

Meta-functional Criteria and School-to-Work Transition

GUY TCHIBOZO

Faculté des sciences économiques et de gestion, 61 avenue de la Forêt Noire, 67085
Strasbourg cedex, France

ABSTRACT *The objective of this article is to propose, on the basis of economic theory, a conceptual framework for the analysis of the behaviour of agents involved in school-to-work transition. The basic assumption is that school-to-work transition is a strategic process. In this framework, different observable behaviours can be explained. Two main results are obtained. First, I propose an optimal strategy of school-to-work transition. By contrast, the principles of this reference strategy can explain some causes of failure in observable school-to-work transition processes. Secondly, school-to-work transition depends crucially on meta-functional recruitment criteria. For educational and vocational guidance, this implies that meta-functional criteria implemented on the labour market should be systematically taken into account, and that considering individual meta-functional profiles is crucial.*

Introduction

The way in which young people's individual access to employment is analysed depends to a large extent on our conception of the principles governing the general process of school-to-work transition. There are four main conceptions.

According to the *determinist* approach, the methods and success of a person's school-to-work transition are dictated by that person's family and social background.

According to the *random* approach (Glover & King, 1997; Heckman, 1997), transition pathways are largely due to chance, and people's decisions have only a marginal impact. For instance, when they embarked on their studies, today's computer linguists could not have foreseen this occupational opportunity which did not exist at that time.

Separate from the random approach is the *chaotic* approach (Gardecki & Neumark, 1998), according to which the gain in predictability that the underlying determinist order might have brought about is cancelled out by the major impact of early experiences (butterfly effect).

Lastly, the hypothesis of the *strategic* approach is that the school-to-work transition process is largely explained by people's decisions. In the strategic approach, the whole transitional process can be analysed as the expression of intentional choices of the agent. School-to-work transition constitutes then an organised process conducted by the agent in order to have access to a job. The behaviour of the agent

is strategic in the sense that the agent has to adapt to the behaviours of other agents. There is obviously an element of market adaptation in these decisions: people looking for employment have to take into account the behaviours of employers, of other candidates for employment, of the public authorities, of labour market intermediaries and of unions. The agent has to be able to select the solutions that he/she thinks to be the best, given the limited information at his/her disposal in a context of complexity and uncertainty. The agent has to be able to plan, and to adjust to new conditions as to the unforeseen.

However, the strategic approach does not assume that the agent is omnipotent, omniscient or infallible. Nor does it assume that the agent is isolated: the choices of a person are necessarily influenced by this person's own social history and environment.

On its own, the strategic approach undoubtedly cannot explain all individual school-to-work transition processes. It can claim, therefore, to take account of only part of reality. At the same time it is the most interesting in terms of action. If school-to-work transition is socially predetermined or purely random, its determinants by definition lie outside people's control. When the school-to-work transition process is strategic, individuals are again in the driving seat and are responsible for their own transitional process. It is this approach that is of interest here.

Traditionally, the strategic version of school-to-work transition can be broken down into two variants which link choices of training and occupational targets in an inverse manner.

In the first *utilitarian* variant, people first choose an occupational target and then deduce the type of training that they need to acquire from this target. In the second *hedonistic* variant, however, people first choose the training and only thereafter deduce the occupational target from that training. For instance, in the hedonistic variant, the agent can choose a training associated with the lowest risk of academic failure, even if there is no demand on the labour market for the corresponding skills (Rochat & Demeulemeester, 2001). A common feature of these two variants is their focus on the functions to be carried out and the functional competences to be acquired. The pertinence of essentially functional approaches is questioned, however, when viewed from the point of view of economic theories of school-to-work transition.

The objective of this article is to emphasise that in order to be efficient, individual strategies for school-to-work transition have to take account of meta-functional determinants, which modifies the role of the institutions of educational and vocational guidance and counselling.

The case for individual school-to-work transition strategies is linked to the debate about the post-16 decision-making process, which it places in a more general perspective. The question of post-16 decision making itself has already been abundantly studied. The relevant literature analyses a set of behaviours, among which mainly the decision to enroll in post-compulsory studies (Bennet *et al.*, 1992; Stallmann *et al.*, 1993; Kane, 1995; Wetzel *et al.*, 1998); the choice of an institution (Hossler *et al.*, 1989; Lankford & Wyckoff, 1992; Leppel, 1993; Weiler, 1994; 1996; Hilmer, 1998; DesJardins *et al.*, 1999); the decision to work while studying (Ehren-

berg & Sherman, 1987; Demeulemeester & Rochat, 2000; Light, 2001); and the decision to complete the training or to drop out (Catsiapis, 1987; Manski, 1989; Whitfield & Wilson, 1991; Betts & McFarland, 1995; Keane & Wolpin, 1997; Rees & Mocan, 1997; Wolter, 2000).

But some important aspects of school-to-work transition behaviours are absent in this literature. It is the case of *informal learning*, of *pluri-curricula* (a student following several curricula simultaneously or successively) and of the combination of formal education and on-the-job training, as for example in the German dual system, the US classroom training and the French 'formation en alternance'. The available literature analyses the institutional organisation of these systems, but not the logic of the agents' choices nor the underlying individual rationality.

In the same way, little has been said about an economic interpretation of 'dilettante' or 'tourist' students that are not really implicated in their studies, although this is an important phenomenon in the first year of higher education. Another important phenomenon is the demand for certification based on acquired professional experience, about which one can wonder what place it occupies in the global logic of school-to-work individual strategy. Last but not least, the literature based on economic theory has paid very little attention to the role of educational and vocational guidance and counselling, while this is obviously an essential question in the field of school-to-work transition.

Therefore, the purpose of this article is to propose an interpretation of all these behaviours. This interpretation is based on a coherent common logic, in a global framework where these different behaviours can be articulated.

The objective is also to keep at a distance an excessively strict neoclassical approach, which would surely be unable to account for reality. In most strictly neoclassical approaches, the agents are perfectly informed and act rationally without any error in a universe without any historical or institutional dimension, but with equal access to information and to resources. The role of the family and institutional context is ignored as are inequalities in the access to information, to autonomy of decision and to psychological maturity. No attention is paid to social determinism or to hazard in individual destinies. The approach adopted here is quite different and aims to take all these aspects into account so as to propose a more comprehensive and more realistic scheme of the economic logic of individual behaviours in the field of school-to-work transition strategies.

The first part of the article presents the theoretical framework. In the second part, implications are derived for agents involved in school-to-work transition processes and for institutions of guidance and counselling.

Theoretical Framework

The analysis is based on a dynamic optimisation micro-economic model (Tchibozo, 2001). Optimisation models determine schemes for rational choice of the best among a set of options. Dynamic optimisation takes account of the stages of the choice process. Dynamic optimisation methods were first developed by Bellman (1957).

In this framework, the agent starts his/her school-to-work transition by defining a two-period strategy: the first period is devoted to complementary training, and the second to job searching. The agent devises his/her transitional strategy self-relying or in interaction with his/her family or institutional environment (guidance counsellors, teachers, etc.). The agent can devise his/her strategy at any time during or after the initial education and training, especially after a first experience of job searching. The date of the strategic construction can differ from one individual to another: for instance, an agent can reach decisional autonomy or the capacity and maturity necessary to design a strategy later than another. Therefore, optimality implies that the agent should first determine the best final position to be reached and then deduce the best corresponding initial option to choose.

Final Optimum. In the final period, the goal of the agent is to be recruited. To reach this goal, the agent has first to list and characterise available positions on the job market; then the agent clarifies his/her preferences regarding the characteristics of the jobs and, finally, on the basis of these preferences, selects the optimal position to target.

Identification and characterisation of available positions. The agent has first to list available positions on the job market. These positions can be gathered by types, each group being characterised by the relative recruitment criteria. Economic theories of school-to-work transition explain that recruitment criteria are far from being exclusively related to the content of the functions to be carried out.

(a) *Meta-functional criteria.* Economic theories of school-to-work transition differ from economic employment and unemployment theories in that the former are particularly oriented towards the specific question of the articulation between initial education and work, and towards the first entry of inexperienced young people on the labour market. From the start in the 1960s, economic theories of school-to-work transition have for the last 30 or so years highlighted several criteria likely to have a key impact on occupational integration. There are six main criteria.

Historically, the analysis of occupational integration initially concerned the heterodox, and in particular Marxist, economy. At the beginning of the 1970s, the *attitude theory* (Gintis, 1971; Bowles & Gintis, 1976) stressed the notion that recruiters set most store by the *personality* and *behaviour* of candidates for recruitment and tend to give priority to candidates presenting such features as courtesy, punctuality, docility or even the ability to carry out instructions. Lee (1986) gives empirical evidence. In the 1980s and 1990s, this approach was overtaken by the French '*Régulation*' theory (Boyer, 1991) according to which everything is dependent on the *accumulation regime*: when the economy moves from Fordism to neo-Fordism, the attitudes to which recruiters give priority have more to do with the ability to work in a team, to take responsibility, to take the initiative, to react to the unforeseen and to be involved in one's work and in the life of the enterprise. In both analyses, however, attitudes always condition access to employment.

Heterodox approaches and in particular the *labour market segmentation theory* (Doeringer & Piore, 1971; Reich *et al.*, 1973; Marsden, 1989; Eyraud *et al.*, 1990; Marsden & Ryan, 1990a, 1990b) also highlighted the role played by the criterion of *stability in employment*. Here, it is considered that recruiters will in some cases (qualification required widely available in the labour market for a sufficiently low wage) attach no importance to personnel stability whereas, for other posts, they will give priority to candidates offering evidence of stability. Stability may be sought for various reasons. First, replacing an employee means that an enterprise will not receive a full return on the investment that it has made in training this employee and will also incur turnover costs, i.e. the costs of recruiting and training the replacement. Second, in posts involving a specific technology, the acquisition of new equipment means that personnel have to adapt; this costs less with personnel who are already in place and using technologically similar equipment than with new personnel who need to be fully trained. Lastly, for strategic posts, the departure of an employee means that key information may be passed on to the competitor enterprise that recruits this employee.

The third important criterion in the process of occupational integration is *productivity*, highlighted first by the *filter theory* (Arrow, 1973). According to this approach, the recruiter's main concern is to avoid recruiting an employee who is not sufficiently productive. If, at the time of recruitment, there is no certainty about this productivity, candidates must at least demonstrate characteristics suggesting that their productivity is potentially high. Qualifications are then used as an indicator of productivity.

Qualifications provides no more than an indication, however, and may subsequently be belied. Employers may therefore be tempted to introduce additional criteria. The *signal theory* (Spence, 1973) suggests in this respect that recruiters look at the same time at *indices*, i.e. at the personal characteristics that candidates cannot change: gender, age, height, ethnic belonging, for instance. Each recruiter places the stress on this or that set of indices depending on the post to be filled, the sector of activity, the place, etc.

The fifth important criterion from the point of view of access to employment is *adaptability*. The *job competition theory* (Thurow, 1975) considers that recruitment decisions are shaped by the ability of candidates to adapt to the specific modes by which the enterprise functions and to potential changes to these modes. An adaptable worker is in particular able to develop his/her skills in order to cope with technological change.

In recent years, the *theory of statistical discrimination* (Sattinger, 1998) has stressed a sixth key criterion: *social involvement*. According to this approach, recruiters are particularly sensitive to the fact that employees are involved in a social life outside their jobs: family life, involvement in sports associations, trade union work, political involvement, etc. Not all employers may perceive this social involvement in the same way. Some employers will see the fact that the employee is married as a positive sign of their balance and sense of responsibility. Others will see it as a negative sign, since family ties may mean that employees are less available for the enterprise. In any event, however, candidates for recruitment need to bear in mind that social involve-

ment is an issue. They must, in particular, find out in advance about the way in which social involvement is viewed by the enterprise for the post in question.

A feature of all these criteria is that they are independent of the content of the functions to be carried out. In this sense, I call them *meta-functional criteria*. The same meta-functional functional criterion may be required for functionally dissimilar posts. The specific feature of meta-functional criteria, moreover, is to ascertain qualities that are not strictly necessary for the function to be carried out: for instance, the ability of a restaurant waiter to smile has nothing to do with his or her ability to clear a table without breaking a stack of plates.

Such criteria are not meta-functional in themselves. Height, for instance, may be a functional criterion in some jobs (for instance bodyguards) and a meta-functional criterion in others (for instance accounts clerks). In this respect, the main feature of the meta-functional criterion is that it is wholly gratuitous in relation to the content of the functions to be carried out.

(b) *Meta-functional characterisation of the available positions.* The agent describes the set of available positions listed on the job market by a *positions matrix*, of Table I type. In this positions matrix, each element represents the probability, calculated by the agent, that the criterion (column) is used to fill the positions (line). The agent determines the probabilities by any means that meets his/her convenience: intuition or any more sophisticated method. In particular, the agent may rely on information collected in his/her family, at school or in guidance institutions.

Each type of position gathers several positions characterised by the same profile of recruitment meta-functional criteria. In Table I, the trades and associated values are given as fictitious examples and do not intend to describe the job market reality at some precise date or place.

Selection of the optimal position to target. Here, the agent has to select the criteria he/she thinks to be the most favourable for him/her, i.e. the criteria that the agent, given his/her own profile, expects to maximise his/her chances to be recruited. These criteria have to be classified, from the most favourable to the least favourable. Then the agent can select the types of positions that are exclusively or mainly filled on the basis of the most favourable criteria. The positions thus selected are the optimal positions to target.

For instance, an agent can estimate that for him/her, only criterion 1 is favourable. On the basis of Table I, this agent should determine a list of optimal occupational targets including at least type 5 positions.

Choice of Optimal Complementary Education and Training Option

In this initial period, the objective is to identify the optimal *curriculum* of complementary training. This optimal curriculum has to be chosen among a set, the common characteristic of which is to prepare to functions to be carried out in the optimal position. Indeed, whatever the position, several curricula can prepare to it. For example, training for *Secretariat* can be acquired in an institution or by distant

learning (and soon on the web), at the university or in specialised schools, in the country or in another, etc. Therefore, the set of possible curricula is larger as the number of optimal positions to target is higher.

In this framework, curricula include not only formal education but also apprenticeship, dual system, informal education and on-the-job training. In other words, the model takes into account school-to-work transition processes with no post-compulsory formal training: for instance, after compulsory schooling, the agent can choose on-the-job training and enter the labour market directly.

As for the final period, the agent proceeds in two stages. He/she first identifies and characterises the possible curricula; then he/she expresses his/her preferences and selects the optimal curriculum.

Identification and characterisation of the possible curricula. The possible curricula differ by their characteristics. The literature about school-to-work transition distinguishes two categories of training characteristics.

The first category includes the training costs and duration and the wage of the job corresponding to the curriculum. On the one hand, attendance costs matter in the decision to participate in post-compulsory education and training, and constitute a significant determinant of institutional choice (Weiler, 1996), particularly for low-income students (Kane, 1995; Wetzel *et al.*, 1998; DesJardins *et al.*, 1999). On the other hand, low wages do not create incentives for students to continue beyond compulsory schooling (Stallman *et al.*, 1993).

The link between costs and wages is crucial. First, the job market signalling theory explains that the agent chooses the pair educational cost/expected wage associated with the maximum satisfaction. Belman and Heywood (1991), Heywood (1994), Arkes (1999) and Tyler *et al.* (2000) give empirical evidence.

Secondly, the human capital theory (Becker, 1964) considers that the agent's decision depends mainly on the expected rate of return to education (see for example Bennett *et al.*, 1992). Psacharopoulos (1993), Fredriksson (1997) and Wolter (2000), for instance, give empirical evidence. Within the framework of the human capital theory, the students' wage expectations may be adaptive (Demeulemeester, 1992): at each period, the agent corrects his/her expectation on the basis of the last period error. The students' expectations can also be (quasi)rational (Catsiapis, 1987; Wolter, 2000), which means quite similar to the wages statistically observed. Expected wages depend on the probabilities of access to employment, measured on the basis of the unemployment rates (for example Whitfield & Wilson, 1991; Leslie & Drinkwater, 1999): given the nominal wage, the lower the probability of access to employment (high unemployment rate), the lower the expected wage. Consequently, the agent increases his/her educational investment when the unemployment rate raises, in order to compensate for the diminishing rate of return by a larger human capital stock (Betts & McFarland, 1995; Rees & Mocan, 1997).

The second category of training characteristics is related to the institutional framework of the curricula. The job market segmentation theory shows that the institutional framework matters. For instance, the professional markets, organised by the professions, are accessible only to applicants coming from professional

training institutions. Institutional choice depends on the agent's preferences. Agents choose institutions on the basis of different criteria among which, for instance, selectivity of the institution (Hossler *et al.*, 1989; Hilmer, 1998; DesJardins *et al.*, 1999); housing and recreational options (Weiler, 1996); reputation of the institution (Hossler *et al.*, 1989); proximity of the institution (Leppel, 1993; Ordovensky, 1995; DesJardins *et al.*, 1999); and the characteristics of other students (Lankford & Wyckoff, 1992).

The agent can therefore establish a *curricula matrix* describing the possible curricula that prepare to functions to be carried out. The curricula matrix is of Table II type. In Table II, the numerical values are given as fictitious examples and do not intend to describe a real situation at some precise date or place.

The expected net income synthesises the information relating to costs, duration and wage associated with a curriculum. The net income of a curriculum is the difference between the material cost of the curriculum and the total amount of income this curriculum can generate all along the career. Periods of unemployment as well as geographical and professional mobility may be taken into account in the estimation of the total amount of income. The material cost includes direct costs (registration fees, board and lodging, etc.) and opportunity cost (the income not earned because of studying). The expected net income has to be divided by the duration of training, so that curricula of different lengths can be compared. The expected net income in Table II could thus be calculated on the basis of data in Table III. The other columns of Table II describe the rating of the institutional characteristics of the curricula. According to the information at his/her disposal, the agent rates the curricula for each of their characteristics. For instance, in Table II, high values represent good reputation and far distance. But an agent preferring to study near home could rather grant low marks to far off institutions.

Clarification of preferences and selection of optimal curriculum. The agent clarifies his/her preferences by selecting and classifying the training characteristics that matter. The optimal curriculum can then be chosen by selecting the best scoring curriculum with respect to characteristics that matter. For instance, on the basis of Table II, an agent who considers that only expected value and proximity matter could choose curricula C4 or C5.

As for the final period, several options may be simultaneously optimal, which means that the agent can rationally decide to follow several curricula simultaneously or successively. In the same way, the agent may decide to work while studying, which means that he/she simultaneously looks for formal and on-the-job training in order to reach the best utility (Ehrenberg & Sherman, 1987). In this sense, in-school employment appears to be not just a job that pays the rent (Demeulemeester & Rochat, 2000) and endangers the school-to-work transition process, but on the contrary a rational and positive accelerator of the process (Light, 2001).

Implications and Scope of the Meta-functional Criteria Approach

If, as the theory suggests, meta-functional criteria play a key role in recruitment

decisions, *ipso facto* school-to-work strategies that choose to disregard them are not pertinent. Here, the utilitarian and hedonistic variants give way to an *optimal* variant, where both functional and meta-functional criteria are taken into account.

The Optimal Individual School-to-Work Transition Strategy

The optimal strategy is organised into eight stages. During the first stage, the agent lists the positions available on the job market and identifies the corresponding meta-functional recruitment criteria. Therefore, the first stage for institutions of educational and vocational guidance and counselling should be to provide the agents with complete and systematic information on the available positions and especially on the meta-functional recruitment criteria generally used to fill these positions. This implies that guidance counsellors themselves have access to regular and systematic information on recruitment practices of firms.

During the second stage, the agent pinpoints the meta-functional criteria that maximise his/her own chances of being recruited. Being fully aware of these 'strengths' may help to minimise the risks of failure. For guidance counsellors or for jobseekers' mentors, this second stage should consist in stressing how important it is to clarify the agent's meta-functional profile. This stage should be devoted to helping the agent in this clarification, and especially to selecting and classifying the most favourable criteria for the agent.

The third stage is devoted to selecting the optimal vocational targets, i.e. the positions probably filled on the basis of the most favourable criteria. Guidance counsellors can help the agent in the choice process. They especially can help the agent to set an optimal list of reasonable size: an excessively short list would limit the agent's pathways to employment, and an excessively long list would be of no use since the agent cannot multiply the curricula. Guidance counsellors should also provide the agent with in-depth information on the few optimal positions selected.

The fourth stage relates to information on curricula. Several curricula may be associated with each optimal position. Each curriculum has its own features, in terms of length, costs and institutional framework (geographical location, entry selectivity, open or inflexible management, etc.). During this stage, the agent gathers as much information as possible on the characteristics of curricula. Institutions of guidance and counselling should be able, at this stage, to provide the agent with the maximum possible information, including on-the-job training, informal education and the various data necessary to estimate the present value of the expected net incomes associated with the curricula: annual growth rate of the wages all along the career, unemployment probabilities all along the career, probabilities and wage consequences of geographical and professional mobility all along the career, discount rate, etc. Institutions should also be able to help the agents to estimate the expected net income and to rate the training characteristics.

During the fifth stage, the agent selects and classifies the training characteristics that he/she feels important. When necessary, guidance institutions should be able to provide the agents with complementary information and methodological help.

The sixth stage should be devoted to the selection of the optimal curriculum. The optimal curriculum will be the best scoring with respect to the training choice criteria selected by the agent. Here too, guidance institutions should be able to provide the agents with methodological help when necessary.

During the seventh stage, the agent attends the optimal training. This prepares him/her functionally for the optimal job. This stage may, for instance, be a period of higher education following the end of compulsory education. Supplementary specialist training following a university diploma or degree is another example of such a seventh stage.

The eighth stage takes place at the end of training, when the agent applies for jobs that are in keeping with the training he/she has acquired. This stage implies that the agent has at least reached the minimum age to leave according to the regulation on compulsory education.

The strategic approach of school-to-work transition is therefore radically modified when account is taken of meta-functional criteria. Therefore, this set of criteria, the existence of which is normally intuitively perceived, but the place of which in the overall logic of the transitional process had yet to be clarified, needs to be systematically integrated.

Towards a Rationality Based Interpretation of Non-linearity in Individual School-to-Work Transitions

The strategic approach does not mean that school-to-work transition processes are or have to be linear. On the contrary, since the agent is assumed to be under uncertainty, his/her choices cannot be determined once and for all, but have to be continuously adjusted as the available information becomes more precise, as the labour market and the supply for education and training evolve, and as the agent's own preferences change. Under uncertainty, the role of guidance and counselling institutions should be to accompany this adaptation by providing the agent with updated information on the labour market, on recruitment criteria, on the education and training supply. Guidance institutions should also help the agents to pinpoint the evolution of their own meta-functional profiles and training preferences, and to improve their choice methods.

Under uncertainty, the agent has first to gather the information necessary to make a decision. When the available information is insufficient, the agent may decide to enrol in further education or training, as an experimentation, in order to collect the missing information. Once this information is obtained, the agent can decide to complete the training or to drop out. In this sense, reorientations and dropping out are not necessarily negative but may be considered as part of a rational information process within the framework of the transition strategy (Manski, 1989).

Secondly, the continuing adjustment assumption implies that modifications of initial vocational or educational choices may be rational. Thus, concurrently with informational experimentation, continuing adjustment highlights the rational—and not purely random—dimension of changes of orientation during training courses. By analogy, this also provides a framework explaining the demand for equivalences,

which can be perceived as accelerators of reorientation during the training phases. But reorientations could also be analysed as behaviours of error correction within the framework of the strategic process.

Similarly, the continuing adjustment assumption is useful to emphasise the rational dimension of returning to school (Kane & Rouse, 1995; Keane & Wolpin, 1997; Leigh & Gill, 1997). Applying the same scheme of analysis, returning to school after an initial temporary job may be interpreted as a stage within the transitional process of an agent who is still in his/her school-to-work transition process. The phase of labour participation may be analysed as an informational experimentation at the end of which the agent returns to studies, once the necessary information is obtained. In terms of adaptation to change, the phase of labour participation may be analysed as a stage of acquisition of complementary vocational skills and experience. Symmetrically, the return to schooling may be analysed as a search for complementary theoretical knowledge, necessary to complete the transitional process. Finally, returning to schooling may also be interpreted as a behaviour of error correction.

The same framework is also useful to interpret the modification of vocational target during a phase of labour participation. The change of vocational target can then be analysed in terms of experimentation (labour market matching theory, for instance Jovanovic, 1979; McKenna, 1980; Miller, 1984; Mortensen, 1988); or in terms of adjustment to new opportunities; or in terms of error correction.

Taking account of uncertainty and of the agent's ability to adapt thus allows us to build a general framework for the interpretation of a large set of behaviours effectively observable in the reality of school-to-work transition processes.

More generally, the strategic approach makes it possible to integrate simultaneously hazard and social determinism beside the rationality of the agent. Rationality plays the central role, but random shocks can be taken into account, and social determinism exerts an implicit effect.

Random shocks take the form of unforeseeable modifications of the labour market and of the education and training system, for instance an economic crisis or the development of Internet. Random shocks create or destroy job and training opportunities, and the agent adapts to these evolutions.

Account can also be taken of social determinism (social origin, family structure, gender, etc.), in order to explain, upstream, the date at which the agent reaches decisional autonomy, the information that the agent possesses to build his/her positions matrix and curricula matrix, and the agent's structure of preference concerning recruitment criteria and training characteristics.

Thus, the strategic approach proves to be sufficiently comprehensive to include both rational, random and determinist dimensions of the school-to-work transition process.

Conclusion

This meta-functional based approach suggests that the analysis of individual school-to-work transition processes should be reconsidered, and the role of meta-functional

criteria taken into account in the practice of educational and vocational guidance and counselling.

The aim of this analysis was not descriptive but theoretical, normative and analytical. On a theoretical side, the basic framework proposed allows us to take account simultaneously of the rational, determinist and random dimensions of the school-to-work transition process. It allows us too to take account of different observable transitional behaviours: participation in post-compulsory education and training, simultaneous or successive curricula, on-the-job training, work while studying, experimental post-compulsory education, reorientations of training, changes of vocational targets, returning to school.

On a normative side, the article suggests a reference strategy for the agent involved in school-to-work transition, and some recommendations for institutions of guidance and counselling.

Lastly, on the analytical side, this analysis suggests explanations for some causes of failure in school-to-work transition processes. Thus, this analysis could be useful to highlight some aspects of school-to-work transition processes differently, and to complement empirical as well as sociological and psychological observations already made in this field.

References

- ARKES, J. (1999) What do educational credentials signal and why do employers value credentials? *Economics of Education Review*, 18, pp. 133–141.
- BECKER, G. (1964 [1993]) *Human Capital*, 3rd edn (Chicago, IL, University of Chicago Press).
- BELLMAN, R. (1957) *Dynamic Programming* (Princeton, NJ, Princeton University Press).
- BELMAN, D. & HEYWOOD, J.S. (1991) Sheepskin effects in the returns to education: an examination on women and minorities, *Review of Economics and Statistics*, 73, pp. 720–724.
- BENNETT, R. & GLENNERSTER, H. & NEVISON, D. (1992) *Investing in Skill: expected returns to vocational studies*, London School of Economics Suntory-Toyota International Centre for Economics and Related Disciplines Working Paper, WSP/83.
- BETTS, J.R. & MCFARLAND, L.L. (1995) Safe port in a storm: the impact of labor market conditions on community college enrollments, *Journal of Human Resources*, 30, pp. 741–765.
- BOWLES, S. & GINTIS, H. (1976) *Schooling in Capitalist America* (New York, Basic Books).
- BOYER, R. (1991) *New Directions in Management Practices and Work Organisation. General Principles and National Trajectories*, CEPREMAP, 9130.
- CATSIAPIS, G. (1987) A model of educational investment decisions, *Review of Economics and Statistics*, 69, pp. 33–41.
- DEMEULEMEESTER, J.L. (1992) Étude empirique de la demande d'enseignement universitaire en Belgique de 1954 à 1987, *Cahiers Économiques de Bruxelles*, pp. 21–72.
- DEMEULEMEESTER, J.L. & ROCHAT, D. (2000) Labour participation of higher education students, *Labour*, 14, pp. 503–522.
- DESJARDINS, S.L. & DUNDAR, H. & HENDEL D.D. (1999) Modeling the college application decision process in a land-grant university, *Economics of Education Review*, 18, pp. 117–132.
- DOERINGER, P.B. & PIORE, M. (1971) *Internal Labor Markets and Manpower Analysis* (Lexington, MA, Heath).
- EHRENBERG, R.G. & SHERMAN, D.R. (1987) Employment while in college, academic achievement, and postcollege outcomes: a summary of results, *Journal of Human Resources*, 22, pp. 1–23.
- EYRAUD, F. & MARSDEN, D. & SILVESTRE, J.J. (1990) Occupational and internal labour markets in Britain and France, *International Labour Review*, 129, pp. 501–517.

- FREDRIKSSON, P. (1997) Economic incentives and the demand for higher education, *Scandinavian Journal of Economics*, 99, pp. 129–142.
- GARDECKI, R. & NEUMARK, D. (1998) Order from chaos? The effects of early labor market experiences on adult labor market outcomes, *Industrial and Labor Relations Review*, 51, pp. 299–322.
- GINTIS, H. (1971) Education, technology and the characteristics of worker productivity, *American Economic Review*, 61, pp. 266–279.
- GLOVER, R. & KING, C.T. (1997) Net impact evaluation of school-to-work: desirable but feasible?, in: US DEPARTMENT OF LABOR, *Evaluating the Net Impact of School-to-Work: Proceedings of a Roundtable* (Washington, DC, US Department of Labor).
- HECKMAN, J. (1997) Evaluation of school-to-work transition programs, in: US DEPARTMENT OF LABOR, *Evaluating the Net Impact of School-to-Work: Proceedings of a Roundtable* (Washington, DC, US Department of Labor).
- HEYWOOD, J.S. (1994) How widespread are sheepskin returns to education in the U.S.? *Economics of Education Review*, 13, pp. 227–234.
- HILMER, M. (1998) Post-secondary fees and the decision to attend a university or a community college, *Journal of Public Economics*, 67, pp. 329–348.
- HOSSLER, D., BRAXTON, J. & COPPERSMITH, G. (1989) Understanding student college choice, in: J.C. SMART (Ed.) *Higher Education: handbook of theory and research* (New York, Agathon Press).
- JOVANOVIC, B. (1979) Job matching and the theory of turnover, *Journal of Political Economy*, 87, pp. 972–990.
- KANE, T.J. (1995) *Rising Public College Tuition and College Entry: how well do public subsidies promote access to college?*, National Bureau of Economic Research Working Paper, 5164.
- KANE, T.J. & ROUSE, C.E. (1995) Labor market returns to two- and four- year college, *American Economic Review*, 85, pp. 600–614.
- KEANE, M.P. & WOLPIN, K.I. (1997) The career decisions of young men, *Journal of Political Economy*, 105, pp. 473–522.
- LANKFORD, H. & WYCKOFF, J. (1992) Primary and secondary school choice among public and religious alternatives, *Economics of Education Review*, 11, pp. 317–337.
- LEE, K.H. (1986) Affective, cognitive and vocational skills: the employers' perspective, *Economics of Education Review*, 5, pp. 395–401.
- LEIGH, D.E. & GILL, A.M. (1997) Labor market returns to community colleges: evidence for returning adults, *Journal of Human Resources*, 32, pp. 334–353.
- LEPPEL, K. (1993) Logit estimation of a gravity model of the college enrollment decision, *Research in Higher Education*, 34, pp. 387–398.
- LESLIE, D. & DRINKWATER, S. (1999) Staying on in full-time education: reasons for higher participation rates among ethnic minority males and females, *Economica*, 66, pp. 63–77.
- LIGHT, A. (2001) In-school work experience and the returns to schooling, *Journal of Labor Economics*, 19, pp. 65–93.
- MANSKI, C.F. (1989) Schooling as experimentation: a reappraisal of the postsecondary dropout phenomenon, *Economics of Education Review*, 8, pp. 305–312.
- MARSDEN, D. (1989) *Marchés du travail: limites sociales des nouvelles théories* [*Labour Markets: social limits of the new theories*] (Paris, Economica).
- MARSDEN, P. & RYAN, P. (1990a) Institutional aspects of youth employment and training policy in Britain, *British Journal of Industrial Relations*, 28, pp. 351–369.
- MARSDEN, P. & RYAN, P. (1990b) Intermediate level vocational training and the structure of labour markets in Western Europe in the 1980s, in: L.A. FERMAN *et al.* (Eds) *New Developments in Worker Training: a legacy for the 1990s* (Madison, WI, Industrial Relations Research Association).
- MCKENNA, C. (1980) Wage offers, layoffs, and the firm in an uncertain labour market, *Manchester School of Economic and Social Studies*, 48, pp. 255–264.

- MILLER, R.A. (1984) Job matching and occupational choice, *Journal of Political Economy*, 92, pp. 1086–1120.
- MORTENSEN, D. (1988) Wages, separations and job tenure: on the job specific training or matching, *Journal of Labor Economics*, 6, pp. 445–471.
- ORDOVENSKY, J.F. (1995) Effects of institutional attributes on enrollment choice: implications for postsecondary vocational education, *Economics of Education Review*, 14, pp. 335–350.
- PSACHAROPOULOS, G. (1993) *Returns to Investment in Education: a global update*, World Bank Policy Research Working Paper, WPS 1067.
- REES, D.I. & MOCAN, H.N. (1997) Labor market conditions and the high school dropout rate: evidence from New York State, *Economics of Education Review*, 16, pp. 103–109.
- REICH, M., GORDON, D.M. & EDWARDS, R.C. (1973) A theory of labor market segmentation, *American Economic Review*, 63 [Papers and Proceedings], pp. 359–365.
- ROCHAT, D. & DEMEULEMEESTER, J.L. (2001) Rational choice under unequal constraints: the example of Belgian higher education, *Economics of Education Review*, 20, pp. 15–26.
- SATTINGER, M. (1998) Statistical discrimination with employment criteria, *International Economic Review*, 39, pp. 205–237.
- SPENCE, M.A. (1973) Job market signaling, *Quarterly Journal of Economics*, 88, pp. 355–374.
- STALLMANN, J., JOHNSON, T.G., MWACHOFI, A. & FLORA J.L. (1993) Labor market incentives to stay in school, *Journal of Agricultural and Applied Economics*, 25, pp. 82–94.
- TCHIBOZO, G. (2001) *Un modèle de stratégie individuelle de primo-insertion professionnelle [A Model of Individual Strategy for School-to-Work Transition]*, Working Paper BETA, No. 2001–06 (Strasbourg, University Louis Pasteur).
- THUROW, L. (1975) *Generating Inequality* (New York, Basic Books).
- TYLER, J.H., MURNAME, R.J. & WILLET, J.B. (2000) Estimating the labor market signaling value of the GED, *Quarterly Journal of Economics*, 115, pp. 431–468.
- WEILER W.C. (1994) Transition from consideration of college to the decision to apply, *Research in Higher Education*, 35, pp. 631–646.
- WEILER, W.C. (1996) Factors influencing the matriculation choices of high ability students, *Economics of Education Review*, 15, pp. 23–36.
- WETZEL, J.N., O'TOOLE, D. & PETERSON S. (1998) An analysis of student enrollment demand, *Economics of Education Review*, 17, pp. 47–54.
- WHITFIELD, K. & WILSON, R.A. (1991) Staying on in full-time education: the education participation rate of 16-years-olds, *Economica*, 58, pp. 391–404.
- WOLTER, S. (2000) Wage expectations: a comparison of Swiss and US students, *Kyklos*, 23, pp. 51–69.

Copyright of *Journal of Education & Work* is the property of Carfax Publishing Company and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.