Learning by Cooking and Reputation Building: A French Recipe to Become a Top Chef*

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January 13, 2012

Abstract

In this paper, we analyze the careers from a large sample of top French *chefs* over more than twenty years and link it to the success or reputation of the restaurants where they have worked. We investigate what are the determinants of success and the dynamics of performance and reputation, stressing the importance of the quality of apprenticeship and mentoring. We document that the prestige of the restaurant where individuals work is on average declining along the career. More importantly, we find that the quality of apprenticeship is strongly related to the future success as chef, even when controlling for unobserved heterogeneity. This suggests that talent is partially transferable between a mentor and his/her apprentice.

JEL Codes: J24, M5

*We thank Mike Gibbs, Philippe Monin and Ramana Nanda and seminar participants at Carlos III, Aarhus University, University of Grenoble, University of Reims, University of Frankfurt, the 2009 IZA/SOLE meeting and the 2010 CCP workshop for helpful comments. Financial support from the MSH Lille Nord de France (DEAC Program) as well as technical assistance from Maurice Gergaud are gratefully ackowledged. The usual disclaimer applies.

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1 Introduction

For most chefs, having his restaurant awarded one or more stars in the famous Michelin *Guide Rouge* represents a major achievement, a recognition of their hard work, and also increased notoriety generating a significant stream of future revenues. In this specific industry, experts play a decisive role, and reputation of restaurants and chefs are basically established according to their opinions. The aim of this paper is to analyze how these reputations are made and unmade and to better understand the development of careers in this highly creative occupation. Thanks to the richness of our dataset, we are able to observe the birth of a "star" and its evolution in the constellation of stars forming the French gastronomic scene.

We first describe the typical career of a chef, explaining the different stages of the career and looking at the determinants of performance along the career. We find that careers follow a particular path. At an earlier stage of their career, after graduating from a culinary school, individuals learn the *untaught tricks of the profession* by assisting different accomplished chefs at various stages of the meal preparation, starting as commis de cuisine, then chef de partie and then second de cuisine, or main assistant. This apprenticeship process is nicknamed *Tour de France*, as young chefs travel through the country, and sometimes beyond, to improve their knowledge and benefit from various experiences at the best restaurants. We show that, on average, the quality of the restaurant where an individual works declines over the career. In other words, individuals start their careers in restaurants with the highest reputation, and gradually move to restaurants with a lower reputation along their apprenticeship. At the end of this apprenticeship, they usually launch they own restaurant, starting from scratch, and gradually build their own reputation.

We are especially interested in the process of initial accumulation of human capital. We use a quality-weighted measure of apprenticeship human capital measuring the quality of the apprenticeship received during the early stage of the career, and measure its effect on the determinants of later success. We find that these measures of accumulated human capital are a key determinant of the performance as chef de cuisine. The quality of apprentice-

ship appears to be particularly important at the end of the apprenticeship (second de cuisine) and, to a lesser extent, at the intermediate and entry levels (chef de partie and commis de cuisine respectively).

We contribute to two different strands of the literature. First, there is a long tradition in labor economics to investigate human capital accumulation and the dynamics of productivity over the career.[1] We stress the importance of the quality of "initial apprenticeship human capital" as a determinant of success. In particular, we ask the question how much human capital, or talent, can be transferred from a mentor to his/her apprentice. We build a simple conceptual framework extending Rosen (1982) to model the transferability of talent and distinguish it from pure selection. We then test the implications of this simple model in the empirical part of the paper.

Secondly, a large and mostly theoretical literature studies the importance of reputation in contractual agreements (e.g. Milgrom and Roberts, 1982; Kreps and Wilson, 1982; Shapiro, 1983; Diamond, 1989). Reputation is described as a valuable asset, built through repeated interactions where actors update their beliefs about the type of the other contracting party, that firms use as a competitive advantage. We document the birth of reputation as emerging from a learning process and talent transfer.[2]

Section 2 introduces a simple model based on Rosen (1982). Section 3 describes the construction of the dataset and provides some summary statistics. Sections 4 details our empirical methodology, while section 5 shows our results. Section 6 concludes.

[1]Starting with the work of Becker, Mincer and Ben-Porath on human capital, the more recent literature on learning (e.g. Gibbons and Katz, 1991; Farber and Gibbons, 1996), on career concerns (Holmström, 1982), or more recently on careers in organizations (Gibbons and Waldman, 1999a,b), has tried to understand which factors are driving individual careers. Empirical work has looked at career concerns of mutual fund managers (Chevallier and Ellison, 1999), financial analysts (Hong, Kubik and Solomon, 2000; Hong and Kubik, 2003) or academic economists (Coupé, Smeets and Warzynski, 2006; Oyer, 2008); documented career dynamics in single firms (Baker, Gibbs and Holmström, 1994a,b and followers); or analyzed career dynamics and occupational choices (e.g. Keane and Wolpin, 1997; Pavan, 2011).

[2]Durand, Monin and Rao (2001) analyze how chefs are able to increase the number of Michelin stars through innovation and investment in general human capital. However, they do not analyze the dynamics of careers, nor the initial accumulation of human capital as key determinant for future success.

2 Model

Consider the quality of the work of an established chef as a function of innate ability and experience ($q_t^M = g(EXP^M, \vartheta^M)$) and the quality of a younger chef with no previous experience ($q_t^A = \vartheta^A$). If both chefs work together, under the leadership of the experienced chef, they can produce a level of quality equal to:

$$Q_t = g(EXP^M, \vartheta^M) f(\vartheta^M, EXP^M, \tau, \vartheta^A)$$

where τ is the time that the experienced chef uses for supervision. We assume that $f(\vartheta^M, EXP^M, t, \vartheta^A) > \vartheta^A$ and also that $Q_t > q_t^M$.

Basically, this production function is similar to Rosen (1982) where highly talented individuals can leverage their talent through a diffusion process to their subordinates.

After one period, the younger chef can extract part of the human capital of the mentor and produce a level of quality:

$$q_{t+1}^A = \alpha f(\vartheta^M, EXP^M, t, \vartheta^A)$$

Therefore, the quality of the food produced by a chef depends on own innate ability and the quality of the chefs he/she has worked with, depending on how transferable human capital is. It also depends on the time allocated by the senior chef to guide the younger one, and this might depend on how closely the junior and senior chefs work together. Our empirical analysis will therefore have to be adapted to control for unobserved heterogeneity (talent) and potential correlation between learning effect and talent.

3 Data

Our dataset is constructed by combining information from two different sources. The first describes the careers of 1,000 top chefs in French gastronomy, as assessed by the guide *Le Bottin Gourmand* in their book *Les Etoiles de la Gastronomie Française* published in 2001. It associates to the name of the chef a detailed CV that includes information about the name of the restaurant, its location, the type of job (see below for more details about the

various steps of chef's careers) and the period of time spent, as well as other individual information such as the gender, the date of birth, the type of education (the different types of degrees obtained and the date of graduation), information about apprenticeships, and whether he/she "learned by itself" (autodidacte, self taught). It is important to stress that we are analyzing a very selective sample of individuals, those considered the most successful in gastronomy. Because gastronomy is by definition restricted to an elite part of the profession and also because we still observe substantial heterogeneity in our measures of quality and in career dynamics, we still believe our work provides some useful information about talent development in a creative industry.

We complement the previous career data with restaurant-level data from the Michelin *Guide Rouge* books from 1980 to 2001. It provides, associated to the name of the restaurant, the location, presence of an hotel, the minimum and maximum prices for a menu, and also a remark as to whether it is necessary or advised to call in advance. More importantly, it provides for each restaurant ranked by Michelin two measures of quality: the quality of the food as measured by the number of stars (on a scale from 0 to 3), and the quality or luxury of the setting as measured by the number (and color) of forks (or houses when the restaurant is connected and operated jointly with an hotel), on a scale from 0 to 5. Chefs from restaurants with at least one star are also asked to indicate three recipes among their specialties.

Table 1 shows the number of individuals working in Michelin starred restaurants by year. By construction, our dataset contains a succession of new cohorts arriving on the market and a few incumbents who were already chefs before 1980.

The job structure in the industry is very clearly defined and hierarchical. At the top of the hierarchy are the chefs. They are assisted by their second de cuisine. Lower in the hierarchy are chefs de partie and commis de cuisine, who assist at different stages of the process. Chefs de partie traditionnaly take the lead of a team of commis de cuisine; the whole team specializes in one aspect of the meal or in one key ingredient (desserts, sauces, vegetables, fish, etc.). Table 2 shows the evolution of the distribution of jobs over our

period of analysis. Again, by construction, we see that the proportion of chefs and, to a lower extent, of seconds de cuisine is increasing with time, while the proportion of chef de partie and commis de cuisine is declining.

Considering the restaurant as the unit of analysis, Table 3 shows the transition matrix in and out of the Michelin guide, as well as the star transition. We observe that there is more upward mobility (probably as a consequence of our sample selection) and also quite a lot of persistence. Persistence is also much higher at the top than at the bottom.

4 Empirical Methodology and Results

4.1 Stylized facts about prestige of the restaurant and career dynamics

We start by linking the prestige of the restaurant to the career dynamics. Table 4 shows the percentage of individuals working in different subsets of restaurants ranked by quality at various stages of their careers. A striking pattern is that the prestige of the restaurant is higher at the beginning of the career: commis de cuisine and chefs de partie work on average in higher-quality restaurants than seconds de cuisine, themselves more likely to work in 2- or 3-star restaurants than chefs de cuisine. This should come as no surprise as individuals at the beginning of their career tour the best restaurants in the country, learning the techniques from more accomplished chefs. This fact can partly be explained by the selective nature of our sample. However, it also provides an interesting description of the typical pattern regarding career dynamics and reputation building for our subset of highly talented individuals: after learning from interacting with top chefs at earlier stages of their career, individuals start their own restaurant from scratch and gradually acquire their own reputation. We turn next to what can explain their success once they become chef.

4.2 Effect of apprenticeship human capital

In the second part, we only consider the subset of individuals who have reached the level of chef and try to understand which factors affect their

performance, or the prestige of the restaurant they work at. We end up with a subset of 447 chefs over the period 1980-2001.[3]

In particular, we stress the importance of the quality of the apprenticeship human capital accumulated at the earlier stage of the career. As we have just seen in the previous step, individuals spend their apprenticeship learning in restaurants with well established reputations. Obviously, some are more lucky or talented than others and end up in better places. So how does the quality of the restaurant where you worked as commis de cuisine, chef de partie or second de cuisine affects your success as a chef? To study this, we create a quality-weighted measure of accumulation of human capital by summing the number of stars accumulated over the years at the various stages of your career. We then look at the effect of this variable on performance as a chef.

We start with a static analysis and run a simple probit where the left hand side variable is a dummy equal to one if the restaurant is included in the Michelin and zero otherwise:

$$Mich_{i,t} = \alpha + \beta_G Geo_{i,t} + \beta_T Train_i + \beta_A App_i + \beta_E Exp_{i,t} + \beta_X X_i + \varepsilon_{i,t} \qquad (1)$$

where $Geo_{i,t}$ is a set of dummies measuring location in one of the largest French urban areas (Paris, Lyon, Aix-Marseille, Lille, Toulouse, Bordeaux, Nice, Strasbourg)[4]; $Train_i$ is a vector which informs us about the training of the chef (whether the chef is an autodidacte or not, if he/she got a diploma and the type of diploma in that case); App_i is the number of stars accumulated during the training period as *second de cuisine*, *chef de partie* and *commis de cuisine* ($Train_i$ and App_i are two complementary measures of human capital); Exp_t is the number of years of experience of $Chef_i$ as *chef de cuisine*, the highest level in the hierarchy; and X_i contains some exogenous controls such as the gender of the chef, his/her age, and international

[3]We voluntarily restrict the sample to those chefs whose first record in our database is 1976 because we do not have information about the quality of the establishments they visited before 1980. This four-year period before 1980 allows us to extend the dataset and corresponds most of the time to a training period in a cuisine school (except for autodicacte chefs but we control for this aspect in our analysis).

[4]Each of these urban areas accounts for more than 500,000 inhabitants. These variables are potentially time variant as a chef can move from one restaurant to another and in some circumstances from one city to another over the sample period.

experience. β_G, β_T and β_X are vectors of coefficients while β_A and β_E are single coefficients to be estimated.

To capture more precisely the quality of the restaurant, we also run an ordered probit regression where the left hand side variable is the number of stars that the restaurant has been granted in year t:

$$Stars_{i,t} = \alpha + \beta_G Geo_{i,t} + \beta_T\ Train_i + \beta_A App_i\ + \beta_E Exp_{i,t} + \beta_X X_i + \varepsilon_{i,t} \qquad (2)$$

Results are presented in Table 5. We first notice that location matters. Restaurants located in Paris, Lyon and other large cities are more likely to be included in the Michelin. The more intuitive way to interpret this result is that talented chefs self select where demand for gastronomy is high, but it might also be the case that some cities have a tradition for gastronomy (such as Lyon). Second, the quality of education is also related to future success: CAP (Certificat d'Aptitude Professionnelle), BEP (Brevet d'Etudes Professionnelles) but mostly BTH (Brevet de Technicien Hôtelier) and Diplôme d'apprenti are improving the odds to end up in the Guide Rouge. Our main variable of interest, the quality of apprenticeship is also positively related to the presence in the Michelin and number of stars. When we decompose this variable by type of position, we observe that the relationship is particularly strong when the individual is close to the chef, especially as second de cuisine but also as chef de partie. Experience and the time it took to become chef are also positively linked to future recognition. International experience however is negatively related to being ranked in the Michelin, at least in the French edition.[5]

The previous results provided some interesting static correlations. We next turn to the more dynamic process of accumulating reputation and stars. We regress the number of stars accumulated as *chef de cuisine* over the years over the same set of explanatory variables:

$$AccStars_{i,t} = \alpha + \beta_G Geo_{i,t} + \beta_T\ Train_i + \beta_A App_i\ + \beta_E Exp_{i,t} + \beta_X X_i + \varepsilon_{i,t} \qquad (3)$$

[5]This result makes sense as we do not observe the number of stars accumulated while the chef works abroad. This is the reason why we think that it is worth introducing this variable as a control in our regressions. This concerns a small number of observations however

There are some econometric issues that we have not discussed so far and that we need to consider. First of all, with 57.27% of zero outcomes for the dependent variable, we have to be extremely careful and try to understand first the selection process through which chefs get selected by the Michelin. Indeed, mechanically, but also if Michelin discriminates against some specific profiles (autodidacte chefs for instance, etc.), then some individuals in the sample will have fewer, or even no chance at all, to accumulate stars (variable of interest).

Second, we need to address the issue of unobserved heterogeneity u_i (assuming $\varepsilon_{i,t} = u_i + \nu_{i,t}$, where ν_{it} is a true noise) possibly correlated with some of our explanatory variables, in particular apprenticeship. Among the unobserved factors that could affect future success, we can think of the talent of the chef, his/her innate ability to become a great chef, due, for instance, to some family endowment[6], his/her personality and so on.

To cope with all of these issues (selection process and time-invariant endogenous regressor), we decided to rely on two different alternative approaches as a traditional fixed-effect is not implementable here: the GLS random-effects (RE thereafter) model and the Hausman-Taylor (HT thereafter) estimator for error-components models. The latter has a clear advantage over the former as it is specifically designed to control for the fact that App_i is endogenous and correlated with u_i the individual unobserved fixed-effect. It uses exogenous time-varying regressors from past periods as instruments. This enables the estimation of the coefficient of a time-invariant regressor in a fixed effects model, not allowed using a regular fixed-effects estimator. Clearly, the HT approach is particularly suited here to get unbiased coefficients for App_i, the variable which captures the amount of Human capital acquired by the chef from other chefs before becoming *chef de cuisine*.

To deal with the selection issue, we combine the HT and RE approaches (step 2) with the results of a selection equation (step 1). This $ad - hoc$ panel strategy allows us to cope with the presence of a high number of zero outcomes. The strategy we adopt to estimate is therefore the following:

[6]Some chefs like Anne-Sophie Pic belong to a famous family of chefs. La Maison Pic in Valence is more than a century old. Four chefs have succeeded each other, two women and two men. See for more information on this family of chefs: http://www.pic-valence.fr/

1. We estimate, using a random-effects probit model, the probability for a chef to be selected in the Michelin.

2. We compute the Inverse Mills Ratio and inject it in the accumulation Eq. (5) estimated either by RE or HT ;

3. We bootstrap the standard errors in each specification to get a better measure of dispersion for each estimated parameter.

Some variables contained in Train_i such as Diplomas or the length of the training period (Time to chef), i.e. the number of years it took him/her to become *chef de cuisine* are significant in the RE probit equation but on the contrary did not come out significant in the different accumulation equations. These variables are naturally excluded from these equations and will serve as instruments to identify the Michelin specific selection process.

The results are presented in table 6. The Inverse Mills Ratio is highly significant and positive. This indicates that the selection process is indeed a serious issue.

We find again a positive and highly significant impact of experience and of the quality of apprenticeship. There is however a substantial difference between RE and HT coefficients with the latter significantly larger in the case of App_i.

Controlling for the endogeneity of App_i with respect to talent tends to lower this coefficient. Using RE, we get that each additional star acquired through a one-year training period with a starred chef translates into an 0.07 additional star which is very low. Using HT, this coefficient is lower at around 0.03. When we look at the accumulation at different stages of the career, we observe that initial accumulation becomes more important, probably suggesting that the next steps evolve endogenously from the first position (once we control from endogeneity) and reputation follows afterwards. The effect of experience and education become lower as well, while *Autodidacte* is no longer significant.

Gender and age do not seem to matter much in the HT specification, while male were accumulating stars more easily in the RE case. Location is still important, although not the same way as in the static case: it appears

that it is easier to accumulate stars in Paris, Lille and Aix-Marseille, but harder in Bordeaux, Lyon and Strasbourg.

5 Conclusion

In this paper, we analyzed the career patterns of a subset of top French chefs. We described a few stylized facts about this specific labor market: the quality of the workplace is on average higher at the beginning of the career. This is consistent with the idea that individuals acquire human capital on the job and then start their own firm from scratch using the tools they have learned by observing the best chefs at work. We then tested whether this reputational human capital had an impact on future performance. Our results confirmed our prior that the quality of the restaurant where individuals learned the profession had a significant impact on the probability to enter in the Michelin and acquire highly valuable stars. As such, our paper contributes to the understanding of the emergence and dynamics of reputation. In future research, we plan to better understand the selection process through which chefs manage to get hired in some prestigious restaurants during their apprenticeship, as well as the emergence of global networks.

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Table 1: Number of individuals in Michelin starred restaurants by year

Year	Not in Michelin	In Michelin	Of which with one star	Of which with two stars	Of which with three stars
1980	109	264	91	38	29
1981	108	295	106	44	30
1982	115	319	124	51	28
1983	129	332	109	68	23
1984	140	355	113	65	37
1985	147	379	130	71	36
1986	143	401	150	72	41
1987	169	412	148	75	36
1988	145	444	165	79	38
1989	158	468	178	70	39
1990	162	502	193	80	40
1991	155	538	200	77	39
1992	149	566	222	79	42
1993	132	594	207	84	41
1994	145	593	200	76	37
1995	140	620	211	77	36
1996	129	641	227	77	27
1997	141	646	225	66	27
1998	117	673	230	61	26
1999	106	703	238	68	26
2000	90	718	243	64	25

Table 2: Evolution of the distribution of jobs

Year	Chef de cuisine	Second de cuisine	Chef de partie	Commis de cuisine	Other
1980	232	18	39	37	61
1981	255	23	42	42	59
1982	266	28	48	48	65
1983	293	26	63	34	59
1984	322	24	66	31	61
1985	339	31	68	34	68
1986	358	36	54	37	80
1987	386	42	57	38	72
1988	409	40	52	34	78
1989	435	40	51	41	78
1990	462	42	49	39	83
1991	484	50	55	33	78
1992	510	49	52	33	77
1993	527	51	53	20	82
1994	552	66	35	22	73
1995	577	67	41	14	69
1996	594	70	33	12	69
1997	624	72	27	9	61
1998	651	75	27	5	40
1999	677	94	11	3	22
2000	690	102	3	2	11
2001	870	111	2	0	15

Table 3A: Transition Matrix (Presence in the Michelin)

$t\backslash t-1$	Not Listed	Listed
Not Listed	1,649	174
Listed	435	7,173

Table 3B: Transition Matrix (Number of stars)

$t\backslash t-1$	Listed	1 star	2 stars	3 stars
Listed	3,261	150	-	-
1 star	311	2,556	51	-
2 stars	-	87	800	8
3 stars	-	-	17	309

Table 4: Link between restaurant prestige and job level

Working in	Chef de cuisine	Second de cuisine	Chef de partie	Commis de cuisine
0-star restaurant	5,690 (58.81%)	676 (55.05%)	352 (35.56%)	267 (43.63%)
1-star restaurant	2,836 (29.31%)	332 (27.04%)	232 (23.43%)	159 (25.98%)
2-star restaurant	844 (8.72%)	156 (12.70%)	203 (20.51%)	116 (18.95%)
3-star restaurant	305 (3.15%)	64 (5.21%)	203 (20.51%)	70 (11.44%)

Table 5: Probit and Ordered Probit Analyses

	ML Probit	ML Probit	Ordered Probit	Ordered Probit
Geography :				
Paris	0.139**	0.125*	0.407***	0.400***
	(0.0680)	(0.0680)	(0.0536)	(0.0537)
Lyon	0.352*	0.353*	0.229	0.224
	(0.188)	(0.188)	(0.162)	(0.161)
Aix-Marseille	−0.0520	−0.0443	0.888***	0.896***
	(0.225)	(0.225)	(0.219)	(0.219)
Lille (metrop. area)	0.420	0.427	0.895***	0.900***
	(0.342)	(0.342)	(0.202)	(0.202)
Toulouse	−1.427***	−1.455***	−0.627***	−0.645***
	(0.227)	(0.223)	(0.193)	(0.192)
Bordeaux	0.607*	0.606*	−1.231***	−1.234***
	(0.328)	(0.327)	(0.320)	(0.320)
Nice	0.0501	0.0596	0.137	0.198
	(0.351)	(0.347)	(0.320)	(0.328)
Strasbourg	−0.463**	−0.461**	−0.807**	−0.817**
	(0.231)	(0.230)	(0.361)	(0.357)
Training :				
Certificat d'Aptitude Prof.	0.135**	0.124**	−0.0346	−0.0383
	(0.0547)	(0.0549)	(0.0492)	(0.0499)
Brevet d'Etudes Prof.	0.254***	0.264***	−0.0152	−0.0104
	(0.0539)	(0.0542)	(0.0451)	(0.0454)
Brevet de Tech. Hôtelier	0.472***	0.477***	0.352***	0.351***
	(0.0957)	(0.0960)	(0.0744)	(0.0746)
Ecole Hôtelière	0.133	0.114	−0.0866	−0.105
	(0.125)	(0.126)	(0.108)	(0.105)
Diplôme d'apprenti	0.206**	0.212**	0.352***	0.353***
	(0.0973)	(0.0977)	(0.0696)	(0.0697)
Diplôme (misc.)	0.0588	0.0600	−0.00346	−0.00603
	(0.0760)	(0.0760)	(0.0744)	(0.0743)
Baccalauréat Prof.	0.196	0.174	−0.126	−0.137
	(0.141)	(0.142)	(0.116)	(0.116)
Brevet de Tech. Sup. Hôtelier	−0.0945	−0.119	−0.337*	−0.349**
	(0.233)	(0.234)	(0.174)	(0.175)
Brevet de Maîtrise	−0.0718	−0.139	0.412***	0.363**
	(0.193)	(0.198)	(0.148)	(0.146)
Autodidacticism	−0.530***	−0.545***	0.155	0.150
	(0.120)	(0.120)	(0.103)	(0.104)
Time to chef	0.0482***	0.0473***	0.00255	0.00235
	(0.00639)	(0.00640)	(0.00616)	(0.00621)

Table 5: Probit and Ordered Probit Analyses (cont.)

	ML Probit	ML Probit	Ordered Probit	Ordered Probit
Apprenticeship :	0.0123**	-	0.0190***	-
	(0.00534)		(0.00463)	
Second de cuisine		0.0379***		0.0324***
		(0.0120)		(0.00945)
Chef de partie		0.00423		0.0170***
		(0.00697)		(0.00620)
Commis de cuisine		0.0107		0.0113
		(0.0113)		(0.00899)
Job Experience (Chef)	0.0930***	0.0939***	0.0410***	0.0418***
	(0.00614)	(0.00616)	(0.00504)	(0.00508)
Exogenous controls:				
Male	0.454***	0.455***	0.561***	0.561***
	(0.162)	(0.162)	(0.191)	(0.191)
International Exp.	−0.785***	−0.777***	−0.292***	−0.288***
	(0.0689)	(0.0689)	(0.0733)	(0.0730)
Age	−0.00319	−0.00392	−0.00742*	−0.00818**
	(0.00427)	(0.00430)	(0.00407)	(0.00412)
Constant or Cut Values	−0.543**	−0.516**	1.169***	1.145***
	(0.212)	(0.212)	(0.235)	(0.235)
			2.132***	2.107***
			(0.239)	(0.239)
			2.811***	2.787***
			(0.243)	(0.243)
Observations	4549	4549	4550	4550
Pseudo R^2	0.13	0.13	0.04	0.04

*** p<0.01, ** p<0.05, * p<0.1 ; Robust standard errors in parentheses

Table 6: Accumulation of Stars as Chef de Cuisine

	Random Effects		Hausman-Taylor	
	(1)	(2)	(3)	(4)
Inverse Mills Ratio	2.429***	2.430***	0.0537	0.0547
	(0.508)	(0.499)	(0.0638)	(0.0673)
Age	0.0407***	0.0375***	0.00221	-0.000911
	(0.00790)	(0.00746)	(0.00458)	(0.00871)
Male	2.136***	2.132***	0.419	0.482
	(0.334)	(0.349)	(0.288)	(0.350)
Apprenticeship:	0.0694***		0.0259***	
	(0.00978)		(0.00926)	
Second de cuisine		0.120***		0.111
		(0.0188)		(0.147)
Chef de partie		0.0612***		-0.0463
		(0.0112)		(0.0937)
Commis de cuisine		0.0330**		0.0534**
		(0.0151)		(0.0260)
Job experience (Chef)	0.534***	0.537***	0.0772***	0.0804***
	(0.0237)	(0.0253)	(0.00478)	(0.00902)
Diplomas:				
Autodidacticism (no diploma)	-1.558***	-1.576***	-0.0881	-0.134
	(0.393)	(0.375)	(0.0588)	(0.0942)
Brevet de Technicien Hôtelier	2.536***	2.530***	0.256***	0.272***
	(0.201)	(0.197)	(0.0526)	(0.0596)
Ecole Hôtelière	0.161	0.0908	-0.0362	-0.112
	(0.211)	(0.214)	(0.0466)	(0.146)
Diplôme d'apprenti	1.107***	1.113***	0.204***	0.256***
	(0.200)	(0.199)	(0.0403)	(0.0794)
Constant	-5.159***	-5.061***	-0.391	-0.324
	(0.658)	(0.680)	(0.394)	(0.498)
Observations	4653	4653	4653	4653
Number of chefs	447	447	447	447

Standard errors in parentheses ; *** p<0.01, ** p<0.05, * p<0.1

Table 6: Accumulation of Stars as Chef de Cuisine (cont.)

	Random Effects		Hausman-Taylor	
	(1)	(2)	(3)	(4)
Influence of Geography:				
Paris	1.318***	1.313***	0.164***	0.163***
	(0.278)	(0.299)	(0.0505)	(0.0533)
Lyon	-1.483**	-1.490**	-0.368***	-0.374**
	(0.737)	(0.716)	(0.138)	(0.157)
Aix-Marseille	3.675***	3.677***	0.420***	0.419***
	(0.460)	(0.449)	(0.0824)	(0.0799)
Lille (metrop. area)	1.594***	1.616***	0.465***	0.462***
	(0.538)	(0.533)	(0.177)	(0.164)
Toulouse	-0.374	-0.386	0.229	0.225
	(0.703)	(0.729)	(0.194)	(0.208)
Bordeaux	-2.487***	-2.489***	-0.416***	-0.416***
	(0.559)	(0.630)	(0.105)	(0.105)
Nice	-0.0557	-0.00843	-0.0189	-0.0302
	(0.447)	(0.473)	(0.0961)	(0.0968)
Strasbourg	-0.940***	-0.985***	-0.280***	-0.354***
	(0.328)	(0.283)	(0.0819)	(0.133)

Standard errors in parentheses ; *** p<0.01, ** p<0.05, * p<0.1