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RESEARCH IN ECONOMICS AND RURAL SOCIOLOGY

**Two or three meals a day
Gender interacts with food rhythms in Paris area**

In France, mealtimes are a strong cultural trait, especially the three-meal pattern which was formed during the 19th century on the 'bourgeois' model. The aim of our study is to test whether this pattern still prevails and analyse to what extent family structure, gender, income and migration have an effect on meal frequency. This study is based on a cross-sectional analysis of data collected in 2010 in the SIRS cohort study among a representative sample of 3006 adults living in the Paris area. Results confirm that the three-meal pattern remains strongly rooted in the food habits of the Paris area. However, the study highlighted that one out of four inhabitants report that they eat two meals a day only. It shows a difference between men and women. Women are more likely than men to take three meals a day, men being more inclined to take two meals a day. For women, this is mainly linked to economic and social vulnerability.

Three-meal pattern remains strongly rooted in Parisian food habits

The results of the SIRS survey (Health, inequalities, social disruptions, see frame 2) show that two thirds (65.9%) of the inhabitants of the Paris area and its suburbs report that they eat three meals a day (Figure 1) and one third report that they have two or four meals a day (23.6% and 6.7% respectively). Figure 2 shows that the three meals mainly correspond to breakfast, lunch and evening meal, as also observed by other French surveys (Poulain, 2002, Saint Pol, 2006). The 4:00pm peak mainly corresponds to the third meal for those who eat four or more meals a day.

Women, more often than men, report that they eat three meals a day (70.5% and 60.7% respectively). Eating three meals a day increases with age (59.9% for the 18-29 age group against 77.4% for the 60 and over age group) and with household income. If we consider socio-occupational groups, the great majority of high-

level executives (72.9%) and retired people (75.8%) eat three meals a day, far ahead of manual workers (54.9%), business owners (57.0%) and the inactive (59.4%). As for education, the least-qualified and the most highly-qualified people eat three meals more often while those with intermediate qualifications (notably, lower secondary or vocational certification and advanced secondary diplomas) eat two to more than three meals a day.

The results of a multivariate analysis model (logistic regression model, for further details, see Lhuissier et al. 2013) confirm the descriptive statistics. They show that women are more likely to eat three meals a day than men. More sensitive to health matters connected to food and to their weight, women adhere to the three-meal pattern considered as synonymous with healthy eating. Their conformity to the pattern can also be explained by the fact that women are mainly responsible for preparing meals. Income is a discriminating variable for women: those with an

income above the poverty line (set at €949/month) are more likely to eat three meals a day than poorer ones. For men, a higher level of education is positively associated with the probability of eating three meals a day. Whether they are women or men, people over 60 are more likely to eat three meals than younger people. Regularly eating four meals would correspond to adding a snack in the middle of the afternoon in addition to the three main meals. This habit can hardly be described as a “de-structuration” insofar as the fourth meal does actually correspond to a meal. In that respect, our results are consistent with previous studies which showed that students and young people take quite regular family meals (Grignon, 1993; Mestdag et

Vandeweyer, 2005). Results also shed light on the link between migrant status and meal frequency. Foreign women are more likely to eat two meals a day rather than three compared with naturalized and native French people. Thus, eating three meals a day as a migrant woman could be a sign of acculturation. More analyses could allow specific definitions of meals to be studied according to the times and context of meals reported. For instance, the practice of the morning meal - which in many countries is more substantial than the French breakfast - needs to be examined. It might not correspond to the definition of the "real" meal from another cultural perspective.

Figure 1: Number of meals declared Vs number of food intakes per day

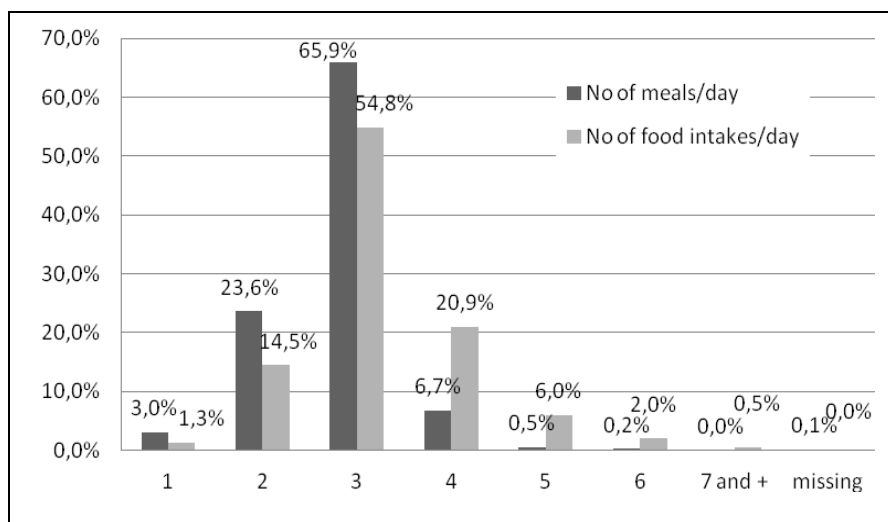
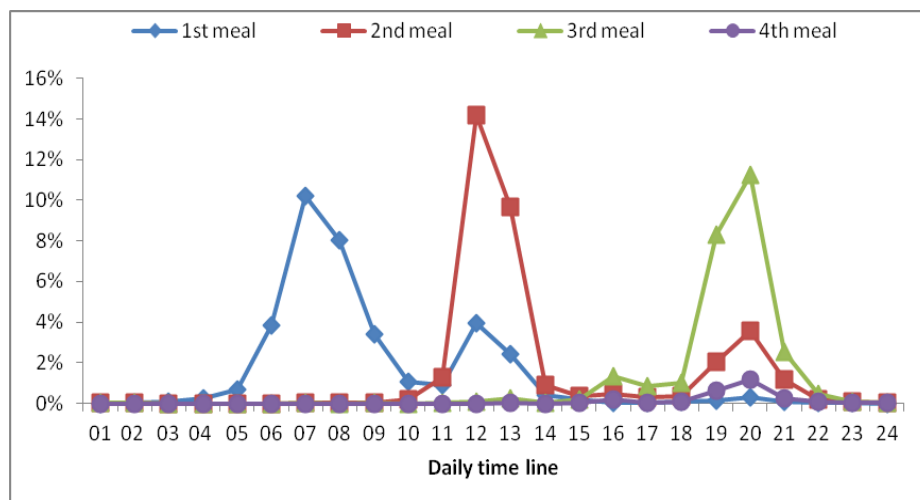


Figure 2: Mealtime Distribution - Paris and its Suburbs (Total Number of Meals Reported According to Schedule and Rank Meal)



Frame 1: Assessing the number of “eating events” in the SIRS food questionnaire

In this article, we analyse the number of meals eaten per day. In doing so, we face a core methodological question concerning both the definition of a meal and its frequency. In particular, it is difficult to distinguish meals from any other kind of snacks. That is why Makela et al. (1999) uses the term “eating event” instead of the term “food intake” used by nutritionists, as this latter term does not take into account the social environment of meals or snacks. Yet, apart from Grignon (1987), French surveys concluding on the persistence of the three-meal pattern often suggested this pattern to respondents. For instance, the questionnaires used in the INCA survey or in the Baromètre nutrition santé (INPES) explicitly asked people whether they ate breakfast, lunch and dinner and whether they had intakes in between each “main meal”. In the SIRS survey, we adopt several modes of questioning to sidestep this difficulty. We first ask a question on the number of times people eat during a typical day: “How many times do you usually eat during the day?” Second, we question the interviewees on what they consider to be their meals by asking about their number (“How many meals would you say that you eat during the day?”) and, then, their mealtimes: “We will now talk about the meals that you eat during an ordinary week... At what time do you usually have your first meal? In general, at what time do you have your second meal?” and so on, repeating the question as many times as the interviewee stated having meals per day. The questionnaire allowed for up to eight daily meals but none of the interviewees stated more than six (Figure 1). Asking questions about meals in terms of “rank” (1st, 2nd, 3rd, etc.) rather than in terms of their designation (e.g. “breakfast”, “lunch”, “dinner”) enables us to avoid imposing the three-meal pattern as a reference. In the end, we understood the situation of the people whose meal number and times diverge from the three-meal habit. We focus here on the number of meals declared as such, given that the food consumption of the respondents may not be limited to those meals.

Family structure and daily rhythm of meals

Results highlight the importance of the family structure in the daily rhythm of meals. We show that the three-meal pattern mainly concerns two-parent families (involving two adults and children under 18): couples with children and couple with co-tenants¹ are more likely to eat three meals a day than single-parent families and people living alone. In France, meals are mostly eaten at home and more particularly the evening meal which mainly remains a family meal despite work constraints (Escalon, Bossard and Beck, 2009). Moreover, mealtimes appear to enable the transmission of a series of norms (educational and convivial dimensions) to children (De Vault, 1991). However, as we have just seen, the presence of children is not enough to explain the three-meal pattern. Results show that, *ceteris paribus*, female members of households in which there is no partner (people living alone or as single-parent family) are less likely to eat three meals (there is no significant difference for other types of household). We therefore put forward the assumption that eating three meals a day could be linked to the presence of a partner and the feeling of “being a family”. This assumption is consistent with qualitative surveys that have already highlighted, on the one hand, the fact that one eats less when alone at meals, and on the other hand, that eating meals helps “be a family”.

¹ This category covers both co-tenant adults and adult children living with their parents.

Two meals a day: gender differences

Finally, results stress the influence of gender on meal pattern. Whereas women are more likely to eat three meals a day and more men eat two meals, we observe that for women, eating two meals a day is significantly linked to an economic and social vulnerability. Women living alone, mothers in single-parent families or those living with other adults (as co-tenants or as a couple without children) were more likely to eat two meals (rather than three) than women in a couple with children under 18. We also observed an effect of the economic situation of the household, with a striking discrepancy between women whose income per consumption unit is situated above and below the poverty line. The former are more likely to eat only two meals a day than those from any other income category. This observation confirms those of other surveys like the INCA, carried out on the nutritional status of women (and children), which showed that this status is extremely sensitive to the income level, the mother’s socio-occupational category and the nutritional quality of food rations of the other members of the household (Andrieu and Caillavet, 2006). These results suggested that some women in low-income households deprived themselves. Lastly, we show that foreign women are also likely to eat two meals a day rather than three. Eating two meals a day can be interpreted as a sign of vulnerability for women – economic vulnerability (income below the poverty line) but also social (migrants) and marital (women

alone/single-mother family) vulnerability. Thus, whereas we made the assumption that eating two meals might resemble a young person's de-structured lifestyle without family restrictions, we found that

actually, it may be more often a question of imposed food habits. Eating two meals a day appears less as an alternative pattern than as an adjustment to various constraints, especially for women.

Frame 2: Data and Method

The SIRS cohort study is a longitudinal socio-epidemiological population survey based on a random sample of the French-speaking adult population in the Paris area (Paris, Val-de-Marne, Seine-Saint-Denis, Hauts-de-Seine), conducted since 2005 in the framework of a collaborative research project between the French National Institute for Health and Medical Research (INSERM) and the National Centre for Scientific Research (CNRS). For the first time, the 2010 wave of data collection incorporates in the questionnaire a section on food habits that includes questions on consumption modes, food provisioning, meal preparation, rhythm and circumstances of meals (places, participants at meals, associated activities, etc.), further to collaboration with INRA-ALISS. This paper is based on a cross-sectional analysis of these data.

Modelling Meal Frequency

The explained variable is the number of meals per day described as such (see frame 1), and the explanatory variables concern two series of factors.

The first series put together sociodemographic and socioeconomic variables, the influence on food consumption of which is shown in many studies, in particular in France (Grignon, 1999): gender, age, nationality (with a distinction between French by birth, naturalised French, and foreigners), average household income per CU, education level, household composition, socio-occupational category.

The second group of variables concerns more subjective dimensions related to health, and the feeling of isolation (it was shown that persons alone have less energy to cook and take meals) but also meal regularity and consumption context, reported Body Mass Index (BMI), smoking status and also depression. Last, we incorporated two questions on the regularity of consumption of five portions of fruit and vegetables and three dairy products per day, which corresponds to the recommendations of the nutritional campaign in force in France since 2001 in the framework of the PNNS. Here, we were less interested in the dietary quality than in the possible relationships with compliance with PNNS recommendations.

Estimation

We developed simple logistic models and multinomial logistic models separately for men (n=1187) and women (n=1819), since we keep the assumption of marked differences according to gender, an assumption confirmed by the first analyses.

First, we studied the factors successively associated with the most frequent behaviour (i.e. eating 3 meals a day), then eating two meals a day, and finally eating strictly more than 3 (i.e. four or more) meals a day; each time by comparison with the other frequencies considered all together.

Since our analysis shows marked differences between those who usually eat 2 and those who eat at least 4 meals a day, it is inappropriate to combine them in the same group when comparing them with those eating three meals. Instead we use an unordered multinomial logit model to test simultaneously the three alternatives (either two or four meals compared with three meals a day).

The socio-occupational category could not always be used due to a lack of numbers in some categories. The variables presented in this analysis are those for which we state at least one significant association with the explained variable in one or the other models (at the threshold of 5% unless otherwise mentioned). Age and BMI were systematically included as variables of adjustment.

Conclusion

In France, meals are a real institution (Herpin, 1998). They are mostly taken at home, as a family, at a very regular rhythm. The 2010 SIRS survey tests the persistence of this pattern, using the least normative possible question on meal frequency. Our results confirm that the three-meal pattern remains strongly rooted in food habits in the Paris area, where time constraints and urban life could have become major obstacles. The three-meal norm appears to be a social

norm in the upper classes, who are better informed of the health and medical recommendations and less constrained by economic restrictions. More common in family households with couples and children than in other households, this pattern may be used to transmit education and socialisation rules, like table manners and family conviviality. Lastly, a pattern of gendered meals is shown: having two meals a day is more frequent among men, irrespective of their socioeconomic status; with women this practice seems less linked to a habit than to a series of socioeconomic constraints associated with the poorest households.

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