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To cite this version:

Marie Plessz, Severine Gojard. Fresh is best? Social position, time, and the consumption of fresh vs. processed vegetables in France. 2012. hal-02804152

HAL Id: hal-02804152

https://hal.inrae.fr/hal-02804152

Preprint submitted on 5 Jun 2020

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Unité de recherche 1303

alimentation et sciences sociales

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Octobre 2012

Working Paper ALISS 2012-09

INRA UR 1303 ALISS
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http://www.paris.inra.fr/aliss

Fresh is best? Social position, time and the consumption of fresh vs. processed vegetables in France

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Abstract: Since the works of Halbwachs (1913), the study of food patterns has consistently been considered as a gateway to the study of social structure in French sociological literature[1]. The subject was investigated further in the 1970s by authors such as Bourdieu (1979). The relationship between food practices and social position together with its underlying mechanisms were subject for debate in the 1980s. For some, food practices were related to class positions through socially acquired dispositions (Grignon and Grignon, 1980), whereas others considered that they merely echoed immediate situational constraints especially of a temporal and practical nature (Herpin, 1980). The objective of the present article is to revisit this debate with updated data on the evolution of French society over the past thirty years and recent sociological investigations and in particular the study of time use from the practice theory perspective. The data used was quantitative data generally not available to sociologists. They consist of a combination of information on food purchases and self-reported data on time allocated to domestic activities.

Key-Words: Sociology, Food practice, Time use, Fresh vegetable, Processed vegetable, Social position, France

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[1] This research is part of the research project entitled 'Governing Consumption Behaviours, Obesity Prevention and Sustainable Consumption' (coordinator Sophie Dubuisson-Quellier, Centre for the Sociology of Organizations, CNRS/Sciences Po). It was funded by the French *National Research Agency* (ANR). We would like to thank Christine Boizot for assisting in the analysis of quantitative data and Tally Katz-Gerro and Sophie Dubuisson-Quellier for helpful suggestions. Translation by Mathilde Cheix.

Food practices at the cross-road of taste and constraints

Grignon (1980) shows that lower classes food patterns follow different styles, which are fairly independent from elite practices. Food consumption in rural populations is highly diversified due to its reliance on home produce. Urban working class food consumption differs from rural food style, being a watered-down version, and from that of the middle and upper classes. The latter have access to distinctive products, such as ready-made meals –which were becoming more common at the time of the study, and specific practices such as eating out. According to this approach, food practices are lifestyle components produced by dispositions which result from and are signifiers of social position. Dispositions are constructed as a result of the recurrent impact of handicaps and "counter-handicaps" specific to certain social classes or even certain class segments. For example, living in a rural area imposes a series of constraints because, for example, supply outlets are remote and scarce. It is also associated with some resources or "counter-handicaps" such as the possibility to grow a garden or receive products for free from acquaintances with a garden. As a result, more general dispositions are forged such as those of making home made preserves and cold cuts.

In stark contrast with this analysis, Herpin (1980) points out that "schedule-related constraints play a major role in food consumption". He shows that the overall time devoted to eating and meal preparation can be accounted for by constraints related to the individual's work status (in employment or unemployed, possibility/impossibility of eating out for lunch), to demographic parameters (male or female, with or without a child) and to immediate situational features (week day or weekend).

One reason for the lack of convergence of these two approaches lies in the very nature of the data material they rely upon (Grignon, 1988). Grignon (1980) uses food purchase data, self-reported questionnaire data and interviews from a working class population. By contrast, Herpin (1980) uses a time use survey of urban populations. Although the positions endorsed by these two authors are not easily comparable, and although the debate was launched thirty years ago, it benefits from being

revisited since the question it addresses is critical for sociological science. This question is to determine to what extent food practices should be understood as proceeding from immediate situational constraints (available income and time) or instead as resulting from socially acquired and developed dispositions that simultaneously proceed from class-position related handicaps and counter-handicaps and forge the commitment to a given practice, thus giving precedence to the practice even when resources are apparently scarce. The objective of this article is to revisit this debate in the light of new developments in both society and sociology. This shall be achieved through the analysis of vegetable consumption and the distinction between fresh vegetables and vegetable-based processed foods.

The Transformation of Food Practices

Vegetable consumption has undergone profound changes over the past few decades. This is related in particular to changes in the norms and infrastructures that marshal vegetable consumption and how it fits into people's lifestyles.

New Prescriptions

First, nutritional prescriptions have been widely diffused in the media since the early 2000s which have raised fruit and vegetable consumption to the status of a major health issue and moral imperative: one should eat 'five a day' (World Health Organization, 2003). The definition of the vegetables concerned by this imperative is based on usage rather than on biology and differs according to countries: the place of root vegetables, such as the potato and that of pulses is particularly variable (Agudo, 2004). French nutritional specialists do not include potatoes and pulses (Amiot-Carlin et al., 2007). This acceptation markedly differs from both horticultural definitions, which include the potato, and gastronomic definitions, for which a vegetable is a side dish to be eaten with meat or fish and thus includes carbohydrates (CNTRL, 2012). The meaning of vegetable consumption has probably changed since the 1980s. The first two National Nutrition Programmes

(2001, 2006) have helped diffuse a new definition of what is meant by vegetable[1] and have prescribed specific quantities to be eaten over a pre-determined period of time (a day), the whole procedure being explicitly articulated with a health objective.

Members of the middle and upper classes are particularly receptive to such prescriptions and concerned about conforming to them (Régnier and Masullo, 2009; Tomlinson, 2003). Other pieces of research show that they were more receptive than the lower classes to norms issued by experts (Gojard, 2000). More generally, the middle and upper classes have a natural tendency to consider their state of health as a direct consequence of daily practices, whereas the lower classes fear the occurrence of an accident or a disease as a quirk of fate (Pierret, 1995). Finally, it is likely that such norms share some features with middle and upper class practices for the very reason that they are produced by experts belonging to the upper class (Boltanski, 1971).

Supply changes

Another aspect of the evolution of vegetable consumption pertains to changes in supply. Supermarkets have become more numerous in France and most importantly, the number of processed products with vegetable content has increased, although the related increase in the volume sold does not outweigh the definite decrease in the quantities of fresh vegetables purchased (Monceau et al., 2002; Nichèle et al., 2008). In the 1980s, Grignon showed that the upper classes consumed more processed foods. These were then considered as “service-like foods” and because they were relatively high-priced, they were generally out of the reach of the middle and lower classes. By contrast, by the 2000s those products had become widespread and their relative price had decreased compared with that of other food products thus changing their position in the socially determined product hierarchy. Plessz and Gojard (2010) show that the quantities of processed vegetables purchases by French households in 2007 were not related to social position (qualification,

[1] In the Grignon (1980) study, the potato is considered a vegetable.

household income). By contrast, although the consumption of fresh vegetables has been decreasing, it remains higher in middle and upper class households (Caillavet et al., 2009).

On the grounds of the evolution of the infrastructures underpinning vegetable consumption, the perspective presented in this article slightly differs from that of Grignon (1980). Whereas Grignon contrasted different species of vegetables (for example chicory in the middle and upper classes and leaks in the lower groups), no detailed analysis of the items bought is included here. Instead, the amount of fresh vegetables shall be compared with the amount of processed vegetable products (frozen products, "4th degree" products i.e. minimally processed 'fresh-cut' vegetables, tinned foods, ready meals labelled as including at least one vegetable serving).

Lifestyle and Time Use

A decrease in the amount of time allocated to domestic chores has been observed since at least the 1985 French time use survey. This is partly explained by the long-term increase in women's employment. For example, the amount of time devoted to housework by women has decreased between 1999 and 2010 whereas it has remained constant for men (Ricroch and Roumier, 2011). The impact of these trends on cooking time is difficult to assess because there seems to be no literature covering the evolution of the time spent on this particular activity. Warde *et al* (2007) show that the time devoted to kitchen-related tasks, including cleaning the table and washing up has decreased between the early 1970s and the late 1990s. Over the same period however, the time devoted to washing up has probably decreased because of the popularisation of the dishwasher: 5% of French households owned a dishwasher in 1972 vs. 22% in 1984 and 48% in 2008 (Christine and Samy, 1985; Bras and Pégaz-Blanc, 2010).

The long-term reduction in and sometimes the reversal of the work-time economic gradient has been observed by many authors (Gershuny, 2000) : throughout the 20th century, lower-class work time has decreased due mainly to an increase in (very often forced) part-time employment and unemployment in the poorest populations, while middle and upper-class working-hours have

increased. Some argue that the middle and upper classes experience a time squeeze i.e. a persistent lack of time. This view, however is debated (Gershuny, 2000). As far as France is concerned, the impact of the working-hour reduction policy implemented in 2000 still remains to be studied concurrently with the latest time use survey (2010).

The general trends described above suggest that vegetable consumption (and in particular fresh vegetable consumption) has evolved over the past few decades particularly because the normative and material contexts in which it is performed have changed, and because the underlying lifestyle has also changed. Social inequalities still play an important part. Since the preference for vegetables is more marked amongst the middle and upper classes than amongst the lower classes and since, simultaneously, the former devote less time to domestic chores than the latter, it is of interest to study the impact of these two factors on the consumption of vegetables according to social position. In order to address this issue and take into account the evolution of both the vegetable market and sociology, the present article develops a practice theory approach to the temporal dimension of food practices.

From Time Use Analysis to Practice Theory

The application of the theories of practice (Warde, 2005; Halkier et al., 2011) to the issue presently addressed seems to be particularly promising since it provides a way of understanding time as one of many aspects of food practices as opposed to a given resource, counted in minutes. More generally, this shift reflects the view that the study of consumption goes beyond the study of its consequence, namely the possession of goods. It should be considered instead as an activity actors engage in and consisting of a block of different components such as objects, infrastructures and skills (Reckwitz, 2002).

Time Use vs. Temporal Organisation

In Herpin's (1980) schedule study, time was considered as a limited household resource. The minute was used as the objective measurement unit of the importance attached to different activities. This approach, however, has been questioned by authors such as Sullivan and Katz-Gerro (2007), who show that even with less free time (and reduced financial resources) upper class members participate in a wider range of recreational activities outside their home. They conclude that the propensity for "being harried, keeping busy, multitasking and embracing a diverse cultural consumption pattern" (Sullivan and Katz-Gerro, 2007: 123) is a better indicator of social status than the time actually spent on such activities. More generally, Southerton (2006) analyses how temporal organization is affected by the combination of practices within a day. He shows that one aspect of the differences in the performances of a given practice is the degree of commitment to the practice: "the consequence of a high degree of personal commitment is that it fixes a practice within a daily weekly schedule. Being highly educated did not relate to degree of commitment, but it did affect type of practices and mode of engagement" (Southerton, 2006: 450). Time is thus no longer a continuum of identical minutes. It is paced by "hot spots", namely, activities with a fixed position within a schedule involving coordination and commitment. Hot spots typically include recreational activities taking place outside the home and with non-household members, such as playing golf. In a similar way, women with children often refer to the evening meal as creating a recurrent and unavoidable hot spot in their schedule.

The present study draws upon these contributions in that it is not based on the objective measurement of time spent on meal preparation but on opinion questions indicating the degree of commitment to practices on which vegetable consumption is based.

Practice Theory Applied to Food Patterns

The second tenet of theories of practice endorsed in the present article is the idea that a practice is a block comprising temporal organisation (e.g. periodicity and duration of the practice), objects,

infrastructures, symbolic dimensions and actions. As far as vegetable, and in particular fresh vegetable, consumption is concerned, this amounts to considering that the consumption of fresh vegetables involves viewing them as appropriate or attractive foods, buying them (hence the importance of increasing supermarket coverage), cooking (very few vegetables can be eaten raw and without preparation) and serving the prepared food to oneself or to others (coordination). It is also necessary to take into account that these products are perishable and seasonal.

The question that arises then is how to break down this "vegetable consumption" block. For example, it can be considered that the choice of fresh and processed products reflects two different yet compatible modes of engagement and most households in this study actually consume both types of products. In addition, it seems relevant to identify the practices it is important to be committed to in order to consume fresh vegetables, along with the social characteristics that predispose individuals to engage in vegetable consumption through the purchase of fresh vegetables.

The objective of the present study is to analyse the respective effects of time, understood as commitment, and of social position on vegetable and particularly fresh vegetable consumption. Self-reported opinions on time devoted to food-related activities were used alongside year-round purchase records, both pertaining to vegetable consumption. Regression analysis was used to show the existence of the block of fresh vegetable purchases and time spent on cooking as distinguished from the purchase of processed products (hardly related to cooking time) and shopping time (which has no impact on the purchase of vegetables). The analysis of interaction terms shows that commitment to cooking and social position are two independent dimensions explaining engagement in fresh vegetable consumption.

Study Design

Data

The data used is the 2007 Kantar-Worldpanel consumer data and consists of 2765 household reports of food purchases to be consumed at home over a year, irrespective of the place of purchase. Each item bought is described by its weight (included in the bar code or supplied by the respondent), its price (supplied by the respondent) and a series of features specific to each type of product (e.g. packaging) provided by Kantar. The value of this data lies in the level of precision in product descriptions and the continual updating of product taxonomy. Using the Worldpanel data, it is possible to evaluate the consumption of vegetable products in the French population irrespective of the agro-industrial level of processing involved. In addition, because purchases were recorded continually throughout the year, the quantities consumed per year can be calculated and seasonality, which is particularly significant for vegetable consumption, can be taken into account. This set of data also avoids the pitfalls of retrospective collection of food intakes (Escalon et al., 2009). The households in this panel also had to respond to questions about their purchasing practices and more generally about their lifestyle and the household's socio-demographics. One limitation of this material is that the sample is not a random sample and that although its structure mirrors the main demographic, economic and geographical characteristics of French households, the two ends of the social hierarchy are most probably under-represented, if only because the data collection process is cumbersome[2].

Methods and Variables

Linear regressions were performed to predict the quantity of vegetables purchased according to selected household characteristics and information on time spent on food-related activities was used. Unstandardised coefficients are presented which, depending on the values of the variables, can be read as extra or missing grams of vegetables in the total amount purchased in a year.

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[2] Men living alone are also probably poorly represented in the sample for the same reason.

Outcome Variables

The main outcome variable is the quantity of fresh vegetable purchased over a year. The term vegetable was defined according to the standards of French nutrition science and as such, potatoes and pulses were not included. In addition, the quantity of processed vegetables was studied. The sum of the weighted amounts of all agribusiness food products that could be considered as opportunities for the household to consume vegetables was calculated minimally processed 'fresh-cut' vegetables, frozen and tinned vegetables. Ready meals and baby food (jars) were also included when they contained at least the equivalent of one vegetable serving per person, which was assessed upon the terms used in the dish name. Tomato sauce was excluded alongside pizza, tarts and pies which the French do not seem to consider as vegetables. The two variables were measured in grams per year.

Table 1: Quantities of vegetables purchased by the households (in grams)

	Mean	Std. Err.
Total quantity of fresh vegetables	69 389.62	1 063.8210
Total quantity of processed vegetables	44 159.30	645.0196
Quantity of fresh vegetables per consumption unit	39 335.67	651.7389
Quantity of processed vegetables per consumption unit	23 267.72	331.8756

Sample: households included in the regressions (N = 2 614)

The French households in the sample bought almost 70 kg of fresh vegetables during the year 2007, and almost 45 kg of processed ones (Table 1). In order to cancel out the impact of the number of people in the households, we calculated quantities per consumption unit. Then, the quantity of fresh vegetables amounts at 39 kg per consumption unit and the quantity of processed vegetables 23 kg. Those global figures draw the attention to the share of products from agribusiness in the global consumption of vegetables in the French households. The following analysis will show that the determinants of fresh and processed vegetable consumption differ.

Control Variables

Because vegetable amounts were calculated at household level for the regressions, the following control variables were used. *At_home* controls for the propensity to eat outside the home (or conversely to ask people over on a regular basis). It is defined as the ratio of the average number of

meals taken at the home to the weekly number of lunches and dinners and weighted by the number of individuals in the household. *Garden* is equal to 1 if the household consumes home grown vegetables. The size of the household was very precisely measured: the number of adult individuals, of under-6-year olds and 6-24 year olds are distinctly measured. In addition, one-person household gender was taken into account (Saint Pol (de), 2008).

Although age largely accounts for variations in vegetable consumption, the interpretation of this link is complex in the French context since studies have shown the existence of generational effects in the propensity to buy certain foods (Babayou and Volatier, 1997). Another difficulty pertains to the fact that on the one hand one explanation often advanced for time squeeze is that women complete a "double shift" of work (i.e. women are massively responsible for unpaid domestic work, and for cooking in particular, and they are increasingly in employment), while on the other hand, very few French people work over the age of 65. As a consequence, it is difficult to pinpoint the respective effects of age and employment in regression results. That is why these two characteristics were controlled for using the following series of dummy variables: 20-40 years of age and in employment, 41-65 years of age and in employment, 20-40 years of age and out of employment, 41-65 years of age and out of employment, 66 years of age and above[3].

Covariates

The covariates analysed here pertain to social position and commitment in food related activities. The measure of the household's social position was based on: qualification level (primary, lower secondary; secondary - *Baccalauréat* included; tertiary) and income. Income per consumption unit was coded into four categories: poorest 15%, next 40%, next 30% and richest 15%. Those two variables allow to measure two different dimensions of social position: cultural and financial resources (Yaish and Katz-Gerro, 2010).

[3] After in depth analysis of the results, part-time work was allocated to the "in employment" category.

Two opinions were submitted to the respondents in order to estimate the time they devote to food: "I spend as little time as possible on cooking" and "I spend as little time as possible on shopping". The "I strongly agree" and "I agree" responses were collapsed and so were the "I disagree" and "I strongly disagree" responses. The respondents' choices are not interpreted as indicative of the amount of time available for cooking or shopping but as indicative of the degree of commitment to cooking or to shopping. Only a minority of respondents (27%) report spending "as little time as possible on cooking" whereas most of them (57%) report spending as little time as possible on shopping.

Delineating a Practice: Fresh Vegetable Purchases and Cooking

The present research is a contribution to the broader study of the relationship between time devoted to food-related activities, vegetable purchase and social position. The purpose of the following section is to delineate a practice operating as a block with inter-related components using regression results from Table 2. Fresh vegetable consumption (as opposed to processed vegetables) was isolated and it is shown that cooking time is more accurate than shopping time.

Fresh vs. Processed Vegetables

In the PV model, the outcome variable is the quantity of processed vegetables purchased. Once controlled for factors with a mechanical impact on the overall quantity of food supplies (household size, potential reliance on home-made produce, frequency of meals taken outside the home), processed vegetable purchases do not depend on age or the household's social position and only to a very limited extent do they depend on gender[4]. Spending as little time as possible on cooking slightly increases the use of processed products (+3 kg/year), whereas shopping time has no significant effect.

[4] The difference is of about 2 kg/year whereas in France, the purchases of men living alone significantly differ from those of women living alone according to Saint Pol (de) (2008). It might be due to a sample effect.

The fact that commitment to core food-based activities has a limited impact (cooking) or no impact (shopping) on the purchase of processed vegetables tends to suggest that the convenience availed by these products should not solely be interpreted as time-saving in food preparation. The function of convenience foods is also to eliminate unpleasant and complex tasks (Carrigan et al., 2006) and to facilitate the individualisation of meal times and content within a household (Southerton et al., 2011).

Table 2: Regression Results: quantities of vegetable purchased (grams/year)

		PV	FV1	FV2	FV3
		Processed Vegetables	**Fresh Vegetables**	**Fresh Vegetables**	**Fresh Vegetables**
At_home Garden		8675***	8343**	8387**	8376**
		-8042***	-11293***	-11353***	-11267***
Adults	1 male	-20814***	-44421***	-44374***	-44262***
	1 female	-18629***	-28584***	-28488***	-28521***
	2 adults	.	.	.	.
	3 adults and above	11888***	16636***	16449***	16561***
# of children <6 yrs	0	.	.	.	.
	1	15554***	1326	1589	1428
	2 and above	22407***	2739	2662	2884
# of children 6-24 yrs	0	.	.	.	.
	1	6156**	4806	4703	4735
	2	12208***	8503*	8304*	8525*
	3 and above	28927***	23702***	23542***	23662***
Respondent's Age and Employment	20-40 yrs, employed	.	.	.	.
	41-65 yrs, employed	1205	21018***	21069***	21007***
	20-40 yrs, unemployed	1322	13000*	13206*	13469*
	41-65 yrs, unemployed	4889*	40246***	40393***	40327***
	66 yrs and above	517	41942***	41935***	41959***
Income per Head	Poorest 15%	.	.	.	
	Next 40%	2988	7445*	7548*	
	Next 30%	1781	17216***	17230***	
	Richest 15%	1267	17840***	17872***	
Respondent's Education Level	Middle School	.	.		.
	High School	1749	4841†		4789†
	Higher Education	-273	9399***		9349***
Cooking Time	Not Minimized	.	.		
	Minimized	3197*	-14234***		
Shopping Time	Not Minimized	.	.		
	Minimized	-469	-2033		
Interaction between Education & Cooking Time	Middle School & Time +			.	
	High School & Time +			5608†	
	Higher Educ. & Time +			10918***	
	Middle School & Time -			-12104***	
	High School & Time -			-9636*	
	Higher Educ. & Time -			-6812†	
Interaction between Income & Cooking Time	Poorest 15% & Time +				.
	Next 40% & Time +				8527*
	Next 30% & Time +				18964***
	Richest 15% & Time +				19261***
	Poorest 15% & Time -				-10344†
	Next 40% & Time -				-5781
	Next 30% & Time -				2234
	Richest 15% & Time -				3689
Intercept		33975***	39314***	37563***	37050***
N		2614	2614	2614	2614
Loglikelihood		-30585	-31920	-31920	-31920
r2		0.217	0.200	0.200	0.200

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Fresh Vegetables: Cooking vs. Buying

The effect of demographic variables on fresh vegetable purchases, contrasts with what was observed for processed vegetables. The presence of children and that of very young children in particular, does not substantially increase the size of the vegetable basket. Age and employment have an impact on the quantities purchased, the peak effect for employment occurring amongst the 40-59 year olds.

In addition, the time devoted to shopping has a very limited impact on the amounts purchased. In other words, commitment to shopping is not related to the volume of fresh vegetable purchased. A respondent can simultaneously report shopping expeditiously and buying large amounts of fresh vegetables. By contrast, there is a 14 kg/year decrease in fresh vegetable purchases (childless couples) when one does not commit to cooking. The determining factor is actually the commitment to cooking as demonstrated through the amount of time one acknowledges allocating to this activity when managing one's schedule. For a respondent from the reference group (i.e. under 40 years of age, in employment, living with a partner, childless) this translates into a 36% decrease in vegetable consumption over a period of one year. The extra 3 kg of processed vegetables bought by respondents who spend as little time as possible on cooking does not outweigh this decrease.

Overall, the present results seem to corroborate the idea that vegetable consumption is a block-like practice (Reckwitz, 2002): buying vegetables does not solely depend on the objective characteristics of the household. When actually buying vegetables, individuals have already anticipated ways in which they might be prepared: respondents who minimise cooking buy less of such time-consuming products. From these findings, the practice can be delineated as follows. Two modes of engagement are nested within the "vegetable consumption" practice: purchasing fresh vegetables and purchasing vegetable-based processed products. Households combine them to different degrees: The former mode of engagement combines into a block with the commitment to cooking: the two activities are associated, which is not the case for the commitment to shopping. The latter, based on processed products, is much more weakly and inversely related to cooking and is related neither to shopping,

nor to social position. It may be resting on dispositions, resources and social features that cannot be captured in the present study.

Commitment to Cooking and Social Position in France

Only a minority of respondents report allocating "as little time as possible" to cooking. It thus seems to be legitimate in France in 2007 to devote time to cooking. The percentage of those devoting as little time as possible to cooking is significantly lower amongst the poorest households (Table 3). This could be interpreted as the manifestation of the opportunity cost of cooking for households which have reached a certain level of comfort since cooking is an unpaid time-consuming activity (Gershuny, 2000).

Table 3: Income (per consumption units) and Time Devoted to Cooking

	I spend as little time as possible on cooking		
Income per CU	**Disagree**	**Agree**	**Total**
Poorest 15%	74.85	25.15	100.00
Next 40%	75.22	24.78	100.00
Next 30%	73.21	26.79	100.00
Richest 15%	64.84	35.16	100.00
Total	**73.14**	**26.86**	**100.00**

(Pearson's Chi-squared (df=3) = 15.827; N= 2614; p = 0.001)

Similarly, according to Chi-square calculations, the correlation between devoting time to cooking and education level is slightly significant (p = 0.026). Men living alone are also much more frequent than women in reporting spending as little time as possible on cooking. Employment status and age seem to be unrelated to the fact of devoting time to cooking, at least when cross-tabulations are considered, as was presently the case.

To conclude, these findings confirm that the determinants of fresh and processed vegetable consumption are of different natures. In the remaining part of this article, fresh vegetable consumption shall be considered as a block within which fresh vegetable purchases are associated with commitment to cooking. In addition, the purchase of processed products could be considered a different mode of engagement in the practice of vegetable consumption whose modus operandi

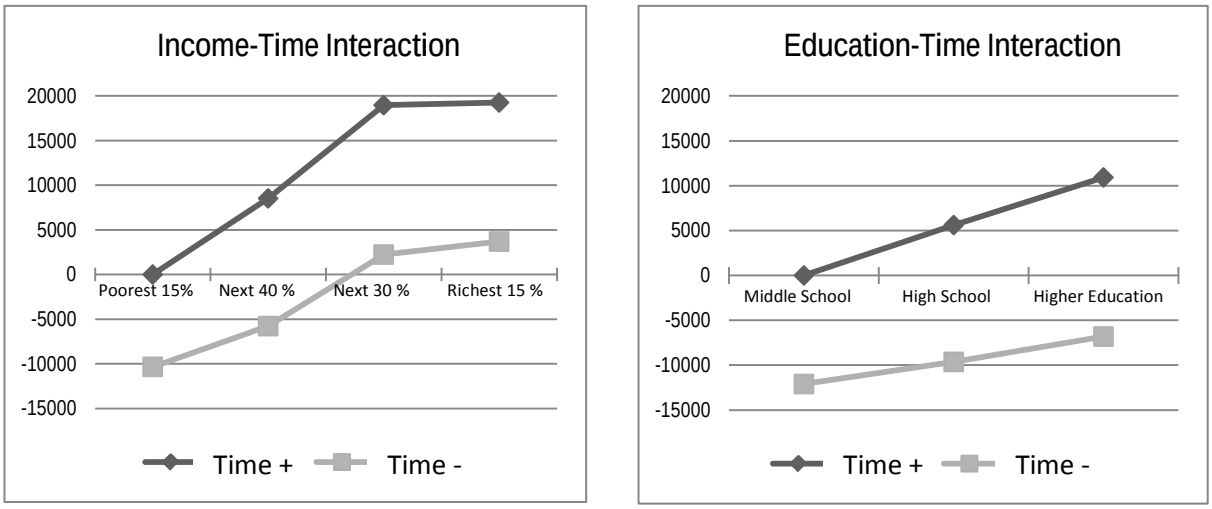
does not clearly emerge from the present analysis, while commitment to shopping seems here irrelevant to the study of vegetable consumption.

Social Position, Cooking Time and Fresh Vegetable Purchase

Social position, whether measured by income or education has an impact on fresh vegetable purchase. The FV1 model shows that being in the richest 15% of the sample (as opposed to being amongst the poorest 15%) leads to buying 17.8 kg extra vegetables and that an education level above the *Baccalauréat* is associated with a 9.4 kg increase in purchased products. This occurs although the degree of commitment to cooking is controlled for. The FV2 and FV3 models are better suited to the comparison of time effects and the two dimensions of social position. The question initially addressed in this article, namely whether analysis of time or social position would provide a better understanding of vegetable consumption, is best tackled through the study of the interaction effects of cooking time and qualification, and of cooking time and income. This is because the interaction terms might show, for example, that cooking time is pertinent to the richest but not to the poorest or equally that income is important for households which spend some time on cooking but not for those which spend as little time as possible on cooking. For the sake of simplifying the interpretation of the results new variables were constructed as combinations of the original variables. Income and interaction between the education level and cooking time are included in model FV2. Education level and interaction between income bracket and cooking time are included in model FV3. Figure 1 shows the graphs of the related interaction effects[5].

[5] In the FV1 model, it is assumed that time, income and cooking time effects are additive i.e. that the impact of time is the same regardless of income and qualification levels (and similarly, that the impact of social position is the same regardless of cooking time). Models FV2 and FV3 were designed to remove this assumption and test whether the effects of time and social position are actually independent. If this were the case, the curves in graphs on Figure 1 should be parallel. The following interactions were also tested: income and qualification, being in employment and income, being in employment and education level, being in employment and cooking time but this did not significantly improve the model.

Figure 1: Interaction plots for cooking-time and income (left) and cooking time and education (right)



The first result is that coding the effect of time and income (respectively that of time and qualification) as an interaction term does not alter the significance or the value of the coefficients for the other variables introduced in the model. This applies in particular to the alternate variable for social position (respectively qualification and income).

The second result is that there seems to be no significant interaction between the two variables. This is illustrated in a much clearer manner in the graphs. In both cases, spending time on cooking increases the amount of vegetable purchases and so does being in a higher qualification or income level. The time effect is slightly more marked in top income and education brackets and vice versa, the income and education effects are slightly more marked for households which spend time on cooking (dark grey curves). As for the magnitude of these effects however, only minor differences were observed, and confidence intervals indicate that they are not significant. In addition, the loglikelihood values for models FV2 and FV3 are almost identical to that of the FV1 model; as a result, the introduction of interactions has not improved the quality of the model. To conclude, there is no interaction between the effect of cooking time and that of social position: the effect of cooking time does not vary significantly as one progresses along the social scale and the effect of social position does not differ significantly according to whether or not the respondent spends time on cooking.

It should be noted however that according to Figure 1 the income effect seems to plateau for incomes above the median. There is no significant difference between the richest 15% and the next 30% richest and this applies regardless of cooking time. Income could thus be a limiting factor when extremely low, but once past a certain threshold, an increase in income would bear no effect on vegetable purchase.

A stance can now be taken on the debate between Grignon and Herpin. Commitment to cooking, as measured by the time reported to be spent on cooking, is associated with increased consumption of fresh vegetables. This effect is unaffected by the social position of the individual in charge of shopping. Conversely however, the household's social position cannot merely be equated with a system of constraints and resources with a mechanical impact on food purchases: in particular, the most educated respondents still consume more vegetables than those with lower educational level for identical cooking times. The case of income is slightly different. If poverty is obviously a limitation to vegetable consumption, moving from a comfortable life to an affluent life has no effect.

Conclusion

Vegetable consumption has been undergoing profound changes since the beginning of the 21st century thanks to the introduction of new products, new objects (from the freezer to the "Bimby", Truninger, 2011) and new infrastructures (with e-shopping) but also thanks to the emergence of new nutritional norms based on a new definition of vegetables and a new approach to how they should be consumed (in terms of quantity vs. in terms of harmonizing dishes). These norms carry heavy moral content and the upper classes refer and conform to them more frequently than other classes do (Régnier and Masullo, 2009). However, the analysis of the present data material concur with other studies in suggesting that they have less time to devote to domestic chores and that cooking has a less important position in their daily routine. For example, Larmet (2002) shows that towards the end of the 20th century in France, "other things being equal, there are twice as many workers as executives (regardless of gender) who report enjoying everyday cooking".

It was shown that determinants of fresh vegetable consumption depend on the time allocated by the respondent to cooking and on his or her position in the social hierarchy. Processed products remain purchased in lower quantities than fresh vegetables and their consumption increases in households devoting little time to cooking but this does not outweigh the decrease in fresh vegetable purchases. In addition, it is not indexed to social position.

Other things being equal, the assumptions presently made about the relationship between practices and temporal organisation (Southerton, 2006) concur with the findings that households that report spending as little time as possible on cooking buy less fresh vegetables than those who do not hold this opinion (which is a signifier of the value attributed to cooking time). Quite unexpectedly, ascribing value to the time spent on shopping does not impact the purchase of fresh vegetables. The practice of "consuming fresh vegetables" is thus delineated, amongst others, by preparation time but not by shopping time. This result is all the more striking given that the measure of French household's vegetable consumption was based on their vegetable purchases (as opposed to intakes).

Another finding is that social position also has an effect on fresh vegetable purchase, irrespective of the commitment to the practice: purchased quantities of fresh vegetables tend to increase with the household's educational level and financial resources. Dispositions and the system of constraints and resources have thus an independent effect on how people engage with a practice.

The practice was studied through the analysis of vegetable purchase records and reports on time spent on cooking and it is thus not possible to clearly apprehend the nature of the engagement at work (participation vs. self-actualization, Southerton, 2006), or its objectives, which could be worded as "eating fresh vegetables" or "enjoying preparing one's meal". It remains that the present results clearly show that fresh vegetable consumption depends both on the characteristics of the practice (fresh vegetable consumption seems to be incompatible with minimization of food preparation time) and on some features of the practitioners, namely here, their social position. The middle and upper classes are more capable of interiorising and implementing nutritional norms (currently promoting

vegetable consumption, Régnier and Masullo, 2009) and simultaneously they have easier year round access to fresh vegetables thanks to their higher income levels. Conversely, the lower classes have tighter budget constraints and fewer dispositions to conform to nutritional prescriptions.

When dispositions to agree to spend time on cooking are also considered, as was the case here and as opposed to consideration of mere time constraints, a positive link is established between commitment to cooking and fresh vegetable purchases which varies only slightly according to income and education level.

The analysis of interaction effects showed that no disposition is sufficiently strong to completely outweigh time constraints but also that time constraints alone cannot explain differences in fresh vegetable consumption levels in different social groups.

The objective of this article was to compare the contributions of the sociological theory of taste (Warde, 2008) (defined as the socially acquired capacity to classify and to value what is classified as best) and of practice theory to the interpretation of a given set of data material about food consumption. It was shown that the combination of the two approaches is feasible and leads to a better understanding of the results. Practice theory provides a systematic framework to describe how the (socially related) taste for vegetables translates into the actually and regularly performed practice of buying and cooking fresh vegetables, while taking into account the amount of time this act of consumption requires. However, the description of how this practice is framed by the yoke of time and relates to certain infrastructures does not suffice to explain why some individuals perform more often than others. This, in turn, requires the understanding of how certain social characteristics influence a given individual's dispositions to engage in this particular consumption pattern through the purchase of fresh produce.

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