Working paper
June 2008

INED

The Diversity of pathways to adulthood in France:

a holistic approach

Nicolas ROBETTE

Phd student, INED, France
nicolas.robette@ined.fr

Summary :

Youth is often depicted as a transition from childhood to adulthood in the familial, residential and occupational fields. This approach brings in the idea of thresholds, such as leaving the parental home, getting married, having a first child or having a stable job. In practice, it has the advantage of allowing relatively simple comparisons of pathways to adulthood in time and space. However the study of thresholds presents a few limits. First, it hides the problem of the reversibility of events, their non-occurrence and the difficulty of defining clearly bounded markers. Second, it barely apprehends the links between familial, residential and occupational fields. Finally, it produces aggregated outcomes, partly hiding the heterogeneity of individual processes of transition to adulthood. This work attempts to overstep these reservations by tackling pathways to adulthood in France through trajectory typologies built by means of Optimal Matching Analysis techniques.

Keywords : pathways to adulthood; optimal matching analysis; life-course; sequence analysis

Introduction

The sociology of youth has attracted relatively belated interest in the field of French sociology. Nonetheless, the evolution of familial and educational structures has gradually imposed the construction of a new category of individuals: "young people". This hazily outlined category which contains a great heterogeneity has often been tackled through pathways to adulthood. Youth is represented as a transitional period between childhood and adulthood. The transition proceeds in different spheres, one is familial and matrimonial, the other is educational and occupational. This approach introduces the idea of thresholds: for example decohabitation, first union or first child for the first sphere, end of schooling or first stable job for the second one.
From a practical view, the notion of threshold presents the advantage of allowing a relatively easy comparison between the different forms of transition to adulthood in time or space, once the events to be taken into account have been determined. In this way, some studies have shown the diversity of European models (Chambaz, 2000 ; Van de Velde, 2004). For example, southern European countries, where people leave home late, contrast with northern countries, where decohabitation occurs at a younger age. These are social, cultural and institutional models, from the Mediterranean familialist model to the Nordic public model, which explain the variety of forms of autonomy attainment.
Other studies have emphasized the changes in pathways to adulthood. For instance, France faces a postponement of the entry into adulthood, through a desynchronization of familial and occupational thresholds (Galland, 2000). The postponement of access to independence is linked to prolonged education and to a later entry into working life. A transitional age thus appears between the end of adolescence and the entry into adulthood. This age is seen as a period of progressive preparation for adult roles. More generally, western countries are witnessing the simultaneous development of standardization of pathways to adulthood, with an increasing compactness of thresholds ages, and their individualization, with an increasingly diverse order of thresholds (Shanahan, 2000). This reflects the modernization of societies, through the changes on the labour market, the growing role of State or the expansion of the education system.

Nevertheless, the study of thresholds presents a few limits. First it conceals the reversibility of some situations or the fact that events may never be experienced by individuals, as well as the difficulty of clearly bounding the definition of an event. For example, leaving the parental home is an increasingly complex process (Goldscheider, 1993; Villeneuve-Gokalp, 1997). The transition to total residential independence is gradual. As a consequence of prolonged education and the delay in entering a stable job and attaining financial independence, new residential situations are developing, such as dual-residence. For example, some students live alone during the week but with their parents during week-ends and holidays. Moreover, parents may keep on helping their child after he left home by paying for its accommodation. Young people also often return to the parental nest, thus becoming "boomerang kids" (Mitchell, 2006) or leave home very late. The distinction between leaving home and living away from home (Buck, Scott, 1993) or between decohabitation, autonomy and independence raises the problem of marker definition. On the family side, the generalization of women's access to studies and occupational autonomy has great implications on familial structures. Conjugal instability is appearing, with a rise of union separations, divorces and single life episodes, and the fall of marriages (Prioux, 2006). Familial schedules alter, as first entry into an union and first child are postponed. As a consequence, new family models spread, such as cohabitant unions, single-parent family, blended family or "living apart together": familial biographies are becoming more complex and diverse. Finally, in a context of changes in the

labor market opportunities and increasing unemployment, youth transitions from school to work are getting longer and more chaotic. It may take a while between the first time young people leave the education and training system and the time they reach a stable occupational position. Indeed, this stable occupational position can be preceded by varying length episodes of unstable jobs or unemployment. The transition from school to work is less an irreversible shift than a hazy process.
Furthermore, the study of thresholds barely apprehends the link between the multiple dimensions of the life course. The methods traditionally used, such as median age calculation or event-history models, allow to study the timing of threshold crossing and their predictors. But they generally focus on the simultaneous analysis of one or two events. And yet, research has shown that threshold predictors are linked to the order in which the events happen (Marini, 1984; Rindfuss, 1987; Kiernan, 1991). The existence of a normative order of events is sometimes even postulated (Elder, 1974), and convergence to this norm and its consequences on the life cycle can then be measured (Hogan, 1978).
Lastly, the study of thresholds produces aggregated results, partially hiding the heterogeneity of individual pathways to adulthood. Is the change in age at the different events marking the trajectory the result of a weakening or on the contrary of a strengthening of certain forms of pathways to adulthood ?

The purpose of this study is to overstep these limitations by tackling the question of pathways to adulthood through a holistic approach, which considers a trajectory as a whole, as a meaningful conceptual unit, rather than an atomistic approach based on the idea of event (Billari, 2001). From the biographical data of the *Familles et employeurs* survey (2004-2005), individual trajectories are built as sequences of states integrating residential, familial and occupational situations, then grouped together according to their degree of similarity using optimal matching analysis techniques: the trajectory typologies produced constitute an analysis tool allowing us to take into account the full range of situations (uncompleted events, reversibility, etc...) and to shed new light on the heterogeneity of pathways to adulthood and their evolution.

Data

The *Familles et employeurs* survey carried out by INED and INSEE in 2004-2005 examined the work-life balance. Its purpose was to describe how family and working life are reconciled. The first section of the survey involved families - 9,745 men and women aged 20-49 in metropolitan France - and a second part gathered informations about the interviewees's employers. We focus on the trajectories between ages 18 and 35 of individuals aged at least 35 at the time of the survey: our sample is composed of 2749 women and 2428 men histories born between 1954 and 1969. These generations have the particularity to be entering into adulthood as the great changes in familial models and labor market occur. Indeed, a break in the tendencies of familial behaviours is often located at the beginning of the 70's and the two oil shocks are viewed as the end of the "Glorious Thirty", characterized by an important economic growth, and the starting point of a significant rise of unemployment.

Only the data from the *Familles* section are used here. It comprises an annual calendar of retrospective information about residential, familial and occupational history. The calendar covers the first year individuals lived in accommodation paid for by themselves or by their employer. Possible returns to accommodation paid for by parents are unknown. So housing events unfortunately have to be considered as irreversible. The residential trajectory is then

coded as follows: has never lived in independent accommodation; has ever lived in independent accommodation. With respect to familial events, the survey covered forming a couple, marriage and separation years. So it's easy to rebuild the conjugal trajectory, varying between four reversible states: single; unmarried cohabitant; married; separated. Furthermore, the birth year of children is known. The parental trajectory varies progressively between the following states: no child; one child; two children; three children or more. Finally, respondents mentioned each start and end year during which they spent 6 months or more as: student; doing national service; unemployed and continuously looking for a job; part-time worker; in short jobs alternating with unemployment periods; in jobs lasting more than 6 months; in another situation (inactive, homemaker...). A distinctive feature of the data is that respondents could cite a second activity for each year. As it appeared that an important part of them had experienced at least one year of simultaneous study and work, the additional state "salaried student" was added. The other cases of simultaneous activities were residual and only the first one was kept. Thanks to the precision of the data collected, the study is not restricted to the end of schooling or the first stable job markers but takes into account a relatively exhaustive set of reversible and multifaceted situations, including transitional ones.

Method

Optimal Matching Analysis is based on a set of dynamic algorithms mainly used in molecular biology to analyse similarities of DNA strings. It was introduced into the field of social sciences by Andrew Abbott in the 1980's (Abbott & Forrest, 1986). Its principle is based on the notion of similarities between pairs of sequences. The main idea consists in measuring the dissimilarity between two sequences by calculating the cost of the transformation of one sequence into the other. The transformation is carried out by means of three elementary operations: insertion (one element is inserted into the sequence), deletion (one element is deleted from the sequence) and substitution (one element is substituted to another). Each elementary operation can be assigned a specific cost. A series of operations costs the equivalent of the sum of the elementary operations involved. Then the distance between two sequences is equal to the minimal cost of transformation of one sequence into the other. Specific dynamic algorithms guarantee that the minimal cost is reached (Sankoff & Kruskal, 1983). Optimal matching of each pair of sequences leads to the creation of a distance matrix, that can be used afterwards to put together sequences according to their degree of similarity, using clustering methods for example, and to obtain a typology.

We are interested in multidimensional trajectories (residential, conjugal, parental and occupational trajectories), which have received little attention in the existing life-course literature using a holistic approach (Elzinga, 2003; Aassve et al, 2007; Pollock, 2007). From a methodological point of view, there are two alternatives. A first strategy consists in first using optimal matching to calculate 4 distance matrices (one for each trajectory) and then combining these matrices into one by means of linear combination (Han & Moen, 1999; Blanchard, 2005). The second strategy consists in building a synthetic variable crossing the different characteristics (Abbott & Hrycak, 1990; Stovel et al, 1996; Blair-Loy, 1999; Aassve et al, 2007; Pollock, 2007). However, the variable created this way would potentially have 2*4*4*8=256 states[1], which raises two questions: the efficiency of optimal matching techniques which has rarely been tested with so many states; the harder characterization of the

[1] The residential dimension has 2 states, the conjugal and the parental ones have 4 and the occupational one has 8. Empirically, only 171 combined states are experienced at least one year by at least one individual.

created typology. On the other side, this second strategy is more satisfying, theoretically speaking, as the crossing of the different dimensions of pathways in a single variable assumes the interdependency of these dimensions. As in addition to that our attempts showed quite distinct and interpretable clusters, the second strategy has been finally chosen.

The choice of substitution, insertion and deletion[2] costs is a crucial step in optimal matching analysis. Concerning the substitution costs, as there are no clear theoritical assumptions about the relative proximity between states, we let the data themselves drive their assignment, according to the transition likelihoods between the various states (Rohwer, Pötter, 2005). As the combined states are quite numerous, transition likelihoods between them would often be rare and so then the derived substitution costs might not be very discriminating. Furthermore, there's no information about the potential simultaneity of the transitions in the various trajectories (for example, marriage and childbirth at the same time) as the time between two observations (one year) is rather long. Therefore, following previous works (Stovel et al, 1996; Blair-Loy, 1999; Pollock, 2007), four distinct substitution cost matrices were calculated (by means of transition likelihoods), one for each dimension, and then summed up into a final substitution cost matrix[3] (see appendix for detailed costs). Then the *indel* cost was set to slightly more than a half the maximum substitution cost, which avoids an excessive use of indel operations and keeps the information about the time when transitions occur (MacIndoe, Abbott, 2004).

Women and men's trajectories comprise significant differences. Women experience most events earlier than men, especially in the family sphere (unions, childbearing) and they have a greater prevalence of inactivity or career break after childbirths, for instance. National service also concerns almost solely men. As a consequence, the analysis of women's and men's pathways to adulthood were led separately.

Results

Women's and men's distance matrices are submitted to Hierarchical Clustering Analysis using Ward's criteria. Five-cluster typologies are adopted, which respectively explain 34% and 25% of the trajectory variance. The choice of a five-cluster level results from the balance between the purpose of accounting the heterogeneity of individual pathways and the practical necessity of having an interpretable set of meaningful clusters.

Describing a typology created by the clustering of multidimensional trajectories is not easy, due to the high number of states. Indicators describing durations (for example, duration in "student" state) or episodes (for example, number of "unemployment" episodes along the trajectory or proportion of individuals who have experienced at least one "inactivity" episode) allow to distinguish the main characteristics which led to the building of classes. These indicators were computed for the combined states but also separately for each dimension, which simplifies the interpretation of the clusters. Graphical representations have to be built separately for each dimension too in order to be readable. But the clusters can also be

[2] As to match two sequences, inserting an element in one sequence is the same as deleting an element from the other, insertion and deletion have the same cost, that is called *indel* cost.

[3] For example, the substitution of "ever lived in a self-paid accomodation, in full-time job, married with one child" to "ever lived in a self-paid accomodation, in full-time job, single with no child" is worth the cost of a substitution of "married" to "single" and the cost of a substitution of "with one child" to "with no child"

summarized by presenting "typical trajectories", i.e. medoid trajectories for each cluster[4] (Table 1), and arbitrarily giving them a summarizing label, such as "moderns" or "working singles".

Table 1 : Medoid trajectories of the women's and men's clusters

Cluster		%	Residential	Occupational		Conjugal		Parental		
			Leaving parental home	Stable job	Other spell	Umarried union	Marriage	1st child	2nd child	3rd child
Women	Classicals	27,8	22	20	-	-	22	25	28	-
	Moderns	24,9	22	18	-	22	-	31	-	-
	Homemakers	17,8	20	18	Inactive: 21-35	-	20	23	26	30
	Opting outs	15,8	21	21	Part-time: 28-35	-	24	25	28	
	Working singles	13,6	24	24	-	-	-	-	-	-
Men	Moderns	29,9	22	18	-	27	-	-	-	-
	Several children classicals	22,3	22	18	-	-	22	24	28	33
	One child classicals	20,1	23	18	-	-	23	27	-	-
	Slow starters	19,1	27	24	-	27	31	35	-	-
	Working singles	8,7	-	18	-	-	-	-	-	-

***reading** : The woman who is the medoid of the "opting outs" cluster left school at 21 to get a stable job and left parental home the same year. She got married at 24, had a first child one year later and started to work part-time from the birth of the second child at 28. "-" means that the event has never been experienced. Every medoids who get a stable job after18 years old were in education from 18 to the stable job shift . data:* Familles et employeurs *survey (2004)*

The main women's cluster, that we called "classicals", brings together 28% of the sample. It's mostly composed of women who have a stable job, get married and have one child or more. "Moderns" (25%) have a stable job, but are often experiencing unmarried unions, with frequent separated spells, and postponement of childbearing. The two following clusters are made of women who get married and have several children. But while "homemakers" (18%) remain inactive from the end of school, on the other hand "opting outs" (16%) first have a job before interrupting their career (with inactivity or part-time work) when children are born. "Homemakers" also are the less educated, with a mean age at first leaving studies of 17,3. "Working singles" (14%) are women who leave their parents' home late, study the longest among all the clusters (they leave studies for the first time at a mean age of 20,2) and postpone the entry into adult familial roles (union, childbearing). This typology underlines the central role of work-family balance in women's pathways to adulthood. The two largest clusters, "classicals" and "moderns", group women who reconcile with work and family and who are mostly differentiated by the kind of union they experience. "Homemakers" and "opting outs" seem to favour family rather than work, fully for "homemakers" who never work but only partly for "opting outs" who work before childbearing (and also sometimes part-time after child births). Lastly, the smallest class is made of women who privilege work, as they postpone the entry into family roles.

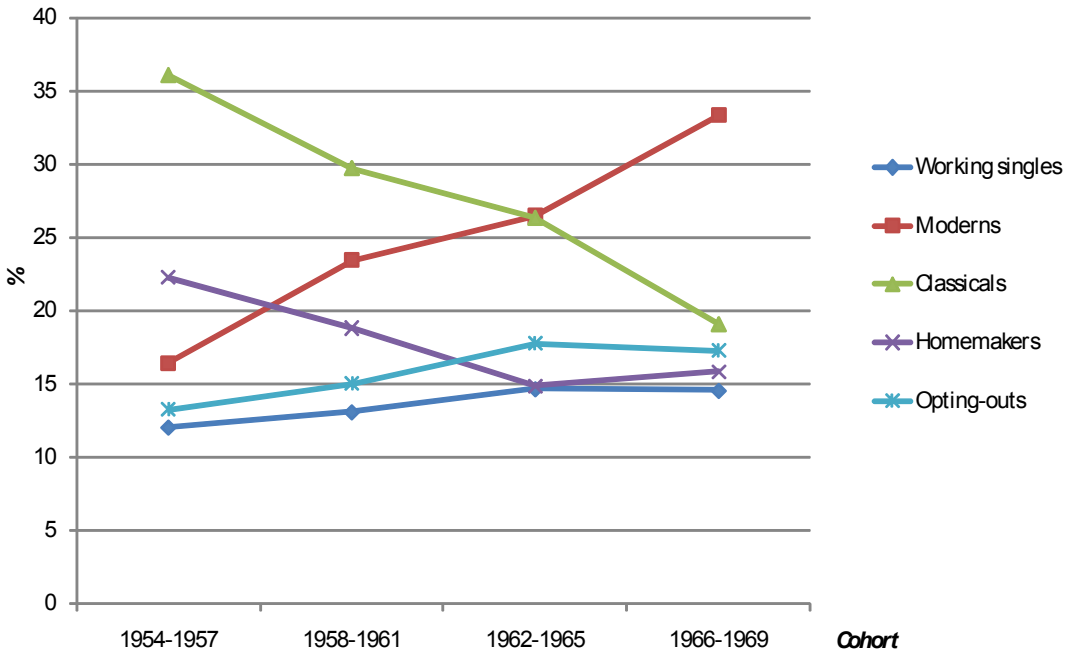
Concerning men's typology, "moderns" (30%) are working men, who postpone their entry into union, mostly unmarried cohabitation with frequent separated spells, and childbearing. The two following clusters are quite similar. They both bring together married working men and the difference lies in the number of children at the end of the trajectory: one ("one child classicals", 20%) or two or more ("several children classicals", 22%), which is principally

[4] The medoid trajectory is the individual trajectory that is the less distant from the other individual trajectories of the cluster (Kauffman, Rousseeuw, 1990; Aassve et al, 2007).

linked to the age at first child. “Slow starters” (19%) experience all the transitions to adulthood quite late. They leave late from parental home, follow long studies and then have a relatively chaotic career, get into an union late, have frequent separated spells and postpone childbearing. “Working singles” (9%) leave their parents’ home very late in spite of their stable job. They also postpone familial events (entry into a union, childbearing). Contrary to the women’s case, the work-family balance doesn’t play a major role in the building of the men’s typology. In fact, it’s rather the time of the entry into the various adult roles which seems to be leading the typology. Indeed, the entry into professionnal roles diffenciates “working singles” and “slow starters”, as “working singles” first leave studies at a mean age of 17,3 and “slow starters” at 21,4. As a consequence, level of education and social status are quite different: while “working singles” have the lowest mean level of education among all the clusters and mostly belong to manual workers, “slow starters” have the highest mean level of education and are chiefly managers and professionals. On top of that, “working singles” form the most homogeneous cluster, whereas “slow starters” cluster is the least. “Working singles” also live on their own very late compared to the others. Concerning family roles, “2 children classicals” first experience union and childbearing the earliest, followed by “1 child classicals”, then by “moderns” and “slow starters” and finally by “working singles”.

Although typologies built from distinct samples are not strictly comparable, a few comments deserve to be noticed. Some clusters seem quite similar for men and women even though their proportion differ: these are “classicals”, “moderns” and “working singles”. In fact, “working singles” men are low educated, whereas women have a high level of education, which would make them look more like “slow starter” men. On the other hand, other clusters seem to be specific to gender: “homemakers” and “opting-outs” for women and “slow starters” for men.

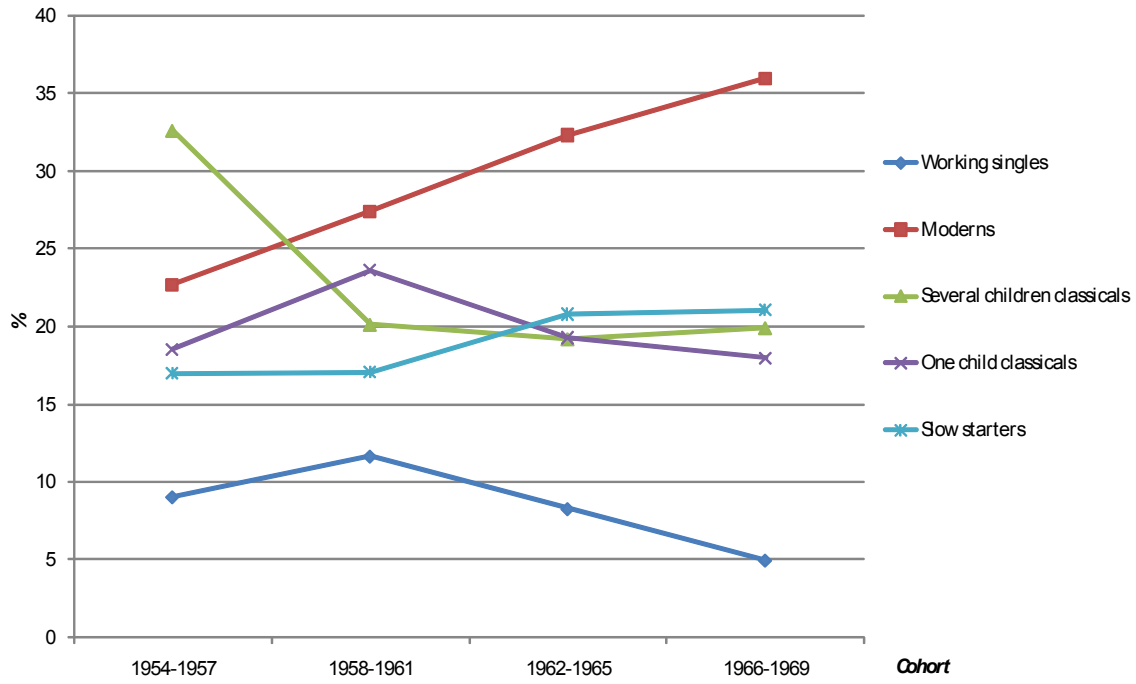
Figure 1: Women’s cluster distribution by cohort



Now let’s have an insight into the evolution of pathways to adulthood using the typologies. Figure 1 shows a great and constant decrease of “classicals” (from 36% for the 1954-1957 cohort to 19% for the 1966-1969 cohort), while “moderns” increase, greatly and constantly

too (from 16% for the oldest cohort to 34% for the youngest cohort). "Classicals" are being gradually replaced by "moderns" as the dominant pathway to adulthood, which can probably be explained by the diffusion of cohabitant union. What's more "homemakers" fall from 22% to 15% for the 1962-1965 cohort and then remain almost stable, while "working singles" and "opting-outs" slightly raise until 1962-1965. So the only fully family-oriented pathway to adulthood ("homemakers") is losing importance, while the work-oriented one ("working singles") is gaining a little.

Figure 2: Men's cluster distribution by cohort



Changes in men's cluster distribution are less clear-cut (Figure 2). As for women, "moderns" increase greatly and constantly (from 23% for the 1954-1957 cohort to 36% for the 1966-1969 cohort). "Several children classicals" fall strongly from 33% to 20% between the two oldest cohorts and then remain stable. "One child classicals" and "working singles" increase between the two oldest cohorts and then decrease. To finish with, "slow starters" increase slightly particularly between the second and third cohort.

For both women and men, the main result is that "classicals" seem to be gradually replaced by "moderns", which become the prevailing pathway to adulthood in the youngest cohorts. This moderates one of the assumption of the de-standardization of the life course hypothesis, which is that the dominance of specific types of life courses become weaker (Brückner, Maier, 2005; Elzinga, Liefbroer, 2007): a dominant pathway to adulthood still exists, but it's not the same for the oldest and the youngest cohorts. That remark can be supported by means of an entropy index[5], applied to the heterogeneity of the cluster distributions for each cohort

[5] Given N_t the number of individuals at time t, p_{tj} the proportion of N_t in state j, j=1,...,q and by convention 0log(0)=0, relative entropy is defined this way :

$$E_t = -\sum_{j=1}^{q} p_{tj} \log(p_{tj}) / \log(q)$$

(Table 2). Indeed for both sexes, the heterogeneity of the cluster distribution decreases between the oldest cohorts, before starting increasing again: the domination of a specific type of pathway endures, after a short period of higher variety of pathways. This tendancy is especially strong for men. However, these results have to be taken into account carefully, as they may be sensible to the number of clusters chosen.

Table 2: Relative entropy of the cluster distributions, by sex and cohort

	1954-1957	1958-1961	1962-1965	1966-1969
Women	0,945	0,972	0,978	0,968
Men	0,953	0,976	0,952	0,917

Furthermore, distances computed by optimal matching may have other uses than the simple building of a typology. Indeed, distances are interested by themselves to examine the similarities of the trajectories between subsamples of individuals, for instance to see how these similarities evolve over time. This is indeed another of the assumption of the de-standardization of the life course hypothesis: individual life courses are supposed to be less similar to one another (Brückner, Maier, 2005; Elzinga, Liefbroer, 2007). Table 3 shows that average distances between individuals' trajectories globally slightly rise for both sexes, that is (to say) that women's pathways to adulthood are becoming a little less similar, especially between the 1958-1961 cohort and the 1962-1965 cohort, and so do men's. Moreover, dissimilarity between women's and men's pathways also increase slightly, in particular between the two oldest cohorts[6].

Table 3: Average distances between individuals' trajectories

	1954-1957	1958-1961	1962-1965	1966-1969
Between women	62,84	63,46	64,92	64,74
Between men	63,48	63,15	64,80	65,00
Between men and women	30,17	31,00	31,20	31,11

Dealing with de-standardization and differentiation processes in the life-course, another indicator has recently been created, called turbulence index (Elzinga, Liefbroer, 2007). Also based on sequence analysis, it aims at capturing "this volatile and haphazard nature of the process of differentiation". Technically, it takes into account the number of transitions, the number of distinct states and the variation in the duration of events. Applied to our data, it reveals (Table 4): first an increase of the differentiation of pathways to adulthood for both sexes; second a constantly higher differentiation of women's pathways[7].

Table 4: Turbulence of pathways to adulthood, by sex and cohort

	1954-1957	1958-1961	1962-1965	1966-1969
Women	10,38	10,64	10,94	11,41
Men	9,94	10,22	10,60	10,82

Relative entropy is equal to 0 when all individuals are in the same state (that is when heterogeneity is minimal) and to 1 when individuals are equally spread between the states (that is when heterogeneity is maximal).

[6] Although the evolution of distances appears small, the differences are significant at a 5% threshold.

[7] Differences are significant at a 5% threshold here too.

To finish with the investigation of the various possibilities of a holistic approach applied to pathways to adulthood, let's focus on couples. The *Famille and employeurs* survey sometimes interviewed both members of couples: our sample of women and men born between 1954 and 1969 comprises 1403 couples (out of 2749 women and 2428 men). Thus, as it's usually shown from social origins, homogamy is a strong tendancy (Bozon, Héran, 2006). Members of couples tend to have similar behavior or profile. Dealing with pathways to adulthood, this observation can be supported by the greatly smaller average distance between the trajectories of members of couples than between random men's and women's (Table 5).

Table 5: Average distances between men's and women's trajectories

	Average distance
Between random men and women	31,04
Within couples	22,72

We can have a deeper look at how the various patterns of women's and men's pathways to adulthood match inside a couple by building a simple contingency table: a significant link exists (Appendix B). The main result is the important homogamy of "moderns" and "classicals". Women belonging to "opting-outs" and "homemakers" clusters are more frequently into a couple with "classicals" (more specifically with those who have several children) and "working single" women with "modern" or "slow starter" men. On the other side, men members of "slow starter" pathways are more often in an union with "modern" women, and "working singles" with "moderns" or "working singles".
Nevertheless, using the term of "homogamy" is a kind of misuse in our case, since our approach presents several limits. First of all, part of the states are by definition experienced by both members of a couple at the same moment, even if it's not at the same age (type of union, parenthood), so similarity between the members of a couple may be overestimated. In fact, as individuals are in a couple at the time of the survey, it implies that they lived the first part of their pathway on their own and the last part with their spouse. Ideally, we should narrow the time span of couple members' pathways to a period stretching out from a starting age to the time of the entry into a couple. That would allow to study how pathways to adulthood influence the choice of a spouse, but it would also raise the question of whether matching trajectories of various lengths has a sense and how to achieve it. Another possibility consists in focusing on trajectories from the entry into a couple to the time of the survey to see how couples reconcile work and family.

Discussion

In this work, we focused on pathways to adulthood in a holistic approach. By using multidimensional trajectories - linking residential, familial and occupational informations – and by computing optimal matching analysis, typologies of pathways were built separately for French women and men born between 1954 and 1969. This showed a great diversity of pathways, mainly linked to the orientation between work and family for women and to the degree of postponement of the entry into adult roles for men. The rise of a modern pathway to adulthood, with frequent unmarried unions and late childbearing, and a few evidences of de-standardization and differenciation of the life course were emphasized. At last, a first attempt at linking members of couples was made.
A few avenues of research still remain open to explore these issues in greater depth. To start with, the survey only collects data on the first year that respondents live in accommodation paid for by themselves or by their employer. Periods during which they decohabitated in

accommodation paid for by parents are unknown, as well as possible returns to the parental nest. Nevertheless these dimensions play a major role in the transformation of pathways to adulthood. To study these transformations would require more precise data.

Furthermore, a proportion of respondents has never experienced certain events before the age of 35, in particular independent accommodation, life in a couple or parenthood. But it's impossible to know whether it's a matter of simple postponement or of a situation that will last. On account of prolonged education and of later family formation, it would probably be desirable to extend the studied trajectory beyond the age of 35. Moreover, youth can be considered as a period of dissociation between both dimensions of individualization: autonomy and independence (Singly, 2000). State and family intervene to support individuals then. But this support may happen throughout life. So one can even imagine studying the whole life as a trajectory, by leaving the notion of adulthood to one side to concentrate on dependence. That would probably require changing some of the markers used in building the trajectories.

The question of the choice of markers is central to this study of pathways to adulthood. With the evolution of western societies, traditional markers are becoming less relevant. For example, Bozon (2002) shows that traditional rites of passage, such as first communion or conscription, are being replaced by contemporary rites that are first-time experiences: first sexual relationship, first accommodation, passing the driving test and first car... Moreover, Arnett (2001) introduces the notion of emerging adulthood, which is a period of the life course stretching from adolescence to adulthood. It is characterized by a relative independence from age-normative tasks, by experimentation with social roles and by little meaningful commitment to one's relationships and organizational involvements. In this context, young people identify individualistic indicators of maturity as the new markers of adulthood and demographic markers are considered of secondary importance. It therefore seems essential to test the relevance of new markers, factual or linked to a subjective and individual assessment of the life course. It's also possible to combine traditional marker analysis with more qualitative data describing actual experience and perceptions (Tichit & Lelièvre, 2006). However, the few studies dealing with this issue show that traditional markers are still significantly linked to the feeling of being an adult (Shanahan et al, 2005).

Bibliography

Aassve Arnstein, Billari Francesco C., Piccarreta Raffaella, 2007, « Strings of adulthood: a sequence analysis of young british women's work-family trajectories », *European Journal of Population*, 23(3-4), p. 369-388.

Abbott Andrew, Forrest John, 1986, « Optimal Matching Methods for Historical Sequences », *Journal of Interdisciplinary History,* 16(3), p. 471-494.

Abbott Andrew, Hrycak Alexandra, 1990, « Measuring ressemblance in sequence data : an optimal matching analysis of musicians' careers », *American journal of sociology,* (96), p. 144-185.

Arnett Jeffrey Jensen, 2000, « Emerging adulthood. A theory of development from the late teens through the twenties », *American psychologist*, 55(5), p. 469-480.

Billari Francesco C., 2001, « Sequence analysis in demographic research », *Canadian Studies in Population*, 28(2), p. 439-458.

Blair-Loy Mary, 1999, « Career patterns of executive women in finance: an optimal matching analysis », *The American Journal of Sociology,* 104(5), p. 1346-1397.

Blanchard Philippe, 2005, *Multi-dimensional biographies. Explaining disengagement through sequence analysis*, 3rd ECPR Conference, Budapest, 8-10 September 2005.

Bozon Michel, 2002, « Des rites de passage aux "premières fois" : une expérimentation sans fins », *Agora*, (28), p. 22-33.

Bozon Michel, Héran François, 2006, *La formation du couple : textes essentiels pour la sociologie de la famille*, Paris, La Découverte, 267 p.

Brückner Hannah, Mayer Karl Ulrich, 2005, « De-standardization of the life course: What might it mean? And if it means anything, whether it actually took place. », in Macmillan Ross (Ed.) *The structure of the life course: Standardized? Individualized? Differentiated?*, Amsterdam, Elsevier, p. 27-53.

Buck Nicholas, Scott Jacqueline, 1993, « She's Leaving Home: But Why? An Analysis of Young People Leaving the Parental Home », *Journal of Marriage and the Family*, 55(4), p. 863-874.

Chambaz Christine, 2000, « Les jeunes adultes en Europe », *Études et Résultats*, (90), 12 p.

Elder Glen H., Jr, 1974, « Age differentiation and the life course », *Annual review of sociology*, 1, p. 165-190.

Elzinga Cees H., Liefbroer Aart C., 2007, « De-standardization of family-life trajectories of young adults: a cross-national comparison using sequence analysis », *European Journal of Population*, 23(3-4), p. 225-250.

Galland Olivier, 2000, « Entrer dans la vie adulte: des étapes toujours plus tardives mais resserrées », *Économie et statistique,* (337-338), p. 13-36.

Goldscheider Frances, Thornton Arland, Young-DeMarco Linda, 1993, « A portrait of the nest-leaving process in early adulthood », *Demography*, nº 30, p. 683-699.

Han Shin-Kap, Moen Phyllis, 1999, « Clocking out: temporal patterning of retirement », *American journal of sociology,* 105(1), p. 191-236.

Hogan Dennis P., 1978, « The variable order of events in the life course », *American sociological review*, 43, p. 573-586.

Kaufman Leonard, Rousseeuw Peter J., 1990, *Finding groups in data : an introduction to cluster analysis*, New-York, Wiley, 342 p.

Kiernan Kathleen E., 1991, « Transitions in young adulthood in Great Britain », *Population studies*, 45, p. 95-114.

Macindoe Heather, Abbott Andrew, 2004, « Sequence analysis and optimal matching techniques for social science data », in Hardy Melissa, Bryman Alan*, Handbook of Data Analysis*, London, Sage, p. 387-406.

Marini Margaret M., 1984, « The order of events in the transition to adulthood », *Sociology of education*, nº 57, p. 63-84.

Mitchell Barbara A., 2006, « The boomerang age from childhood to adulthood : emergent trends and issues for aging families », *Canadian studies in population*, 33(2), p. 155-178.

Pollock Gary, 2007, « Holistic trajectories: a study of combined employment, housing and family careers by using multiple-sequence analysis », *Journal of royal statistical society*, (170), p. 167-183.

Prioux France, 2006, « Cohabitation, marriage and separation: contrasts in Europe », *Population and societies*, (422), 4 p.

Rindfuss Ronald R., Swicegood C. Gray, Rosenfeld Rachel A., 1987, « Disorder in the life course: how common and does it matter ? », *American sociological review*, 52(6), p. 785-801.

Rohwer Götz, Pötter Ulrich, 2005, « TDA's user manual », *http://www.stat.ruhr-uni-bochum.de/tman.html.*

Sankoff David, Kruskal Joseph, (dir), 1983, *Time warps, string edits, and macromolecules: the theory and practice of sequence comparison*, Reading, Addison-Wesley, 408 p.

Shanahan Michael J., 2000, « Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective », *Annual review of sociology*, nº 26, p. 667-692.

Shanahan Michael J., Porfeli Erik J., Mortimer Jeylan T., Erickson Lance D., 2005, « Subjective age identity and the transition to adulthood. When do adolescents become adults ? », in Settersten Jr Richard A., Furstenberg Jr Frank F., Rumbaut Ruben G., *On the Frontier of Adulthood : Theory, Research, and Public Policy*, Chicago, University of Chicago Press, p. 225-255.

Singly François de, 2000, « Penser la jeunesse autrement », *Lien social et politiques*, (43), p. 9-21.

Stovel Katherine, Savage Michael, Bearman Peter, 1996, « Ascription into achievement: models of career systems at Lloyds Bank, 1890-1970 », *American Journal of Sociology,* 102(2), p. 358-399.

Tichit Christine, Lelièvre Eva, 2006, « Analyse du passage à l'âge adulte à l'épreuve de l'approche biographique: seuil, transition ou observation incertaine ? », in GRAB (Groupe de Réflexion sur l'Approche Biographique), *États flous et trajectoires complexes. Observation, modélisation, interprétation*, Paris, INED - CEPED (coll. Méthodes et savoirs), vol. 5, p. 197-218.

Van de Velde Cécile, 2004, *Devenir adulte. Sociologie comparée de la jeunesse en Europe*, Thèse de doctorat, 332 p.

Villeneuve-Gokalp Catherine, 1997, « Le départ de chez les parents: définitions d'un processus complexe », *Économie et statistique*, (304-305), p. 149-162.

Appendix A : Substitution and indel costs

Women's costs:

	A	B
A : never lived in a self-paid accommodation	0	2
B : ever lived in a self-paid accommodation	2	0

	A	B	C	D
A : Single	0	1,91386	1,93297	1,99888
B : Unmarried cohabitant	1,91386	0	1,89695	1,83547
C : Married	1,93297	1,89695	0	1,95893
D : Separated	1,99888	1,83547	1,95893	0

	A	B	C	D
A : No child	0	1,90515	1,99987	2
B : One child	1,90515	0	1,83837	1,9999
C : Two children	1,99987	1,83837	0	1,91096
D : Three children or more	2	1,9999	1,91096	0

	A	B	C	D	E	F	G	H
A : Student	0	1,99955	1,87242	1,96527	1,96331	1,96825	1,82609	1,98278
B : National service	1,99955	0	1,66667	2	2	1,77714	1,88849	2
C : Job>6 months	1,87242	1,66667	0	1,79642	1,91828	1,82469	1,64917	1,88613
D : Unemployed	1,96527	2	1,79642	0	1,9001	1,92005	1,9679	1,92005
E : Inactive	1,96331	2	1,91828	1,9001	0	1,93684	1,98708	1,9341
F : Short jobs	1,96825	1,77714	1,82469	1,92005	1,93684	0	1,95235	1,95638
G : Salaried Student	1,82609	1,88849	1,64917	1,9679	1,98708	1,95235	0	1,9471
H : Part-time worker	1,98278	2	1,88613	1,92005	1,9341	1,95638	1,9471	0

indel = 4,1

Men's costs:

	A	B
A : never lived in a self-paid accommodation	0	2
B : ever lived in a self-paid accommodation	2	0

	A	B	C	D
A : Single	0	1,93789	1,96084	1,99938
B : Unmarried cohabitant	1,93789	0	1,90072	1,83847
C : Married	1,96084	1,90072	0	1,96315
D : Separated	1,99938	1,83847	1,96315	0

	A	B	C	D
A : No child	0	1,93406	2	2
B : One child	1,93406	0	1,83777	1,9996
C : Two children	2	1,83777	0	1,89533
D : Three children or more	2	1,9996	1,89533	0

	A	B	C	D	E	F	G	H
A : Student	0	1,87291	1,89254	1,97189	1,97107	1,97062	1,86102	1,98862
B : National service	1,87291	0	1,39566	1,92791	1,96978	1,88007	1,94375	1,98035
C : Job>6 months	1,89254	1,39566	0	1,64101	1,88418	1,76617	1,66432	1,81898
D : Unemployed	1,97189	1,92791	1,64101	0	1,97678	1,92006	1,97735	1,94863
E : Inactive	1,97107	1,96978	1,88418	1,97678	0	1,96087	1,99008	1,98091
F : Short jobs	1,97062	1,88007	1,76617	1,92006	1,96087	0	1,94749	1,97606
G : Salaried Student	1,86102	1,94375	1,66432	1,97735	1,99008	1,94749	0	1,98347
H : Part-time worker	1,98862	1,98035	1,81898	1,94863	1,98091	1,97606	1,98347	0

indel = 4,1

Appendix B : Homogamy of pathways to adulthood

Column percents

Men's clusters	*Women's clusters*					N
	Working singles	Moderns	Classicals	Homemakers	Opting-outs	
Working singles	9,0	4,1	2,0	2,8	2,5	3,5
Moderns	43,0	48,1	17,6	27,7	13,9	28,7
Several children classicals	9,6	9,6	35,2	34,6	38,1	26,5
One child classicals	10,9	16,5	33,4	21,2	28,8	23,9
Slow starters	27,6	21,7	11,9	13,8	16,7	17,3
N	100	100	100	100	100	100

Row percents

Men's clusters	*Women's clusters*					N
	Working singles	Moderns	Classicals	Homemakers	Opting-outs	
Working singles	28,6	28,6	16,3	12,2	14,3	100
Moderns	16,6	41,2	17,6	14,9	9,7	100
Several children classicals	4,0	8,9	38,2	20,2	28,8	100
One child classicals	5,1	17,0	40,2	13,7	24,1	100
Slow starters	17,7	30,9	19,8	12,4	19,3	100
N	11,1	24,6	28,8	15,5	20,0	100

Cell khi-2

Men's clusters	*Women's clusters*					N
	Working singles	Moderns	Classicals	Homemakers	Opting-outs	
Working singles	13,4	0,3	2,6	0,3	0,8	49
Moderns	11,0	45,2	17,5	0,1	21,6	403
Several children classicals	16,8	37,4	11,4	5,3	14,2	372
One child classicals	11,1	7,9	15,1	0,7	2,8	336
Slow starters	9,5	3,9	6,9	1,5	0,1	243
N	156	345	404	217	281	1403

khi-2=257,3, DF=16, prob<0,0001