

Working schedules and fathers' time with children: A Sequence Analysis

Gli orari di lavoro e il tempo dei padri con i figli: un'analisi delle sequenze

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Abstract Mothers' labour market participation requires fathers to find new schemes for time allocation among paid work and fathering activities. This paper investigates whether typology of fathers' engagement depends on their time availability or on other characteristics. We carry out a Sequence Analysis on data from the 2008-09 Italian Time Use Survey, allowing to identify some "fathering profiles". Multinomial logit models are used to understand which factors influence the risk to be included in the groups identified. Five 'fathering profiles' are identified, strongly shaped by the father's work schedules. A cultural threshold of "minimum compulsory childcare" emerges: even when fathers are more available to children, they spend their time in scarcely engaged activities.

Abstract *L'aumento della partecipazione femminile al mercato del lavoro richiede che anche i padri adottino una diversa allocazione del loro tempo tra lavoro retribuito e attività con i figli. Questo lavoro intende verificare se il modo in cui i padri gestiscono il loro tempo con i figli dipende dalla loro disponibilità di tempo o piuttosto da altri fattori. Con i dati dell'Indagine ISTAT sull'Uso del Tempo 2008-09, tecniche di analisi delle sequenze ci hanno permesso di identificare 5 diversi "profili di uso del tempo con i figli", fortemente caratterizzati dal diverso impegno lavorativo dei padri. Tuttavia i risultati dei modelli multinomiali, mostrano che i padri che hanno più tempo per stare con i figli, tendono a trascorrerlo in attività poco impegnative e non di child-care vero e proprio.*

Key words: fathering, time use, working schedules, Sequence Analysis, cluster analysis.

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1 Introduction

The increase in the female labor force participation occurred since the 60s has given origin to a process of gender roles redefinition. Fathers are no more expected to be financial providers only, but rather to be actively engaged in parenting activities too. Such changes require fathers to find new schemes for the allocation of their time thus breaking with consolidate daily rhythms and social norms.

The hypothesis driving this paper is that fathers tend to schedule their time with children by following a ‘crowd effect’, that is, by performing parenting activities in a quite homogeneous way, influenced by the collective rhythm. We expect that father's roles, indeed, are driven mostly by the workplace rules, but also by cultural elements, like the social expectations. We thus want to answer the following research questions: 1) Which elements influence the way fathers allocate their time in parenting activities? 2) Who are the fathers who do not ‘follow the crowd’, thus showing untraditional schedules? 3) Do fathers’ commitment and engagement depend on their time availability?

Previous studies in this field analyze fathers’ time use in terms of durations mainly: i.e. the mean time devoted to different activities all along the day in a traditional time budget approach. We propose an original approach, by adopting a time reckoning system based on a chronological method simultaneously focusing on the *duration*, on the *timing* and on the *sequencing* of activities performed. We focus our analysis on Italy, a quite traditional country in terms of gender role-set where the male breadwinner model is still well rooted and the type of occupation remains a pivotal trait shaping men’s identity.

2 Data and methods

We rely on data from the Italian Time Use Survey carried out by the National Institute of Statistics (ISTAT) in 2008-2009. We select a sub-sample of 2,481 men who self-identified as a biological, adoptive, step or foster parent or guardian of at least one co-resident child aged 0-14 years. By using the daily activity diary of the survey we quantify not only the duration of different individual activities in a sample day, but also the specific sequence of activities. Indeed, the diary data are based on a grid of 10 minute-intervals of time, describing the main activity carried out by the respondent, the concurrent activity, and where and with whom the activity is carried out. Therefore, the time allocation scheme of each individual in the sample is a sequence of 144 ordered events (each lasting 10 minutes), describing in a detailed way how individuals spend their time all along the day. Aside from the diary, a data set containing rich information on the background and socio-economic situation of individuals and their households is available. In this paper, we take into account seven kind of activities: sleeping, eating, primary childcare, housework, leisure, work, and a residual category. The timing of fathering activities, is defined as doing

any of the previous activity in presence of children. Given the interesting structure of our data source, we use Sequence Analysis techniques, in order to identify homogeneous groups of fathers, according to their parenting time use patterns. We expect that most fathers tend to spend fathering activities at about the same time, and to show standardized behaviors.

Traditional Sequence Analysis techniques are based on the Optimal Matching Analysis algorithm (Abbott, (1995), Abbott and Hrycak, (1990)) that allows to compare sequences as a whole, to measure the degree of dissimilarity between two sequences, i.e. two sets of ordered events, and to transform sequences into distances between individuals which can then be clustered in order to uncover homogeneous patterns. Dissimilarity is conceptualized as the cost required to make identical two sequences with the help of three basic operations:

- Insertion, deletion (indel operations) – traditionally each indel operation costs one unit
- Substitution. The choice of substitution costs depends on the interpretation of replacing a state (*a*) by another one (*b*). If transitions don't have a meaning, the substitution cost is set to $SC(a,b) = 2 - p(a,b) - p(b,a)$;

The dissimilarity produced by OMA is the minimum total cost required to match two sequences. Choosing the cost parameters represents the crucial point of Sequence Analysis applied to time use analysis and requires a tailor-made method. Specifically, we need to consider that the timing of the events (influenced by societal rhythms) are of paramount importance in the study of fathers daily schedules. It is not possible to separate activities from their temporal setting, and thus warp the temporal structure of the data. Three elements are important in this work, in order to analyze fathers' behaviors taking into account the social nature of time use: 1) the individual activity sequence; 2) its temporal setting; 3) the level of synchronization with the other fathers in the sample.

This is the reason why we use the Dynamic Hamming Approach (Lesnard, (2004)) to Sequence Analysis. Such an approach is based on the idea that the indel operations tend to separate events from their moment of occurrence since each indel operation has all the earmarks of inserting or deleting time, thereby warping the temporal structure. While, in our case, the cost system should be able to discriminate between two sequences which are quite similar from the point of view of the ordering of states but moved forward or put back in time, because this kind of shift is crucial in time use analysis. The solution is to use only substitution costs, and to derive them from time-varying observed transition between states. At each time point, *t*, the cost of substituting the state *a* with the state *b*, in order to transform one sequence in another one, is computed as follow:

$$s_t(a, b) = \begin{cases} 4 - [p(X_t = a|X_{t-1} = b) + p(X_t = b|X_{t-1} = a) + \\ p(X_{t+1} = a|X_t = b) + p(X_{t+1} = b|X_t = a)] & \text{if } a \neq b \\ 0 & \text{otherwise} \end{cases}$$

As a consequence, the distance at every moment between two individuals depends on what the entire population has done at the last stage and is about to do in the next one, which is a way to have both a dynamic and a relative definition of

which behaviour is common and uncommon (for instance, if two fathers (A and B) perform leisure activities with their children in two different moment of the day – father A at 11 a.m. and father B at 8 p.m. – the substitution cost for father A (to go from not being with children to perform leisure activity with them) will be higher, as 11 a.m. is quite a unusual time to have leisure with children, while father B will have a lower substitution cost as he performs such an activity in a moment of the day in which the proportion of fathers carrying out the same activity is very high).

In such a way each activity is assigned to a different meaning, depending on its temporal setting, and on the time patterning of all the other fathers, as substitution costs vary with the time and with the probability of transition between two states for the particular time considered.

Once the dissimilarity (distance) matrix has been computed, Cluster Analysis techniques (Ward's Method) are used to see if the sequences belong to a small number of distinct types. Such an approach will allow us to identify some "fathering profiles" and to differentiate between 'mainstream' and 'uncommon' childrearing scheduling. Multinomial logit models are then used to understand which factors influence the risk to be included in the groups identified.

3 Results

Five are the groups identified, by the sequence analysis. The corresponding five 'fathering chronograms' in Figure 1 report the proportion of fathers who spend time with their children, in each of the activities considered, in each moment of a 24 hours day. In order to understand the characteristics of fathers included in the five profiles', we run a multinomial logistic model, by taking into account two factors that are hypothesized to influence the allocation of fathers' time with children:

- *Fathers' work-related characteristics* (daily working hours and working schedules, evening/night/shift work), under the hypothesis that working long hours or with non-standard working schedules can be detrimental for the time spent with children, reducing the possibility to stay with them, or making them following non-standard fathering allocation schemes.
- *Partner's characteristics* (daily working hours, education, contribution to household income) in order to test both the *time availability* and the *relative resources theory*.

We also control for *fathers age and education*, *children characteristics* (age of the youngest child, number of children), *availability of external aid* (outsourcing of childcare or domestic chores).

Multinomial logistic regression results show that the way fathers allocate their time with children is mainly determined by their *work-related characteristics*. The children features seem to play a role, too. While, interestingly, the partners' work-related characteristics do not influence the 'fathering profiles'. Therefore, it seems that in Italy, roles are still predetermined by gender, and are not defined in relation to the relative earning power/time availability of each partner. A more detailed

description of each group, on the basis of both the Sequence Analysis (Figure 1) and multinomial regression results are presented in the following part.

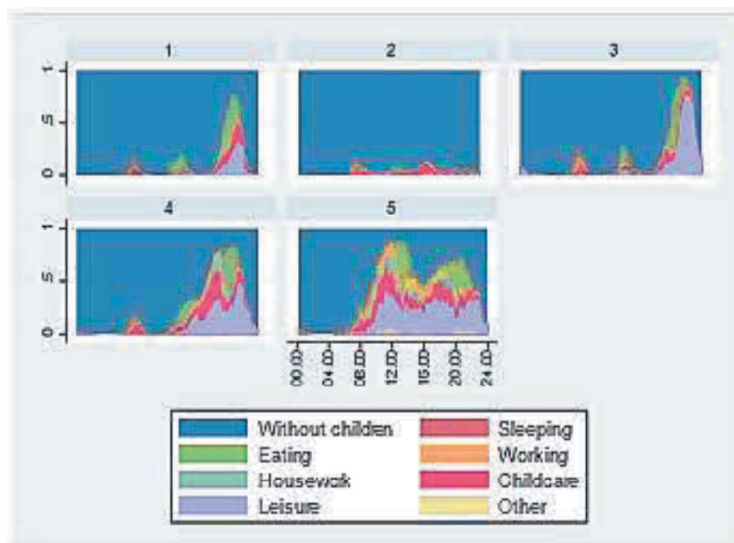


Figure 1: Fathering typologies, Sequence Analysis results.

Group 1: Full time workers, 'evening' fathers. The 'modal' group (40% of fathers) is composed of fathers spending time with their children mainly in the evening hours. They share their time with children during meals (family time), and also perform leisure activities and primary childcare. Fathers working more than 10 hours/day, by following standard working schedules, with a partner working more than 10 hours/day, and with more than 1 child are more likely to belong to such a group. More likely in a dual earner couple, fathers in this group are those who, in relative terms, spend on average more time in childcare activities. They contribute to a greater extent to parental tasks in order to alleviate the 'dual burden' of their working partner.

Group 2. Not available fathers (15% of fathers in the sample) spend limited time with their children, but they mainly perform primary childcare activities. Fathers in this group are more likely to have non-standard working schedules (evening/shift workers) and to have more than one child. Given their scarce time availability, when present, they try to share 'quality' time with their children, by performing committing and interacting activities.

Group 3. Leisure-mate fathers (representing 17% of fathers in the sample) spend time with children in the late evening hours, mainly performing leisure activities, not necessarily implying a direct interaction and engagement with children. Fathers belonging to this group are more likely to work more than 10 hours/day and to have low education levels. Differently from fathers in group 1, showing a very similar time allocation scheme, a low proportion of childcare activities is registered in this

group. It is thus possible to hypothesize that fathers with lower educational levels are less concerned about the importance of performing childcare activities with their children, or more likely to behave by following traditional gender roles.

Group 4. Part-time fathers (22% of fathers in the sample) spend time with their children in the afternoon and evening hours. Fathers working less than 6 hours/day and shift workers are more likely to belong to this group. They are the most engaged fathers (together with fathers in the first group) as, relatively to their time availability, they perform the highest amount of primary childcare activities.

Group 5. Full time Fathers (6% of fathers in the sample) are available to their children all along the day, as they are more likely to work less than 6 hours/day or not to work at all. Even if they spend more time with their children, however, they do not show a greater level of engagement and involvement in primary childcare activities.

4 Conclusions

Summing up, two main structures have emerged, shaping the fathers time allocation with children: the workplace-related schedules, mainly defining the fathers' availability during the week day, as well as some social norms, expecting fathers to spend time during the main family socializing moments, as meals or evening. Italian fathers' time use is strongly shaped by their workplace organization: work-related constraints to time with children seems to mainly determine their parenting patterns. However, even when fathers are more available to children, they spend their time in scarcely interactive activities. There seems to exist a threshold of 'minimum compulsory childcare', once it has been reached, fathers spend the rest of time with children in less demanding activities. It is possible to hypothesize the existence of gender display mechanism: those men whose participation to the labour market is scarce perceive themselves as deviant, and they do not increase in a consistent way their participation to childcare activities (as predicted under relative resources perspective) in an effort to reassert their masculinity in the face of their failure as good providers (deviance neutralization).

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