Stars War in French Gastronomy, How Reputations are Made and Unmade. Prestige of Restaurants and Top French *Chefs*' Careers

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Abstract

In this paper, we analyze the careers from a sample of more than 1,000 top French *chefs* over more than twenty years and link it to the success or reputation of the restaurants where they have worked. This allows us to test what are the determinants of success but also to investigate the dynamics of performance and reputation, stressing the importance of the quality of apprenticeships, mentoring and entrepreneurship spirit. Our paper has implications for the (emerging) literature on the dynamics of reputation. We find that the prestige of the restaurant where individuals work is on average declining along the career, and that the quality of apprenticeship is strongly related to the future success as chef.

1 Introduction

For most chefs, having his restaurant being awarded one or more stars in the famous Michelin *Guide Rouge* represents a major achievement, a recognition of their work, and also important publicity generating increased notoriety. 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 understand better 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 the quality of the restaurant where an individual works on average 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 start 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 apprenticeship appears to be particularly important at an intermediate level (chef de partie) and, to a less extent, at the end of the apprenticeship (second de cuisine).

We also analyze how careers of chefs are intertwined with the reputation of

the restaurant. In some cases, chefs can move from one restaurant to another, and restaurants also experience different chefs through their sometimes long history.

Finally, we measure the consequences of reaching the stars. We estimate hedonic price regressions and find that an additional star translates into a 15% price increase for a typical menu. We also estimate a regression in first difference, looking at the change in price associated with a change in stars. While the overall effect is positive, we find that the effect is stronger the higher was the prestige of the restaurant the previous year, and also that change in prices are more sensitive to downgradings than to upgradings. The first result is in line with the theoretical predictions from models of reputation like Diamond (1989).

We contribute to three very different strands of the literature. First, a long tradition in labor economics has investigated individual careers and the dynamics of productivity over the career. Starting with the theoretical work of Becker, Mincer and Ben-Porath on human capital, the literature on learning (Gibbons and Katz, 1991; Farber and Gibbons, 1996), or on career concerns (Holmström, 1982), and more recently on careers in organizations (Gibbons and Waldman, 1999a,b), these authors have tried to understand what is driving careers.

Empirical work has attempted to validate some key predictions of some of these theories using personal information from mutual fund managers (Chevallier and Ellison, 1999), financial analysts (Hong, Kubik and Solomon, 2000; Hong and Kubik, 2003), academic economists (Coupé, Smeets and Warzynski, 2006a,b,c; Oyer, 2006)[1]. Others have documented the career dynamics in single firms (Baker, Gibbs and Holmströn, 1994a,b and followers) and have linked their findings to various theories. *We bring some additional light* by stressing the importance of the quality of initial apprenticeship human capital as a determinant of success and by documenting careers and the dynamics of performance in the specific context of *haute cuisine*.

Secondly, a relatively large and mostly theoretical literature studies the importance of reputation in contractual agreements (Milgrom and Roberts,1982.; Kreps and Wilson, 1982; 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 emergence of reputation and mea-

[1] See also the descriptive work of Galenson on the careers of painters.

sure the consequence of this reputation building on the price that restaurants can charge.

Thirdly, a small literature studies the economics and management of gastronomy. A few papers discuss the leadership qualities of the top French chefs (Balazs, 2001, 2002). Chossat and Gergaud (2003) look at the effect of the quality of the setting on experts' opinion and find a positive relationship. The paper more closely associated to our work is Durand, Monin and Rao (2001). Building on the the resource-based view of the firm, they discuss how chefs are able to improve their resource or reputation (measured by an increase in the number of Michelin stars) through innovation and investment in general human capital. However, none of these papers analyze the dynamics of careers, nor analyze the initial accumulation of human capital as key determinant for future success.

Section 2 describes the construction of the dataset and provides some summary statistics. Sections 3 details our empirical methodology, while section 4 shows our results. Section 5 concludes and provides suggestions for future research.

2 Data

Our dataset is constructed by combining two sources of data. The first dataset describes the careers of 1,000 top chefs in French gastronomy, as assessed by the guide Le Botin Gourmand in their book *Les Etoiles de la Gastronomie Française* published in 2001. The second consists of the Michelin books *Guide Rouge* from 1980 to 2001.

The first source associates the name of the chef to name of the restaurant, its location, a clear description of the career similar to a vitae (i.e. which type of job at which restaurant over which period of time), 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 learned by itself (autodidacte).

The second source 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), 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.

We then merged the two datasets by location, restaurant and by year.

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 chef de partie and commis de cuisine, who assist at different stages of the process.

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.

Michelin stars as a measure of performance

- Black box

- Very criticized lately

- Measure of the prestige of the restaurants

Describe the types of education

Table 1: Number of individuals in Michelin starred restaurants by 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

	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

Summary statistics

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Evolution of average price

3 Empirical Methodology and Results

3.1 Career Dynamics

Our analysis is divided in three parts. In the first, part, we link the prestige of the restaurant to the career dynamics. We therefore associate the quality of the restaurant to the job level and controlling for gender, location, human capital and type of education.

$$\text{Performance}_{ijt} = f\left(Gender_i, Age_{it}, Age_{it}^2, Education_{it}, JobLevel_{ijt}\right)$$

where i is an individual index, j is a "firm" (restaurant) index and t is a time index. We use three measures of performance: presence in the Michelin, number of stars, and finally number of stars if in the Michelin.

Table 3 to 5 show the results. One striking observation is that the prestige of the restaurant is higher at the beginning of the career: commis de cuisine work on average in better restaurant than chef de partie, who themselves work in better restaurants than second de cuisine, themselves working in better restaurants than chef 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 the most famous chefs. However, this says a lot of things about career dynamics and reputation building in this industry: after learning from all these top chefs, individuals start from scratch, become chefs themselves and start with no reputation. We turn next to what can explain their success of their restaurant once they become chef.

Before that, we discuss the relevance of our control variables. Age affects positively performance, as predicted by human capital theory. Male chefs are more likely to work on average in Michelin included and Michelin-starred restaurants, while restaurants in Paris are more likely to score high on the prestige scale, probably simply indicating a location effect. Autodidacte are also less likely to be in the Michelin, but not necessarily to work in a restaurant with more stars.

Table 3: The relationship between job level and performance (presence in the Michelin). Probit regression.

Dep. variable: Presence in the Michelin		
Male	0.23***	(0.09)
Age	0.081***	(0.011)
Age^2	-0.001***	(0.0001)
Autodidacte	-0.13**	(0.07)
Dummy for Paris	0.09**	(0.04)
Chef de cuisine	-0.79***	(0.09)
Second de cuisine	-0.51***	(0.09)
Chef de partie	-0.11	(0.09)
Log-likelihood	-4445.17	
Pseudo R^2	0.04	
Number of observations	9096	

Table 4: The relationship between job level and performance (number of stars in the Michelin). Ordered probit regression.

Dep. variable: Number of stars in the Michelin		
Male	0.18**	(0.08)
Age	0.031**	(0.01)
Age^2	-0.0001	(0.0001)
Autodidacte	0.05	(0.05)
Dummy for Paris	0.27***	(0.04)
Chef de cuisine	-0.92***	(0.07)
Second de cuisine	-0.55***	(0.07)
Commis de cuisine	0.23***	(0.07)
Log-likelihood	-8489.01	
Pseudo R^2	0.04	
Number of observations	8249	

Table 5: The relationship between job level and performance (number of stars in the Michelin if in the Michelin). Ordered probit regression.

Dep. variable: Number of stars in the Michelin (only those in the Michelin)		
Male	0.11	(0.09)
Age	0.005	(0.010)
Age^2	0.0002*	(0.0001)
Autodidacte	0.04	(0.06)
Dummy for Paris	0.28***	(0.04)
Chef de cuisine	-0.40***	(0.05)
Chef de partie	0.36***	(0.08)
Commis de cuisine	0.68***	(0.07)
Log-likelihood	-7291.69	
Pseudo R^2	0.05	
Number of observations	6510	

3.2 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. 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 the restaurants with well established reputation. 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 measure of quality weighted accumulation of apprenticeship 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:

$$\text{Performance}_{ijt} = f\left(\begin{array}{c} Gender_i, Age_{it}, Age_{it}^2, Education_{it}, \\ \text{Stars accumulated as second de cuisine,} \\ \text{Stars accumulated as chef de partie,} \\ \text{Stars accumulated as commis de cuisine} \end{array}\right)$$

Tables 6 to 8 show the results. It appears that the quality of apprenticeship has an important effect on performance, as the stars accumulated, especially as chef de partie, impacts on the presence in the Michelin and the number of stars as a chef. This could indicate either that there is a selection between individuals to be selected as chef de partie in the best restaurants, or/and that you need to be sufficiently close to the chef to really learn from him, what might not be the case as commis de cuisine. Finally, the fact that the number of stars accumulated as second de cuisine is only significant in one specification could be linked to the different career choices that individuals make, as some individuals might wait a long time as second de cuisine that the chef retires to take over the restaurant, while others would start rapidly on their own. We study that decision more carefully in a companion paper.

Table 6: The effect of initial human capital accumulation on performance (presence in the Michelin)

Dep. variable: Presence in the Michelin as chef de cuisine		
Male	0.25***	(0.09)
Age	0.09***	(0.013)
Age^2	-0.001***	(0.0001)
Autodidacte	-0.18***	(0.07)
Dummy for Paris	0.06	(0.05)
Stars accumulated as second de cuisine	-0.01	(0.01)
Stars accumulated as chef de partie	0.032***	(0.008)
Stars accumulated as commis de cuisine	0.015	(0.013)
Log-likelihood	-3560.19	
Pseudo R^2	0.037	
Number of observations	7120	

Table 7: The effect of initial human capital accumulation on performance (number of stars in the Michelin)

Dep. variable: Number of stars in the Michelin as chef de cuisine		
Male	0.16*	(0.09)
Age	0.016	(0.011)
Age^2	0.0002	(0.0001)
Autodidacte	-0.019	(0.06)
Dummy for Paris	0.29***	(0.05)
Stars accumulated as second de cuisine	-0.01	(0.01)
Stars accumulated as chef de partie	0.032***	(0.008)
Stars accumulated as commis de cuisine	0.015	(0.013)
Log-likelihood	-6158.76	
Pseudo R^2	0.024	
Number of observations	6393	

Table 8: The effect of initial human capital accumulation on performance (number of stars in the Michelin if in the Michelin)

Dep. variable: Number of stars in the Michelin as chef de cuisine (only those in the Michelin)		
Male	0.08	(0.10)
Age	-0.015	(0.012)
Age^2	0.0005***	(0.0001)
Autodidacte	0.01	(0.07)
Dummy for Paris	0.33***	(0.05)
Stars accumulated as second de cuisine	0.027**	(0.012)
Stars accumulated as chef de partie	0.021***	(0.007)
Stars accumulated as commis de cuisine	0.002	(0.013)
Log-likelihood	-5323.17	
Pseudo R^2	0.025	
Number of observations	4999	

3.3 Hedonic price regressions

As a third part, we measure the consequence of reaching the stars and link the average price of a menu to the number of stars awarded to the restaurant, We also look at the effect of the quality of the setting on the average price charged.

$$\log P_{it} = g(Stars, Forks, Location)$$

In table 9,we find that, on average, an extra star is associated with a 15% price increase, reflecting the increased value the consumer is expected to receive in his plate. The quality of the setting is also associated with higher price.

Table 9: Hedonic price regression

Dep. variable: $\log P$		
One Star	0.17***	(0.007)
Two Stars	0.29***	(0.010)
Three Stars	0.45***	(0.015)
Hotel	0.046***	(0.007)
One fork/house	-0.20***	(0.09)
Two forks/houses	-0.002	(0.09)
Three forks/houses	0.13***	(0.09)
Four forks/houses	0.31***	(0.09)
Five forks/houses	0.41***	(0.09)
Color of the forks/houses	0.001	(0.001)
Year dummies	YES	
Dummy for Paris	0.18***	(0.008)
Adj. R^2	0.78	
Number of observations	7197	

Finally, we analyze more precisely the dynamic relationship between price and performance, stressing the importance of reputation. Obviously, a change in performance should matter differently whether you were a three stars restaurant or a restaurant with no star. We find that the relationship between a change in performance and a change in price is much stronger at the top of the prestige ladder than at the bottom. In others words, a bad

signal is much more costly when a firm has acquired a high level of reputation. We also find that change in prices are more sensitive to downgradings than to upgradings. The first result is in line with the theoretical predictions from models of reputation like Diamond (1989).

Table 10: First difference estimation

Dep. variable: dlog P		
dStars	0.15***	(0.03)
dStars if had one star	-0.01	(0.03)
dStars if had two stars	0.09***	(0.03)
dStars if had three stars	0.10***	(0.03)
dStars if Positive	-0.12***	(0.03)
Adj. R^2	0.17	
Number of observations	3251	

4 Conclusion

<to be written>

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