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Gender inequality regarding retirement benefits in Switzerland

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Introduction

The aim of this paper is to compare two methods for constructing typologies of life trajectories based on sequential data. The focus is put on the forms of causality that links together ascribed, antecedent positional factors, life trajectories and some outcome variable measured afterwards. By using the term "forms of causality", we refer to the classification proposed by Godard and de Coninck (1990) about temporal forms of causality that are mobilized by life course researchers in order to give sense to the life trajectories they study. These authors distinguish three forms of causality, that they call respectively the *archeological* model, the *processual* model and the *structural* model. In the first model, the causal relation posits that trajectories ensue almost deterministically from the social position(s) individuals held at their starting point, for example at birth. This model promotes the historical or historicist explanation of individual life (Stinchcombe, 1968) or structuralist view of social life (Abbott, 2000) which is determined by social background of individuals. The brightest example relates to homogamous marriages as reproduction of social structures. In the second model, causal relations are based on the ways in which events and phases of the life courses are chained to one another, showing for example an underlying logic of cumulative advantages or disadvantages during the life course (Dannefer, 2009). The trajectories or "master narrative" result overarching of social process that has the character of coercing processes within it, and indeed of preventing those processes from creat-

ing combinations that disrupt it (Abbott, 2000). It is this coercive characteristic that makes trajectories master narratives (Abbott, 2000). The institutionalisation process exemplifies this model, as it begins with commitment of powerful individuals and ends with the domination of state institutions (Stinchcombe, 1968). In this perspective, individual trajectories, that is particular time varying participation profile (Levy & Widmer, 2013), may or may not change the initial situation.

The third model proposed by Godard and de Coninck (1990) makes links between life trajectories and the social context in which they occur and to question how social structures and institutions shape life trajectories over time. The social institutions as causal forces intervene in the process of self-generation of social structures (Stinchcombe, 1968**).** For example, industrial development increases the demands on the professional in the new industries and favours the education. The "routinization of innovation" and rationalisation (in Weber's sense) are the traits of modernisation, which in turn promotes institutionalisation. The most audacious hypothesis in this purpose is that the process of institutionalisation (educational and occupational trajectories as the evidence) decreases the social inequality determined by social background.

In this article we empirically address the issue of the time related link existing between initial positional factors (e.g. gender), individual occupational trajectories and retirement benefits.

In this perspective, several studies realized in occidental countries demonstrated that retirement insurances are "life course sensitive" (Leisering, 2003)., Life course sensitivity means that the level of retirement benefits is related to the occupational trajectories of individuals. In the case of Switzerland for example, those who had an occupational trajectories characterized by full time employment without interruptions get a higher level of retirement benefits than those that had trajectories characterized by discontinuous and part time employment. However, a rich body of research has also shown that the level of retirement benefits is related to social background of individual. For instance, the inequality of retirement benefits in Switzerland is reinforced by the gendered nature of individual life course. The gendered dimension of life course is theoretically framed among others with

the notion of master status (Levy & Kruger, 2001; Levy et al, 2006). It postulates that the institutions of the welfare state - contribute to primary assign to women the role of caregivers and to men that of breadwinners. Therefore, female employment is legitimated only if it is subsidiary to domestic and cares responsibilities, while paid work remains the prerogative of men. Their involvement in family tasks is possible as long as their role as breadwinners is fulfilled (Levy, Widmer & Kellerhals, 2002; Levy & Widmer, 2013).

Research results are however ambiguous concerning the relations between positional factors, occupational trajectories and retirement benefits. Schematically, in the theoretical perspective linking welfare state institutions and the gendered master status, the predominant form of causality is the archaeological model. Indeed, gender differences lead to sex specific occupational trajectories from which depends the level of retirement benefit. In this case, the occupational career plays some sort of mediating role between gender and benefits. On the other hand, focusing on the life course sensitivity of retirement schemes calls for a processual model of cumulative disadvantages and advantages. In this perspective, an important share of women, but not all of them, have discontinuous occupational career mainly for family reasons with the consequence that eventually they will be disadvantaged in terms of retirement benefits in comparison to men who have a continuous full time career.

This raises the issue of which of the archeological and the processual models is most adequate to explain the links between positional factors, occupational trajectories, and retirement benefits? To answer to this question, we will compare results obtained using two different methodologies that are combined with sequence analysis in order to describe types of trajectories. The first one is the cluster-based approach which is broadly used in the literature on life course research (Gauthier et al. 2009) and second, the discrepancy analysis that was recently proposed by Studer et al (2011).

The cluster-based approach is a two-steps analysis. In a first step, a cluster analysis is performed on the matrix gathering all pairwise distances between individual trajectories stemming from sequence analysis in order to create homogene-

ous types of trajectories. In the second step the relation of clusters with initial individual positional characteristics is analyzed using for instance logistic regression or factor analysis. Initial characteristics are conceived as covariates that characterize social positions of persons before the starting time of the considered trajectory (gender, birth cohort, social class of origin, etc.). The discrepancy analysis is an ANOVA related method that also aims at delineating types of trajectories according to initial characteristics of individuals (Studer at al, 2011). This regression tree method that reveal in an ordered way the individual characteristics that best discriminate the trajectories at hand. Both methods create groups of trajectories, either based solely on their structural proximity (cluster analysis) or on individual characteristics (discrepancy analysis). Studer et al (2011) insist on the fact that discrepancy analysis allows making a direct link between individual characteristics and trajectories. In this sense such methodology supports the archaeological model presented above. Similarly, focusing uppermost on the comparison between trajectories prior to linking them with the initial characteristics of individuals, the clustering based approach reflects the processual model of causality underlying life trajectories proposed by Godard and de Cononck (1990).

In the following, we will address the comparison of these two methods in relation to retirement benefits. We make the assumption that the most adequate method along with the underlying form of causality, will be the one producing the lowest internal variability and the highest intergroup variability on an external variable as in this case the amount of retirement benefits. Before to develop tools we used and to present our result, we will succinctly present in the following section the retirement scheme of Switzerland. This presentation is necessary in the sense that the construction of sequences that we used for our analysis depends strongly of this scheme.

The retirement scheme in Switzerland

The life course sensitivity of retirement insurance implies that the institutional context determines opportunity of low or high retirement benefits. In order to pre-

scribe retirement benefits we relate Swiss regime of retirement insurance with occupational trajectories and social characteristics of individuals. The regime of social protection in Switzerland during the retirement includes three pillars: the oldness and survivor insurance or *Assurance-vieillesse et survivants* (AVS), the occupational benefit or *Prévoyance professionnelle* (PP) and personal private insurance.

The oldness and survivor insurance is universal and offers state allowance for all individuals achieving the mandatory age fixed in 2015 to 64 years for women and 65 years for men (www.avs-ai.ch.). Although this insurance remains income dependent, it's mandatory for unemployed persons. Particularly, a husband's reallowance completes the contributions for unemployed wife. This insurance aims at covering the basic economic needs of individuals; its minimal amount is fixed 1'175 CHF and maximum is 2'350 CHF per month (www.avs-ai.ch.). In the case of divorce and widowhood never employed women keep the right for the part of allowance, which is calculated due to period and amount of contribution of their husbands.

Occupational insurance is compulsory in Switzerland since 1985 for the individuals earning more than 21'150 CHF per year (for 2015, cf. www.avs-ai.ch.). These contributions depend on the individual income during the work life and allow increasing of retirement benefits. Therefore, the prevalence of part-time work among married women, associated with caring commitment may exclude many women from occupational pension schemes. Particularly in Switzerland in 2008 56,8% women contribute to an occupational pension scheme (LPP) compared to 81,7% of men (Actualités OFS, 2011; SESAM data).

The capacity of women to obtain an adequate occupational pension is constrained by the unpaid domestic provisioning and caring they undertake for the benefit of others (Ginn & Arber, 1993). Wives who do not contribute to an occupational insurance scheme depend financially on their husband. Although married women may share the benefit of their husband's occupational pension when they retire, widows receive about 60% their deceased husband's pension depending on age at death and the matrimonial union regime (http://www.bsv.admin.ch/). Ac-

cording to law (article 122 al. 1 CCS) divorced women may claim the half of their ex-husband's occupational pension. Hence, pension schemes of all types depend to some extent on duration and level of earnings, making women more likely to have lower retirement benefits than men.

Self-employed individuals have not access to the LPP. They have to contribute to private pension funds in order to secure an adequate income in later life.

The final level of retirement benefits depends on the level and continuity of earnings obtained during ones occupational career. Mostly the level of retirement benefits is related to the occupational insurance or the second pillar. This dependence presents a disadvantage for those, especially women, who have low wages and/or do not fit the profile of full-time continuous employment. Moreover, we consider that social characteristics of individuals, particularly the type of sexual division of labor influence their occupational careers and contribute to increase inequalities between the retired workers who fully contributed to the social welfare system and those who did less so or not at all.

Data and methods

We use the data from the Survey of Health, Ageing and Retirement in Europe (SHARE), particularly the retrospective biographic data SHARELIFE gathered during its third wave in 2009. The initial Swiss sample of SHARELIFE counts 1296 respondents aged of 50 years and more. We selected individuals born before 1949 and therefore were at least 60 years old at the end of the data collection. The resulting sample includes 833 respondents. This allows to precisely observing the ways in which individuals leave the labour market, possibly before the mandatory age of retirement (currently 65 for men and 64 for women). The trajectories allow observing simultaneously timing of transition between the states, duration and reversibility of states.

We first built the occupational trajectories of individuals, as a succession of unambiguous yearly states from age 45 to 70. We distinguished six possible occupational states. The first three states are linked with employment, namely: 1. "Full time employment with LPP contributions", 2. "Full time employment without LPP contribution" and 3. "Part-time employment with and without LPP contribution". The next states are linked with unemployment or situations in which individuals are out of the labour market, namely 4. "Insurances benefits including disability insurances and unemployment insurances", 5. "At home or occupationally inactive due to personal reasons" and 6. "Retirement".

Optimal matching analysis allows quantifying the level of dissimilarity (called distance) between a pair of individual sequences and hence eventually producing a matrix of all interindividual distances (Gauthier, 2013).

Secondly we developed the first method of classification of occupational trajectories - cluster analysis. Cluster analysis using the Ward method (Ward, 1963) performed on the distance matrix allows grouping the homologous sequences in to homogeneous groups in order to build sociologically meaningful types of individual occupational trajectories. Based on a standard clustering quality criterion (silhouette index =0.69) (Rousseeuw, 1987) and face value relevance, we retain a four-group typology (Figure 1).

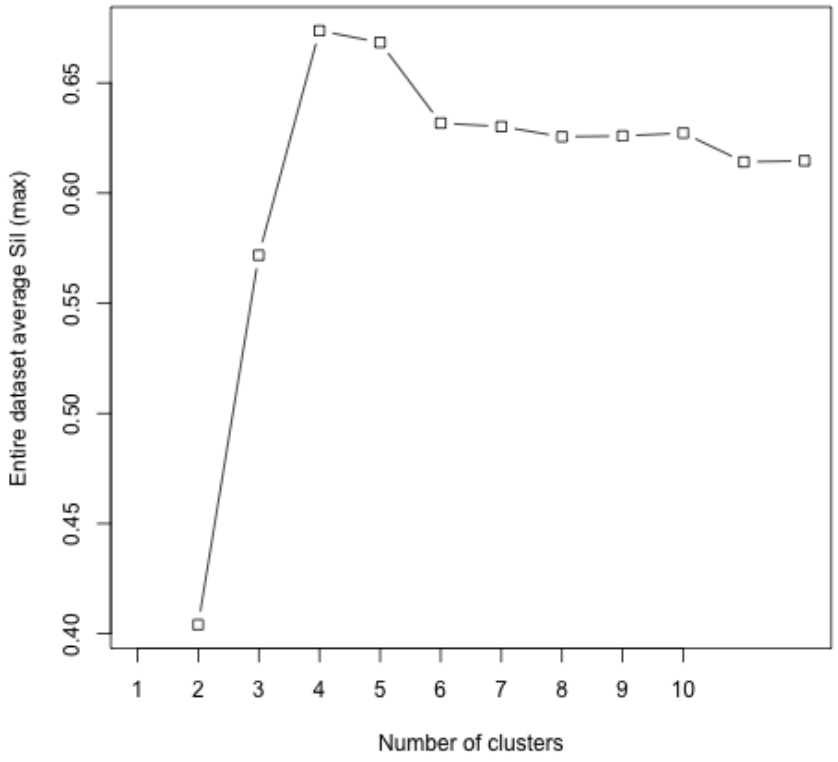

Fig. 1: Silhouette index

Unsurprisingly, the resulting patterns of individual occupational trajectories are mainly structured by the various levels of occupational activity and by the fact that employment is associated or not with compulsory contributions to a pension fund.

Eventually, we realized regression analyses in order to link the types of occupational trajectories with a selection of social characteristics of individuals, namely sex, birth cohort, occupational status, educational status, marital status and nationality. Unfortunately, due to data separation regarding the distribution of sex and age between the groups, logistic regression provides aberrant regression coefficients. This situation occurs often, in particular when comparing trajectories that

are highly sensitive to certain variables, as it is the case when studying gender inequalities. For this reason we applied multiple correspondent analysis (MCA).

Thirdly, we develop the second method of classification of occupational trajectories - ANOVA discrepancy analysis (Studer et al, 2011). The discrepancy of sequences is directly measured from their pairwise dissimilarities computed using optimal matching analysis (OMA) (Gauthier, 2013). The discrepancy analysis is based on the effect of each new covariate, which is evaluated by discrepancy between this covariates and others covariates when this covariate is included in the model. The algorithm is based on the maximisation of the between groups discrepancy and is sensible to order in which the covariates are added in the model (Studer et al, 2011). We used the algorithm when all variables are included in the model and then each variable by turn is excluded from the model. The effect of each variable is evaluated by the minimisation of the between groups discrepancy, and calculated by ratio of the explained discrepancy once all covariates were included in the model to the residual discrepancy if the covariate removes from the model. The significant reduction of this ratio when the covariate is excluded from the model signifies it's high influence on the individual's trajectories.

Finally, we compare the logarithmic score of retirement benefits in the groups of individuals produced with cluster analysis and ANOVA discrepancy analysis. We evaluate these groups with criterium of within/between group homogeneity (median, mean, variance, skewness, kurtosis). Heterogeneity of scores of retirement benefits between groups and homogeneity of scores within the groups signifies the quality of groups.

All computations are made with the R environment for statistical computing (R core team, 2014). In particular, multiple correspondence analysis are done using the FactoMineR package (Husson, Lê & Pagès, 2009), sequence, discrepancy and regression tree analyses are based on the TraMineR package (Gabadinho, Ritschard, Müller & Studer, 2011).

Results

1. Cluster analysis

We can read from Figure 2, that patterns of individual occupational trajectories (or cluster types) are related to employment states with or without contributions to a pension fund or states of occupational inactivity

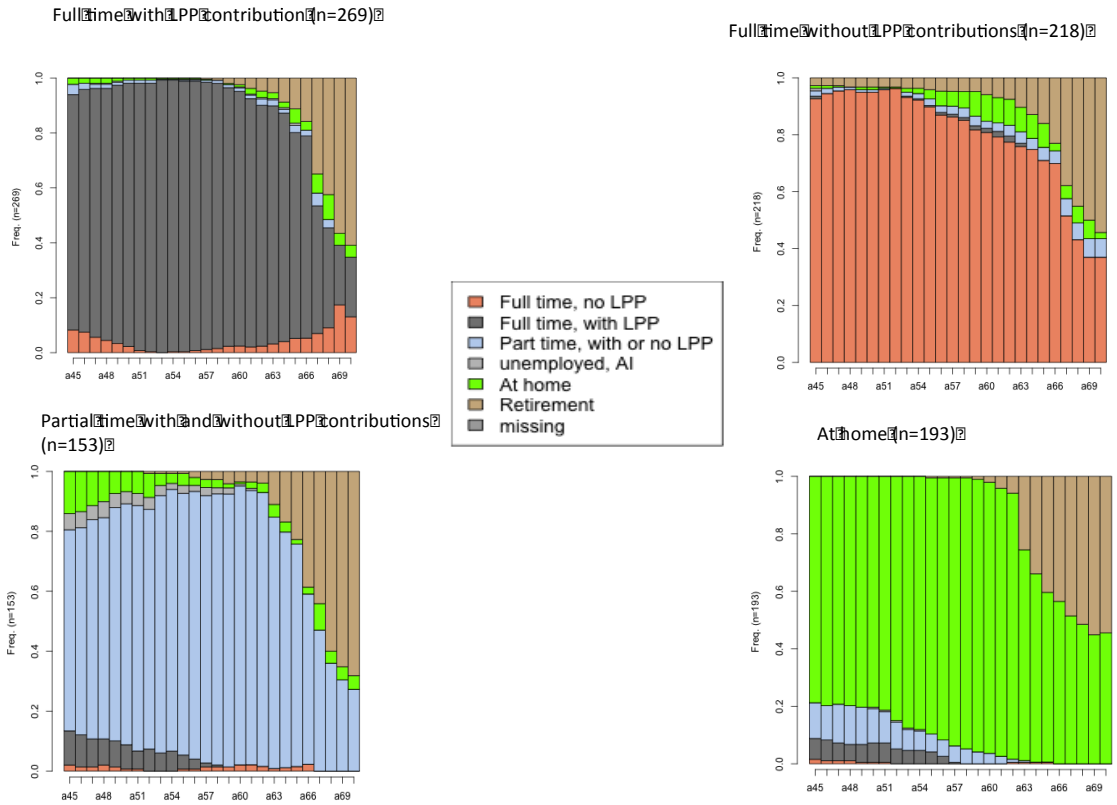

Fig. 2: Cluster types of retirement transition

The first pattern "Full time employment with LPP contribution" (32 % of the selected sample) includes individuals who are continuously full time employed and contribute to an occupational pension fund. This pattern represents highly standardized trajectories of both occupational careers and transitions to retirement. Individuals who follow this type of trajectories did not (or rarely) experience unemployment or disability during their career; only a few of them anticipated their retirement, but only at the age of 57 for the most precocious of them.

The second pattern "Full time employment without LPP contribution" (26% of the selected sample) includes individuals who are continuously full time employed, but who do not contribute to any occupational pension fund. This pattern presents less standardized trajectories of occupational careers and retirement. For them, the process of the transition to seniority starts as early as 45 years and one third of individuals belonging to this group left the labor market before the legal AVS age, sometimes progressively through part time employment and/or occupational inactivity.

The third pattern "Part time employment with and without LPP contribution" (19% of the selected sample) includes individuals who are part time employed, whatever they contribute or not to an occupational pension fund. This pattern presents also less standardized trajectories of occupational carrier and retirement. The transition to occupational inactivity due to unemployment, disability and/or occupational inactivity occurring more often around age 60, i.e. short before retirement age.

The fourth type that we named "At home" (23% of the sample) includes individuals who are occupationally inactive on the long run. This pattern presents destandardized trajectories of occupational carrier and retirement. At the legal AVS age only one half of individuals declare their retirement, while the other half continues to consider themselves as occupationally inactive after that age. This underlines the high level of institutional exclusion these individuals are facing.

At the next step by application of MCA we link the patterns of occupational trajectories with social characteristics of individuals.

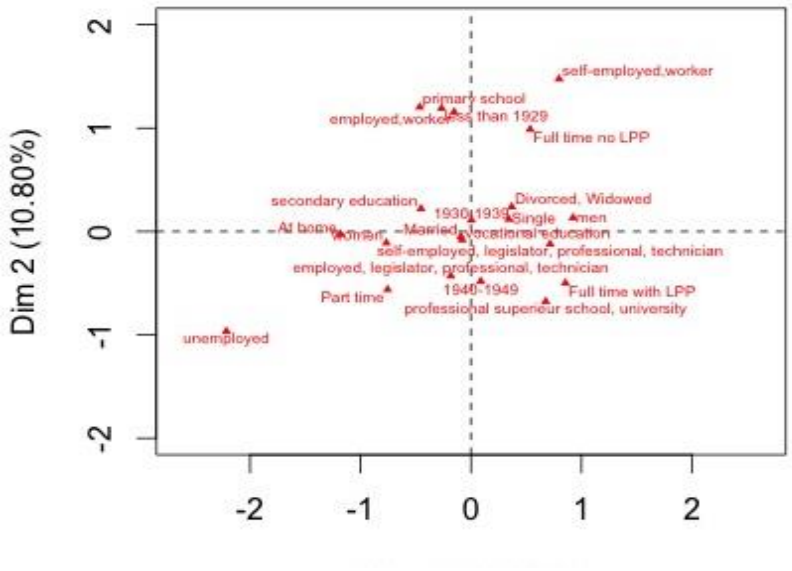

Fig. 3: Multiple correspondent analysis of categories of cluster types and categories of social characteristics of individuals

According to Figure 3 the first axe contrasts the patterns of full time activity with or without LPP contributions, and the patterns of part time activity and occupational inactivity. This opposition is also that of men and women trajectories Men are involved in the trajectory characterized by a transition to retirement from a full time job with or without LPP contributions, while women follow trajectories characterized by a transition to retirement after an occupational inactivity or part time employment. The second axe marks an opposition between the pattern "Full time employment with LPP contributions" and the pattern "Full time activity without LPP contribution". This opposition is strongly associated with the birth cohort of respondents. The individuals born before 1929 are more likely to belong to the pattern "Full time employment without LPP contributions" while the individuals born between 1940 and 1949 are more frequent in the pattern "Full time employment with LPP contributions". The second axe reveals also the opposition between self-employed who did not contribute to LPP during their career and employed who contributed to the LPP. The level of education influences also on

probability to belong to the type . A low level of education is more often associated with the type "Full time activity without LPP contributions", while a high level of education is frequent in the type "Full time activity with LPP contributions".

2. ANOVA discrepancy analysis

As alternative way for classifying occupational trajectories we used ANOVA discrepancy analysis (Studer et al, 2011).

Table 1 shows the discrepancy of the trajectories due to the covariates or variables of social characteristics.

Table 1. Effect of the covariates on the occupational trajectories according to Multifactor Discrepancy Analysis.

Full Model			
Variable	F	Pseudo-R^2	p-value
Sex	55.78	0.119	0.000
birth cohort	5.35	0.023	0.000
occupational status	1.89	0.008	0.038
level of education	0.93	0.006	0.507
marital status	4.23	0.018	0.000
nationality	2.19	0.005	0.043
Total	9.19	0.216	0.000

Note. Inconclusive intervals: 0.00724 <0.01 <0.0128; 0.04396 <0.05<0.0560.

The model with all included covariates explains 21,6% of total discrepancy (R^2=.216). The variable sex is the most influent covariate on the individual occupational trajectories (F=55.78 and p-value =0.000). If we remove this variable, the R^2 value of the model decreases by 0.119, and the total discrepancy of the trajectories decrease by 11,9%. In opposite, other covariates are not influent or not significant, beside the birth cohort, which explains 0.02% of the total discrepancy of the trajectories (R^2=.023). Although the multifactor analysis allows the recognition of the most influent social characteristics on the individual's trajectories, it does not identifies what the effects are or how the trajectories change under influence of the

covariates. In order to visualize the link between the modifications of the occupational trajectories under influence of the covariates we applied the regression tree analysis. In order to make the number of regression tree groups equal to the number of cluster groups we limited the deep of tree to four branches.

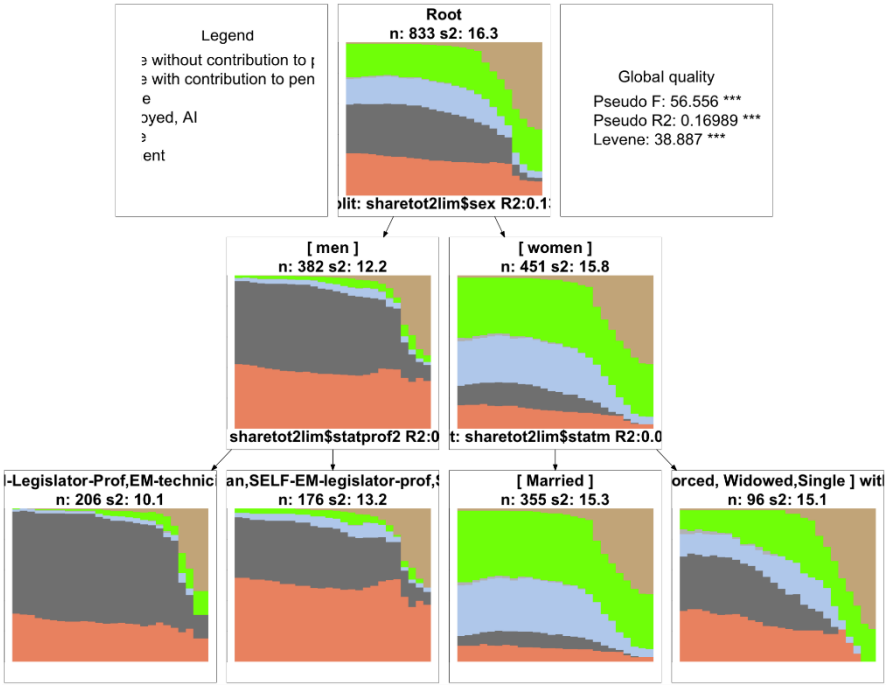

Fig. 4: The regression tree of the occupational trajectories

The model of the regression tree explained 16, 9% of total discrepancy (R^2=.169). We observed that sex is the most influential variable to discriminate occupational trajectories before the transition to retirement. Then, the occupational status is the most influential social characteristic to distinguish men trajectories; while it is the marital status for women. It confirms to a certain extent master status hypothesis. First branch (25,0%) includes employed men with advanced occupational status as legislator, occupational, technician. Second branch (21,0%) includes employed men as workers, and self-employed men, with all occupational status as legislator, occupational, technician, worker and unemployed. The third branch (43,0%) in-

cludes married women., The fourth branch (11,0%) includes divorced, widowed and single women,.

3. Repartition individuals from the classified groups

We crossed the cluster groups and the regressions tree groups in order to examine if the individuals developing the equal occupational trajectories are included in the same groups (Table 2).

Table 2. Repartition of individuals in cluster and regression tree group

	Cluster 1 Full time with LLP, %	Cluster 2 Full time without LPP, %	Cluster 3 Part time with or without LPP, %	Cluster 4 At home, %	Total
1. Employed legislator, professional men	68.9	26.7	1.9	2.4	100 N=206
2.Employed workers and self-employed all prof. status men	38.6	50.0	7.4	4.0	100 N=176
3.Married women	9.0	12.4	34.1	44.5	100 N=355
4.Divorced, separated and single women	28.4	32.6	14.7	24.2	100 N=95

According to Table 2 the individuals developing the same occupation trajectories are mostly included in correlated clusters and regression tree groups. Hoverer, the regression tree groups include the individuals who don't belong to the same clusters according to occupational trajectories.. The first regression tree group "Employed legislator, professional men" includes about 70% of men belonging to the cluster "Full time employment with LPP contribution". About 27% of men of this group belong to the cluster "Full time employment without LPP contributions" and the insignificant proportions of men of this group belong to the clusters: "Part time employment with or without LPP contribution" and "At home". The second regression tree group "Employed workers and self-employed of all professional status men" includes 50% of men belonging to the cluster "Full time employment without LPP contributions". However about 40% of men of this group belong to the cluster "Full time employment with LPP contributions". About 7% of men of this group developed less typical occupational strategies and belong to the cluster "Part time employment with or without LPP contribution". The third regression tree group "Married women" predominantly includes women who belong to the cluster "At home". This group includes also 34% of women be-

longing to the cluster "Part time employment with or without LPP contribution". However about 20% of women of this group develop the strategies of full time employment and belong to the clusters "Full time employment without LPP contributions" and "Full time employment with LPP contribution". The fourth regression tree group "Divorced, separated and single women" includes women who belong to different clusters, mostly to the clusters "Full time employment without LPP contributions", "Full time employment with LPP contribution" and "At home". Minority of women of this group belong to the cluster "Part time employment with or without LPP contribution".

On the next step we compared the median personal income across the regression tree and cluster groups (Table 3).

4. Median personal income across the clusters and regression tree groups

We would have expected a strongest correlation of personal income inside of regression tree groups in case of a predominant archaeological model of the life course. And oppositely, we expected a strongest correlation of personal income inside of clusters groups in case of a predominant processual model of life course. The personal income derives from household income divided by number of household members (SHARE wave 2).

Table 3. Median personal income or median level of the individual life

	Cluster 1 Full time with LLP, %	Cluster 2 Full time without LPP, %	Cluster 3 Part time with or without LPP, %	Cluster 4 At home, %	Median group (all clusters)
1. Employed legislator, professional men	3500	3050	2050 (N=4)	4000 (N=5)	3500
2.Employed workers and self-employed all prof. status men	2675	2175	4500 (N=11)	2396 (N=4)	2500
3.Married women	3600 (N=24)	2117 (N=30)	2700	2500	2700
4.Divorced, separated and single women	4500 (N=21)	2450 (N=20)	2533 (N=13)	2750 (N=17)	2750
Median cluster (all groups)	3400	2500	2633	2650	2850

Note: we noted the weak size of category between the brackets.

The variation of median personal income among the regressions tree groups shows that the income is weakly correlated with social characteristics of individuals as we would have expected from an archaeological model of the life course. In the regression tree group "Employed legislator, professional men" median personal income of employed full time with LPP contribution men is equal to median income of this group. However, there is heterogeneity of income distribution in the group "Employed workers and self-employed all professional status men". Particularly, median income of men who are employed part time is differed from median income of this group. Again in the groups "Married women" and "Divorced, separated and single women" the income of employed full time women doesn't correspond to median income of these groups. In opposite, in the clusters, especially in the two first clusters which unit the individuals developing the trajectories

of full time employment with and without LPP, median income correspond to occupational trajectories and predominantly corresponds to median income of these clusters. Such result promotes the processual model of causality rather than the archaeological model (Godard & de Coninck, 1990).

We also explored the variability of income inside of the groups and the clusters. For this purpose we computed Gini index of inequalities of income inside of the regression tree groups and the clusters (table 5).

Table 5. Index of Gini

	Cluster 1 Full time with LLP, %	Cluster 2 Full time without LPP, %	Cluster 3 Part time with or without LPP, %	Cluster 4 At home, %	Median group (all clusters)
1. Employed legislator, professional men	27.81	33.97	(51.10)	(12.51)	30.36
2. Employed workers and self-employed all prof. status men	26.17	37.39	(38.43)	(6.29)	34.19
3. Married women,	22.81	38.63	22.08	34.56	30.57
4. Divorced, separated, single women	26.75	35.27	16.41	24.39	29.12
Median cluster (all groups)	27.69	37.40	27.38	32.30	31.80

Note: index of Gini of the category of weak size is noted between the brackets

According to table 5 there are more income distribution inequalities inside of the regression tree groups than inside of the clusters. This result shows that the degree of inequalities is more determined by social characteristics of individuals than by their occupational trajectories. As in the case of the median income variation among the clusters and the regression tree groups (table 4), these results rather

promote a processual interpretation of the equal classification than an archeological interpretation.

In the case of the trajectory of full time employment with LPP, inequality is weakest than in the case of the trajectories of full time employment without LPP, part time or staying at home. We can explain this difference by higher degree of institutionalisation of professional trajectories with LPP contributions. The law of pension fund promulgated in 1985 had for consequence the decrease of inequalities between workers and high status employees. The low level of institutionalisation in the case of part time employment or unemployment explains the high variance of personal income and inequality in the clusters "Part time with or without LPP" and "At home".

Provisory conclusion

The aim of our paper was to investigate how to link the social background of individuals, their life trajectories (occupation) ,and an outcome, continuous variable (the level of retirement benefits). In order to investigate the causal relationship between these factors and personal income two methods were tested: the first, is the most diffused in actual social science research community, namely cluster analysis combined with sequence analysis; the second is the discrepancy analysis (Studer et al., 2011).

The application of these methods is based on the different methodology. The cluster analysis was applied to a matrix of distances between occupational trajectories, which was previously computed with a sequence analysis. The cluster analysis provides the groups of individuals due to proximity of their occupational trajectories. In a life course perspective the clusters result the influence of institutionalisation on the individuals trajectories. The social institutions such as employment, social insurances or unemployment influence on the individual trajectories together with background. The essential point of this processual model is

to consider that social institutions produce an impact on the individual trajectories. This model doesn't favour the dominance of background and supposes the existence of social mobility in the society. For example, two persons with different background can have similar occupational trajectories through participation in the labour market and benefice similar income after retirement. In opposite, the application of the discrepancy analysis supposes the link between the individual background and the occupational trajectories. As the cluster analysis the discrepancy analysis was applied on the matrix of distance between occupational trajectories, but it allows splitting the groups of individuals based on the proximity of their occupational trajectories due to background characteristics. This archeological model supposes influence of the individual background on the occupational trajectories. This regard to the classification enhances the influence of background characteristics on the occupational trajectories and reduces the impact of institutionalisation.

We applied two methods of classification of occupational trajectories in order to compare the homogeneity of the groups, particularly, homogeneity of distribution of personal income among the individuals of the clusters and regression tree groups. Relating these methods to the forms of causality proposed by Godard & de Coninck (1990) we show that processual model analysing the relationship between occupational trajectories and personal income is centred on the more homogeneous groups. According to the results, the distribution of median personal income among cluster types is more homogeneous than the distribution of median personal income among the regression tree groups. Hence, the processual model promotes the more uniform groups in relation to income distribution.

The variation of personal median income, the index Gini, appears to be more equal inside the clusters than inside the regression tree groups. This result confirms the hypothesis that institutionalisation reduces the social inequalities determined by individual background.

Our results are limited by the application of the methods of classification of occupational trajectories before the retirement transition; the inclusion of other stages of life course in the analysis is also relevant.

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