without changes in the predominant employment relationships, the basic mechanism of the retirement process should remain the same. However, in addition to

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[2] The contrast is to specific training relevant for a single job or firm. Specific training is a main source for the emergence of closed employment relations for jobs or careers and therefore should not be of major importance in the scenario assumed here.

skill differences, the timing of retirement should also be differentiated by labour market segments. It is important here to note that labour market segmentation concepts are not very plausible, when these concepts are derived from maintaining the neoclassical scenario within segments created by barriers to mobility. If they were, the paper could end here. The next sections suggest a different source of labour market structuring, that is, the formation of employment relationships of a quite different nature in certain parts of the labour market. These employment relationships have implications for the retirement process that are quite different from those derived here.

Employment contracts for jobs

The scenario just outlined assumes full information about well defined single tasks. If tasks are less well defined and/or interconnected with other tasks, firms would prefer to be able to direct the activities of workers so that new tasks can be dealt with as they emerge, without new contracting and activities can be coordinated in the execution of specific tasks. This can be obtained by employing workers for a longer duration and establishing an employment contract where the employer in return for a schedule of payments is granted authority over the activities of the worker for a period of time (Simon 1957). The result is the employment contract commonly conceived of outside neoclassical economics. The introduction of authority is a fundamental idea already in Marx: when selling his labour power, the worker also sells his control over his own activities. This establishes the social relations of production that create classes.

The employment relationship in this scenario is typically of longer duration than employment for single tasks. As noted above, the expectations about when and how the employment relationship can be terminated are important for the resulting labour market processes. It is useful to consider a continuum defined by who typically has the initiative in terminating the contract. At one end of this continuum, the employer will dismiss the worker whenever a better worker is available for the job (one willing to work for a lower pay or more productive at the given pay). This of course assumes the employer knows that a different worker can do the job better and that there are no significant costs involved in dismissing the incumbent. The employment relationship can then be said to be completely open to outsiders. At the other end of the continuum, the worker will only be dismissed in exceptional circumstances so that the initiative for ending the employment relationships is with the employee. The employment relationships can then be said to be closed to outsiders[3].

There is considerable literature on the causes of closed employment relationships. One main cause, already suggested by Becker (1964) in his formulation of human capital theory, is specific on-the-job training. Such training, in contrast to general on-the-job training, will not be transferable to other jobs and firms. Therefore, training costs must be covered by the firm. This means the firm has an investment in the worker and an incentive to keep the worker in order to capture the returns on the investment. A different explanation is suggested by transaction costs (Williamson 1975): when work is difficult to monitor or provides opportunities for malfeasance, job security may be used to elicit loyalty toward the firm. Finally, unions and government regulations may create closed employment that prevents the employer from dismissing employees at will.

Closed employment relationships create positions in the social structure of a more permanent nature. This then poses the problem for the firm of matching individuals

[3] The distinction between closed and open derives from Weber (1968). Its application to employment relationships is elaborated in Sørensen (1977, 1983).

to these positions who will meet the requirements of the position, and the problem of creating a reward schedule that will enable the firm to adjust wage rates to the productivity of the employee when the threat of dismissal and hence the ability to replace the employee is weakened. For the latter problem, the exercise of authority is obviously a solution since authority relations are an inherent part of the employment relationship. However, the exercise of authority has costs, at least the cost of wages to supervisors. Further, when the employment relationship is not completely open, the full exercise of authority is weakened by the lower threat of dismissal.

With a completely open employment relationship, the situation is much like the scenario discussed above for contracts for single tasks. On the other hand, the solution to the problem of adjusting wages to productivity when employment relations are (almost) completely closed is likely to involve the establishment of promotion ladders and hence employment contracts that cover sequences of jobs. This situation will be discussed in the next section. I shall here discuss the situation of closed employment relationships established for single jobs that are jobs not organised in a promotion schedule within the firm. Thus, the focus here is on jobs that will tend to produce quite flat careers in terms of job titles and occupational status. The career trajectory with respect to earnings need not be flat. An important career implication of closed positions is that workers only need to move to another job, when a better job is available, implying a growth pattern similar to the one predicted by human capital theory peaking in middle age (Sørensen 1977). However, if the worker can keep his job, wages should not decline in old age in the manner implied by the direct dependence of wages on performance in the scenario assumed in human capital theory. These job structures are typical of many semi-skilled and skilled blue-collar occupations[4], and also of lower white-collar work. They form what have been called the lower tier of the primary labour market (Piore 1975).

As noted, there are two problems created by closed employment relationships. First, the problem of matching workers to positions; second, the problem of adjusting wage rate to productivity. A straightforward and well known solution to both problems is to make wages directly dependent on output in the form of piece-rates. If this works, employers need not worry about performance or who they hire, only about setting the piece-rates so that they minimise labour costs. We are then back in the situation of competitive labour markets. There are many variants of such systems. A particularly interesting one is payment in the form of commissions on the direct sale of output used with sales workers and other agents. In the extreme form, when the worker has no claims on pay other than through sales, the employment relationship is qualitatively quite different from the types considered here since there is no or only a very weak authority relationship to the employer. This situation may be described as one where the worker "rents" the job from a firm. Real estate sales is a type of work with this organisation. Certain professions and academic employment in the top universities also have some similarities to this system (Sørensen 1989a).

It is well known that piece-rate systems often do not work as intended. When production systems create interdependencies among the activities of workers and/or when output is not easily monitored, output dependent systems may be difficult to establish. Even when they are feasible, uncontrollable variation in output may make

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[4] Althauser and Kalleberg (1981) have suggested the term "Occupational Internal Labour Markets" for closed employment of skilled workers. However, the term is perhaps a bit confusing since the concept of internal labour markets has become closely associated with the idea of promotion systems.

such systems unattractive to risk-adverse workers, who for that reason will demand a fixed base pay to insure against such risk. So-called rank-order tournaments (Lazear and Rosen 1981), where workers are paid not according to their absolute level of output but according to their performance relative to others in the work group will "control", variation in output due to uncertainty. However, tournaments may empirically be responsible only for a small variation in wages and appear to be most common with promotion systems, to be discussed in the next section. In any event, it is a classic sociological research finding (Mayo 1949) that workers will establish production norms that reduce variation in output and hence, equalize pay for a group of workers. This means that individual performance variation will be difficult to detect and the firm needs to pay more attention to whom they hire than in pure piece-rate systems.

In pure piece-rate systems, pay reflects performance. A recently popular theory of compensation argues that performance may instead reflect pay. This is the so-called "efficiency wage theory" (e.g. Akerlof and Yellen 1986). The main argument is that firms will pay above-market wages in order to be able to recruit superior workers and in order to create an incentive for high performance. The reason above-market wages create incentives for high performance is usually argued to be the threat of unemployment. Indeed the theory was first formulated to explain the persistence of unemployment and wage rigidity, that always have been a puzzle to neoclassical theory (Solow 1979). An alternative explanation, suggested by Akerlof (1982) and inspired by research by Homans (1954), is reference group theory. Workers produce more than required by the firm as a "gift" in return for above-market wages. A similar argument has been proposed by Burawoy (1979) relying on Marxist theory. Both these sociological explanations again suggest that productivity will be managed by group norms and that individual variation therefore is "hidden" by the group production norms. Further, the existence of labour queues created by above-market wages, makes access to jobs dependent on relative rank in terms of predicted productivity. These features of jobs, where the link between a market wage and productivity cannot be enforced as in completely open employment relationships, have important consequences for the retirement process.

Consider first the consequences of labour queues. Unless pure piece-rates are effective, the firm will rank candidates for vacancies in closed jobs according to their predicted productivity. They will base hiring on whatever characteristics of the candidates are believed to be predictive of future productivity. Age, race, gender and education are all examples of highly visible characteristics of job candidates that employers may believe have predictive value. The result is the likely creation of "statistical discrimination", where perceived productivity of the group to which an individual belongs, will be decisive for the hiring decision. Such discrimination would not persist in open employment, where market competition will eliminate firms that engage in discrimination. If firms in the closed sector believe age is related to performance, older workers will be ranked lower than other workers with otherwise similar characteristics in queues for vacancies. In addition, when closed employment is created by specific on-the-job training, old age will be a further disadvantage since employers will expect that there is less time to recuperate training costs. In sum, old age is a particular disadvantage for getting access to vacancies in closed jobs.

The problem for older workers of getting access to vacancies in closed jobs is particularly important for older workers who lose their jobs in the closed sector, because they will only be able to regain their above-market wage and find employment for their skills by finding another job similar to the one they have lost. According to the economic version of efficiency wage theory, the threat of unemployment is the incentive

for higher performance. One should then expect older workers to work especially hard, making their dismissal especially unlikely. This prediction appears in contradiction to the sociological explanation for efficiency wages in terms of reference group behaviour, because the latter explanation implies that individual performance variation is "hidden" by group norms making individual dismissals unlikely. Also, by the very nature of closed employment, dismissals should be rare; the incentive problem would not exist to begin with, if employment relationships were not closed. In any event, few unemployed state they have been dismissed, most that they quit their previous jobs or were laid off.

Quits resulting in unemployment tend to be associated with the open employment sector; lay-offs are typical of the primary sector jobs involved with closed employment (Sørensen 1987). A lay-off means the worker has the right to return to the job, should the job be reinstated. Lay-offs allow a firm dependent on the specific skills of its work-force to maintain this work-force in economic downturns. Lay-offs tend to involve a whole production unit and therefore usually will be independent of the performance of specific individuals, hence, older workers are not necessarily more likely to be laid off. However, recall may not occur and older workers are then especially hard hit as the existence of labour queues prevent them from getting jobs equal to the ones they lost. Unemployment for this reason is likely to result in retirement of older workers. The retirement process is involuntary, set in motion by an external shock to the firm employing the worker, and is unrelated to the productivity of the older worker.

In closed employment, even when retirement is not triggered by unemployment, the retirement process is likely to be quite different from the process generated by open employment relations. Retirement in open employment is a matter of individual choice, made by comparing the wages and other rewards obtained in the labour markets to the expected welfare outside of the labour market. This simple scheme is modified in closed jobs by several factors.

In closed employment wage rates will be less strongly dependent on individual performance, except with pure piece-rate systems, for the reasons discussed above. In particular, there is no reason to expect a declining wage rate with age caused by an age-related decline in productivity. Further, the comparison of wages to public pensions is less likely to trigger a retirement decision. Closed jobs are likely to pay above-market wages and public pensions are usually linked to the competitive wage rate. Further, jobs in the closed sector are good jobs in which the worker may have made considerable investment. This makes the comparison of work and retirement even less likely to generate a retirement decision. There are strong incentives to stay on the job until an external shock to the job, producing unemployment, or to the person, in the form of ill health, forces retirement.

While the availability of public pensions may be seen as unlikely to trigger retirement from closed employment jobs, there of course may be private pensions. In fact, the very job structures that generate closed employment are often also likely to generate private pension schemes. This is because the same forces that create job security, will also make it likely that the firm will create pensions schemes and other benefits to maintain its work-force. This is especially so when closed employment is caused by specific on-the-job training (and the need to have trained workers available to perform the training). Private pensions perform a double function. They bind the worker to the firm and create the needed added incentive to retire. However, again it is not the actual performance of the older worker in relation to the availability of the pension that triggers the retirement, but the age-grading of the pension availability alone.

The existence of firm-sponsored private pension schemes should depend on the amount invested by firms in the human capital of their work force. When closed

employment does not have specific on-the-job training as a main source, private pension schemes should be less likely. Thus, there should be substantial variability in the existence of private pension schemes sponsored by firms. Unions may be sources of closed employment as well as of pension schemes. This may be especially likely for craft unions where workers are less tied to firms. Finally, the state may modify and regulate pensions and in fact, as has been the case in many European countries, may create added incentives for retirement in an attempt to increase the number of vacancies in closed employment jobs to reduce unemployment for younger workers.

Instead of using incentives, firms may of course force retirement from closed jobs by mandatory retirement schemes, where age-graded exits from the jobs are part of the employment contract. This is evidently an effective manner in which to trigger retirement from closed jobs, if retirement is desirable for the firm. Again, then the retirement will be age-graded in a manner that is unrelated to the actual productivity of the worker.

Both pensions and mandatory retirement create retirement in a manner that tends to be unrelated to the actual productivity of the worker in closed jobs. Losing productive workers, because of pure age-grading, is not necessarily in the interest of the firm. Thus, there is likely to be considerable variation among firms and industries in the retirement process depending on the amount of investment made in workers, on the degree to which performance can be monitored, and on the involvement of unions and government regulations. Straightforward predictions about the specific mechanisms involved in the retirement process are therefore more difficult to arrive at in job structures where there is closed employment for single jobs. The situation is less ambiguous when employment contracts cover whole careers, as I will show below.

Retirement from closed jobs differs in one other main respect from retirement from open employment. Jobs in closed employment tend to be indivisible entities so that a gradual reduction in the labour supply is not feasible. Thus, retirement from closed employment tends to be less gradual and more abrupt than from open employment systems and less likely to be followed by a re-entry into the work-force, at least not a re-entry into the closed sector.

Three main conclusions follow from this. First, retirement from closed jobs is more likely than is the case in open employment to be triggered by external events to the firm (or the job), causing involuntary unemployment, or to the person in the form of ill health. Second, when it is not triggered by such external shocks, retirement is likely to be highly graded according to biological age because of pension and/or mandatory retirement rules and unrelated to the actual individual performance of the individual. Third, retirement is likely to be an abrupt event and not a gradual reduction in labour supply as in open employment systems, and retirement is unlikely to be reversible unless the older worker seeks employment in the open employment sector where job queues do not prevent employment.

Employment contracts for careers

The incentive problem created by closed employment relationships has an important solution that deserves to be treated separately, because of its distinct consequences for retirement processes. This solution is the establishment of employment contracts for sequences of jobs that form career trajectories. It is a common and old idea among sociologists (Weber 1968, Stinchcombe 1974) that promotion schemes can be important for generating effort. The mechanism is clearly expressed in the idea of a rank-order tournament (e.g. Lazear and Rosen 1981). A set of candidates compete for a single promotion and the candidate ranked highest will receive the promotion. The ranking is presumably done in terms of

actual or expected productivity, but it is not the absolute level of productivity that is being rewarded by the promotion, it is the performance relative to the performance of other candidates for promotions. With these tournaments, the effort of person A therefore acts as an incentive to person B in the contest for career outcomes. If A works hard, B has an incentive to also work hard in order to maintain his or her chances for a promotion. These motivational consequences of promotions may be seen as a main reason for establishing employment contracts with the expectation that the employment relationship will cover a longer stretch of the career trajectory. Such employment relationships generate internal labour markets.

There are other than motivational reasons for establishing employment contracts for sequences of jobs. Internal labour markets may also result from training arrangements involving the rotation of employees among jobs. It is also a common idea that job hierarchies emerge as a result of the organisation of chains of command in a system of authority. Promotion systems remain the natural solution to the incentive problem created by closed employment. Firms with internal labour markets for the allocation of employees to jobs therefore usually have much more elaborate job structures than implied by chains of command and training arrangements.

The consequences for retirement processes of internal labour market structures derive from the use of promotions as motivational devices. To show this, it is useful to consider how the motivational consequences of promotions come about. The link between effort and promotion is presumably generated by the expected size of the gain realised in a promotion. This expected gain is a function of two quantities:

1. the increase in wage and other rewards produced by the promotion, and
2. the rate of promotion.

The increase in wage implies an upward sloping career trajectory. This has an important implication for the relation between the productivity of the employee, his or her age, and the wage rate received. If, because of on-the-job training and experience, there is an increase in productivity throughout the career, wage rate and productivity may move in unison. However, the slope of the age gradient in productivity (as measured by the slope in the competitive wage) has no necessary relation to the slope in actual wages that reflect a promotion scheme. In fact, the slope of productivity could be zero and promotions would still be effective as motivational devices. To the extent that the age slope is lower than the actual slope in wages, older workers will be paid more than their productivity would justify in a different job structure. If firms attempt to equalise total wages paid over the career to the overall productivity of the worker, as they should if they maximise profits, younger workers will be paid less than their productivity would justify elsewhere. This may well be the typical situation. Firms may therefore reduce total labour costs by employing a overall younger work-force. The gain realised by employing a younger work-force will depend on the amount of training and other augmentations in human capital taking place over the typical career trajectory in the firm.

The rate of promotion is determined by the distribution of jobs and of incumbents according to seniority. The firm can and presumably does make promotions more frequent by creating more job levels. Further, it may avoid filling vacancies from the outside. Vacancies filled from the outside change the "fairness" of the contest and create the probability that A will obtain the promotion dependent on the unknown characteristics of candidates outside of the firm, thus removing the interdependency among the candidates that creates the incentive for effort. Internal labour markets therefore often only recruit at the bottom level for jobs that are "entry portals" to the firm (Doeringer and Piore 1971). This of

course reinforces the closed nature of employment relationships in internal labour markets.

The relation between rate of promotion and effort is not linear. A very high rate of promotion presumably elicits little effort since the prize of promotion then will be quite independent of individual performance. A very low rate of promotion will also produce little incentive for effort. This lack of effect comes about in two ways. First, a very low rate of promotion may make workers decide not to participate in the tournament, since the expected gain from doing so will not equal the disutility of displaying more than minimal effort. Second, very low rates of promotion increase the ability of workers to engage in collective manipulation of effort because it maintains a stable group of candidates. Workers have a an incentive to engage in such collective manipulation, because the same outcome, in terms of individual promotion chances, will come about if all workers display high effort and if all workers display little effort. The situation can be described as a prisoner dilemma game (see Sørensen 1989b, for details) where the likelihood of defecting so that everyone will work hard depends on the ability of the group of candidates to enforce the norms about effort. Firms can reduce the likelihood of such collective manipulation by increasing the rate of turn-over among the candidates. This means increasing the rate of promotion through the creation of more job levels and by increasing the rate at which vacancies appear at the various levels.

A firm's ability to create and manipulate promotion schemes depends on its size. Larger firms have more flexibility and greater ability to manipulate promotion schemes in order to achieve a desired rate of promotion. But, the size will always be finite. For a given size, the rate of vacancies in the system will be governed by the length of tenure in the end positions of the promotion ladders of the firm. Retirements set in motion chains of vacancies in the system producing opportunities for promotion at lower levels. The length of these chains depends on the length of the promotion ladders. Hence, the promotion rate at different levels will be governed by the length of the promotion ladder and by the rate of retirement.

It follows from these considerations that firms providing employment contracts covering whole career trajectories have strong incentives to control retirement rates. The retirement rate will influence the relationship between the overall productivity of the firm's work-force and the total wage bill. The lower the age gradient in productivity, in relation to the age gradient in wages created by the promotion ladders of the firm, the higher the retirement rate. The classic example is the military where youth is presumably a productive asset and where, therefore, very early retirements are enforced. Further, the retirement rate governs the rate of promotions, as retirements set in motion vacancy chains in the system. The concern of the firm is to avoid too high and too low promotion rates. The rate of growth of the firm is important. The problem for expanding firms is probably to avoid too high promotion rates. This may be achieved by lowering retirement rates by keeping workers longer. In stable or contracting firms, the problem typically will be one of needing to increase promotion rates. This may be achieved by increasing rates of retirement, thus producing earlier retirement.

The consequences of this for the retirement process are quite straightforward. In contrast to open employment systems, retirement in internal labour markets is governed by organisational considerations. The main methods to manipulate retirement in such employment systems are private pensions and mandatory retirement. The latter may seem the simplest method. However, rules about mandatory retirement will be formulated by those in the top of the firm presumably most affected by these rules. Mandatory retirement rules will therefore tend to be universal and inflexible, and difficult to adjust to the organisational needs of the firm. Private pension systems are more

flexible, and may be supplemented by special bonuses for early or late retirement, as dictated by the need to achieve an optimal promotion schedule.

As with the retirement process generated by closed jobs, retirements from internal labour markets will tend to be unrelated to individual characteristics other than biological age, except for major health events. Also, retirement will be an abrupt event rather than a gradual disengagement from the labour market. External shocks to the employing firm are less likely to be involved in retirement, simply because firms with internal labour markets and elaborate promotion schedules will be large firms, less vulnerable to these external shocks. Should unemployment nevertheless occur in internal labour market firms, it will of course have even more drastic consequences for the chances of reemployment in other internal labour markets, with jobs providing similar benefits to those lost. This is a simple consequence of the tendency of the internal labour market to recruit new employees only at the bottom level.

There is an important difference between retirement from closed jobs and retirement from internal labour markets. Career trajectories in internal labour markets tend to be steep, while in closed jobs they tend to be flat. Firms employing workers in closed jobs have an incentive to keep productive workers as long as possible, since the relation between their productivity and their wage need not change. In internal labour markets the relationship between productivity and wage is less likely to remain unchanged, as promotion ladders force the wage gradient upward independently of the age gradient in productivity. Hence, internal labour market firms are more likely to realise increasing profits by increasing rates of retirement.

Conclusion

Much sociological research on retirement has been focused on individual level analysis of the transition into retirement, emphasising the role of characteristics of respondents, such as health and pension eligibility for this transition. This research typically ignores labour market structures in which the individual is involved. It follows from the discussion presented here, that ignoring these structures may produce a misleading picture of the retirement process. Thus, the relevance of individual earnings and of labour market events, such as a spell of unemployment on the retirement process, should strongly depend on where the individual was employed. Only in completely open employment will the retirement process be a simple matter of individual choice, based on comparing current returns from work with the expected welfare to be obtained outside of the work-force. In closed job structures, retirement is less likely to be a smooth gradual disengagement from the work-force, and the event is more likely to be triggered by external shocks to the firm or the person, or by the organisational needs of the firm.

Other sociological research has emphasised the relevance of macro-sociological variables for the retirement process, in particular the design of pension systems, other aspects of public policy, and demographic variables. Such research seeks to explain variation among nations in timing and distribution of retirement by these macro-social and policy variables. However, nations differ in more respects than pension policies and basic population composition. There are marked differences in the distribution of the various types of job structures discussed here. They are caused by differences in industrial composition, in labour market institutions and in labour market policies (governing for example the openness of employment relationships). Ignoring the role of job structures in macro-sociological research on retirement may, as in the individual level analysis, produce quite misleading inferences about the structure of the retirement process. Thus, the retirement consequences of the rate of unemployment for a country, will depend on the composition

of the labour market in terms of job structures. High unemployment may trigger much early retirement in countries where closed employment tends to predominate, while having little impact where employment relations are more open.

The consequences of an ageing society thus significantly depends on the nature of the labour market in a society, in particular the mix of employment relationships. The full analysis of these consequences is complex also because the labour market may respond to the changes in the age distribution and the resulting changes in the employment of the elderly. These complex interrelationships are an important topic for research.

The qualitative differences in retirement processes caused by job structures are dramatic. At one end, in job structures conforming to the neoclassical scenario of open employment relations, we have a smooth and gradual disengagement from the labour market completely governed by individual needs and capacities. At the other, we have the abrupt and complete transition out of work, unrelated to individual needs and capacities and dictated by the need of firms to optimise their promotion schedules in internal labour market structures. These differences should have important psychological consequences for the individual in terms of identity and self-esteem. Individuals moving out of open employment structures move to a world of retirement that, in terms of what determines stratification outcomes, is very similar to the one they left. In contrast, individuals moving out of closed employment move to a world completely different from the one they left, since the society of retirement is a world without social positions and therefore without the basic sources of self-respect and status.

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