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PANORAMA

DECEMBER 2016

UBERISATION OF THE ECONOMY IN FRANCE: a new weapon of mass creative destruction?

COFACE ECONOMIC PUBLICATIONS

By Coface Group Economists



hy is the collaborative economy so captivating in France? First of all, because it is synonymous with youth and innovation. But also because sectors that are experiencing double-digit growth nowadays are scarce. One swallow does not a summer make—France is even one of the European leaders in this market (1), notably thanks to a favourable regulatory environment (like the special self-employed status in Europe). The transactions carried out in the sector should increase twentyfold by 2025 thus continuing their recent trend: between 2012 and

2014, the number of Airbnb users hosted in Paris multiplied by 8. And 14,000 PHV (French private hire vehicle) companies have been created in France since 2010, this increase resulting from both the economic motivations of users and entrepreneurs and/or a lack of a structural supply.

Against this backdrop, the question that arises today is simple: are these business creations far superior to the business and employment failures among the traditional players in these sectors (particularly taxis and hotels)? While the private hire vehicles have contributed to generate a rise in failures of

taxi companies in France (particularly in the Paris region) since 2012, it appears from this study of data concerning company failures and creations by sector and by region that the latter more than compensate for the former. And the net effect on employment is positive. An econometric model measuring the impact on the unemployment rate of a variation in the number of private hire vehicles (for example, related to a regulatory change) confirms it: a decline of 20% of the latter is associated with an increase in the unemployment rate of 0.15 point, even when taking into account the positive effects on traditional taxi companies.

(1) Source: PricewaterhouseCoopers, September 2016



DECEMBER 2016

UBERISATION OF THE ECONOMY IN FRANCE: A NEW WEAPON OF MASS CREATIVE DESTRUCTION







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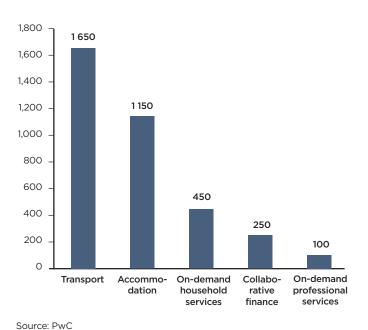
ORIGINES DE CETTE FERVEUR FRANCAISE POUR L'ECONOMIE COLLABORATIVE (2)

Primarily financial motivations, in the context of a difficult economic situation

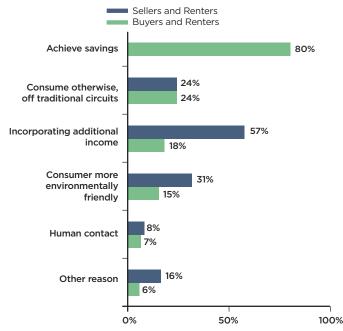
The French first and foremost rely on the collaborative economy for financial reasons (see graph n°2). Saving money and earning a supplementary income are in fact the main reasons provided by survey respondents, regardless of their role (seller, buyer or

owner renting out a space). The decline in the median wage between 2008 and 2014 (-1.6%, see graph n°3) or, better yet, the rise in the unemployment rate help explain these results. Illustrations of these economic motivations, 81% of private hire vehicle drivers work full-time and 25% were unemployed before becoming an Uber partner according to an IFOP study from September 2015.

Graph n°1Revenue from collaborative economy platforms in Europe in 2015, by sector (in millions of euros)



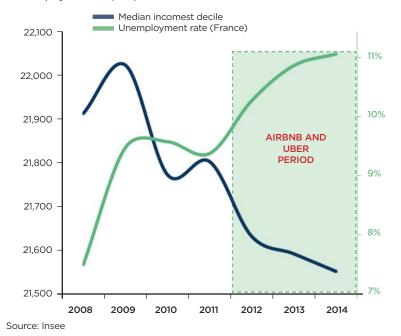
Graph n°2
Reasons for using a collaborative economy in France in 2014



Sources: IFOP, AlittleMarket.com

(2) Let us first point out that the new economy will be associated with the collaborative economy and will exclude from the scope of the study the economy of sharing and the social and solidarity economy. We will focus on the two leading value sectors in Europe: transport (46%) and accommodation (32%) (Graph n°1). The companies UBER and AIRBNB will serve as proxies to illustrate these sectors, as they are the start-ups with the biggest global capitalization in September 2016 (68 and 25.5 billion dollars respectively). The study focuses mainly on the Ile-de-France region and Paris, where the majority of the revenues of these two companies are concentrated (1/3 of the Airbnb passenger arrivals in France are in Paris and 2/3 of the VTC companies have been created in Ile-de-France).

Graph n°3
Evolution of median income (in constant euros 2014) and unemployment rate (men) in France - %



Map n°1

Cities with the highest taxi fares

(Average fare for a five-kilometer taxi ride in some metropolitan areas in 2015)

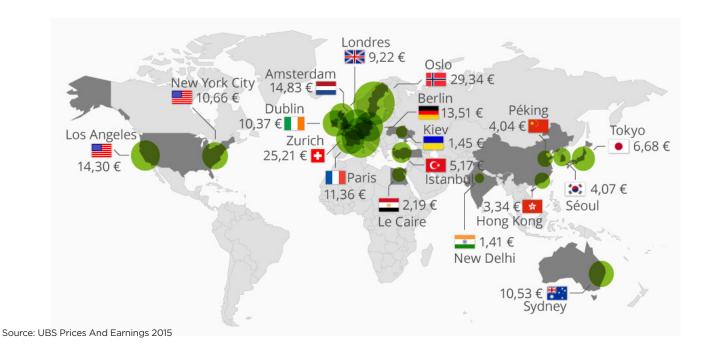
Converted from dollars to euro on 29/10/2015

An increase favoured by a lack of supply of traditional players, both in quantity and quality

The growth of the private hire vehicle market and that of Airbnb was also fostered by the imbalance between supply and demand in the market of traditional players (taxis and hotel companies). In the case of the latter, low supply led to a high price for the customers as well as a quality of services/products offered that is deemed to be lower, especially for low-end supply.

While the establishment of a numerus clausus in the1930s proved beneficial for more than 70 years for Paris taxis, the impact on the evolution of the supply was negative. Between 1937 and 2010, only 4,000 taxi licenses were issued in the Paris metropolitan area, while the population grew by 4.8 million individuals during the same period. This lack of competition had the effect, in particular, of multiplying the price of taxi licences between 1990 and 2012 twentyfold. Consequently, the prices of taxis in Paris are among the highest in the world (see Map $n^{\circ 1}$)⁽³⁾. Taking a taxi in Paris (11.36 euros for 5 km on average) today is certainly more affordable than in Berlin (13.51 euros), but is still more expensive than in New York (10.66), London (9.22), Sydney (10.53) and even Tokyo (6.68).

In addition to price, the lack of competition also seems to have impaired the quality of service according to the opinion polls carried out on the subject. Despite the absence of pick-up fees⁽⁴⁾ which reduces the amount of fares,

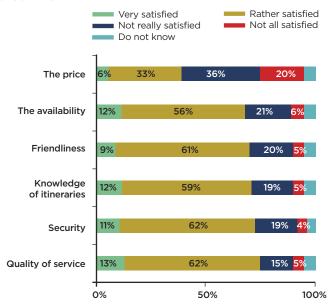


⁽³⁾ Source: UBS Prices and Earnings (2015).

⁽⁴⁾ In the event of absence of a vehicle in a station, you can use the call point to contact a taxi in a neighbouring station. You then pay, in addition to your fare, the "pick-up fee" amount. The price displayed on the meter at the moment of hire corresponds to the route carried out by the taxi from its parking spot to the call point. The "pick-up fee" will also be billed to you if you book a taxi or if you call one from your house (domicile, residence or workplace). In these two cases do not hesitate to ask the taxi what its departure point is and what the estimate cost is for the "pick-up fee".

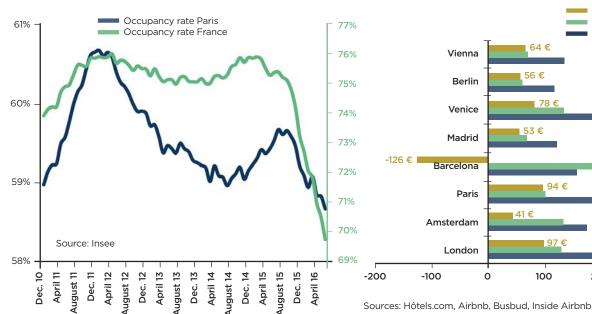
quality of service (75%) and availability (68%) are the most popular factors valued by private hire vehicle users (5) in 2014 and not prices (see graph n°4). Thus, in the context of development of new technologies and growing use by French citizens of smartphones and collaborative platforms acting as relays, the market share of traditional players counting 18,000 Parisian taxis went from 100% to 66.6% in six years.

Graph n°4 French opinion on the services of chauffeur-driven passenger transport vehicles in 2014



Sources: CSA, Uber

Graph n°5 Average occupancy rate of hotels in France/Paris (annual average)

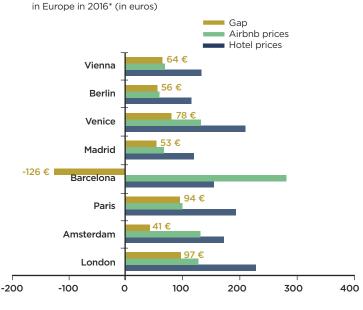


Airbnb has also benefited from an insufficient hotel supply in Paris, generating high prices, even for low-end hotels. The Parisian hotel industry for many years has experienced a deficit of rooms and the risk of obsolescence of the existing hotel inventory (6). In early 2010, the city of Paris evaluated this deficit at 7,000 rooms. In order to promote the creation of hotel rooms, a hotel plan was announced, and applications for land use authorisations were more significant in number than originally planned. Today, assuming that all the projects submitted would go as far as the effective opening of a facility, the number of rooms is expected to increase by 10,000 between 2010 and 2020. By the end of 2015, Parisian hotels offered about 80,000 available rooms spread across 1,505 hotels.

In this context of structurally inadequate supply, the sluggish Parisian hotel sector does not appear to have suffered from a decline in visits despite economic activity since 2009. The average occupancy rate of Parisian hotels remained stable (see graph n°5) between 2010 and 2015, while the French average lost one point over the same period. And while the attacks had a significant effect on professionals of the sector in Paris (-5 occupancy points in 1 year), their occupancy rate remains significantly higher (+11 points) than the French average.

Moreover, the quality of supply seems to have evolved favourably in six years. According to the PwC ranking (7) of September 2016, the city of Paris gets the score of 24 (out of 30 points). It ranks 7th out of 30. While this note highlights the efforts made to increase the hotel inventory, it is mainly positioned on a high-end segment (see graph n°6).

Graph n°6 Average daily rate for a hotel room and Airbnb accommodations



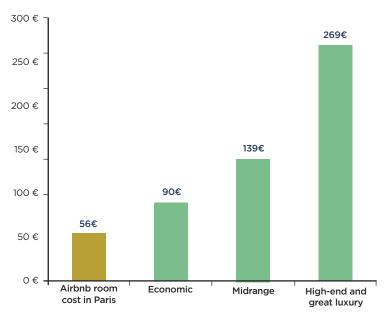
(5) CSA Study of November 2014. The question was formulated by the source as follows: "According to what you know concerning the individual transportation services by car with a driver, would you say that each of the following items is a strong or weak point? - Service quality - Safety - Route knowledge - Userfriendliness - Availability - Price'

- (6) Wise Dôme Conseil, February 2016
- (7) Score obtained in PwC ranking for the hotel rooms category in a selection of worldwide cities in 2015 (out of 30 points). The hotel rooms category corresponds to the total number of hotel rooms per city.

5

Given the rise in real estate prices in Paris and the structurally low level of room supply, the price of the latter is hardly adjustable downwards. Thus, the French capital ranks 3rd in

Graph $n^{\circ}7$ Average revenue per room let from Parisian hotels by category and average cost of a private room in an Airbnb in Paris (2015-2016).



Sources: CRT Paris Ile-de-France; Deloitte (In Extenso Tourisme, Hôtellerie & Restauration); Hotels.com; Airbnb; Busbud; Inside Airbnb

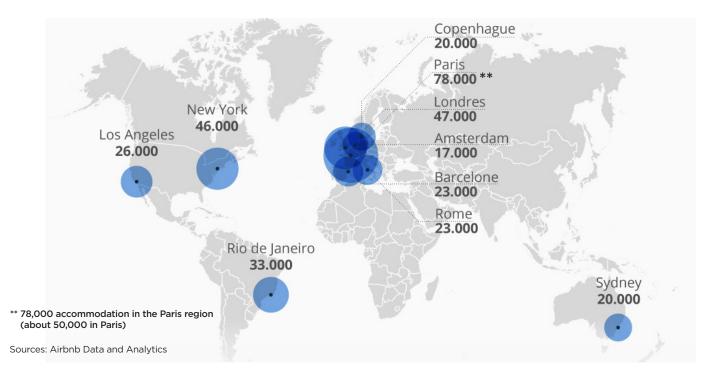
Europe for having the most expensive hotels (see graph n° 6 page 4). We also note that this shortage has naturally oriented the Parisian fleet to a high-end positioning: for greater Paris as a whole, 64% of the hotels are mid and upscale (8), versus only 36% low end hotels.

This high-end positioning fostered the growth of Airbnb in Paris. The prices offered by hosts are on average much more attractive than those of hotels, even low-end hotels (see graph n°7) (9). A survey of March 2016 (10) confirms this, revealing that 31% of Parisians surveyed consider the value for money of tourist accommodation professionals in Paris to be unsatisfactory. With 78,000 homes offered by Airbnb (see map n°2), the Paris region is the number one region in the world in the number of nights offered for the company. This supply, which amounts to approximately 55,000 housing units within inner Paris, has enabled a 70% increase in the overall supply of rooms in the capital. Despite this new trend, hotel clientele grew by 3.3% between 2011 and October 2015 (-1.6% between 2011 and June 2016, taking into account the attacks, see graph n°8 page 6). This growth is nevertheless lower than that of commercial passengers at Paris airports between 2011 and June 2016 (+ 14.8%, see graph n°8 page 6). It is therefore likely that Airbnb has succeeded in capturing this growth gap, while helping to increase the number of French and foreign tourists in the capital (see Inset n°1 page 6).

Map n°2 Paris first city for airbnb

Number of airbnb units per city in 2016

(Any type of accommodation combined: whole accommodation, private room and shared room)



- (8) Atout France; Paris Convention and Tourism Office. Environment and high end: hotels with three stars and more.
- (9) We note that the price difference between Airbnb in Figures 7 and 8 is explained by the fact that the first reports the average cost of full accommodations, while the second indicates the average cost of a room.
- (10) Harris Interactive; February 25 to March 3, 2016; 1,000 respondents; 18 years old+.

Inset n°1

Foreign clientele has boosted stays at Parisian hotels for five years

Since 2011, it has in fact been foreign clientele (see graph $n^{\circ}8$) that has boosted the number of stays at Parisian hotels before the shock linked to the attacks of 2015.

• Stays by foreign tourists increased by 8.7% in Parisian hotels between January 2011 and June 2016 (+16.2% before the attacks in November 2015 and -6.2% since then). Paris ranked third in the number of international visitors (16,060,000), after London (18,820,000) and Bangkok (18,240,000) in 2015 (11). Nevertheless, the increase in foreign visitors between 2010 and 2013 (see graph n°9) is not due to the European markets, but to the drive of American, Asian, Near and Middle Easterner

and African clientele. In contrast, the 12% decrease in the number of European hotel arrivals between 2013 and 2015 has led the curve of the foreign stays downward $^{(12)}$. During this period, Europeans turned to the Airbnb offers (see graph $n^{\circ}9$). In addition, American visits were negatively impacted by the decline in Latin American customer growth (as of 2014).

 Stays by French tourists decreased 9.6% between January 2011 and June 2016 (-6.7% before the attacks).
 The French have shunned Parisian hotels since 2012, mainly for financial reasons, and have also turned to Airbnb.

45% of travellers who stayed with Airbnb in France between September 2014 and August 2015 are of French origin (see graph n°9) (13). This reflects the French consumers desire to pay less for accommodations, but also the growth of the company in the capital. Proportionately to the number of inhabitants, there are four times more Airbnb homes in the French capital than in London. As for owners renting out their space, the reimburse-

ments are used to cover current expenses as well as rent/mortgage repayments (principal item of household spending in France) for 54% (14) of them.

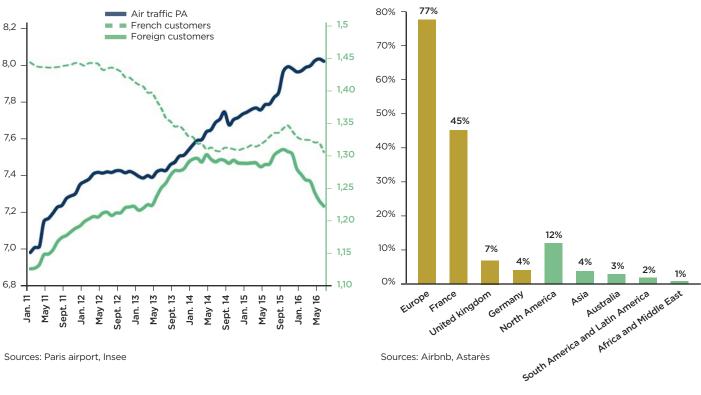
Airbnb thus made it possible to fill an incomplete accommodations supply in Paris, attract additional tourists, and restore purchasing power to the French without really hurting French hotels.

Graph n°8

Evolution of air traffic (Paris Airports-Average over 12 months), and occupancy of Parisian hotels by French and foreign customers (in millions of passengers)

Graph n°9

Origin of travellers who stayed in an Airbnb in France between September 2014 and August 2015, by geographical area



- (11) MasterCard
- (12) Paris Convention and Tourism Office Economic Tourism Observatory July 2016
- (13) This proportion is probably less in the capital, which accounts for one third of total Airbnb reservations in France. Nevertheless, we can assume that 30% of Airbnb customers in France are French.
- (14) Airbnb; Asterès. The economic impact of Airbnb France. The source indicates the following information on the methodology: "The results of this report are based on data for Airbnb hosts and travellers in France between September 2014 and August 2015, as well as on surveys of guests and travellers."





THIS NEW ECONOMY CREATES MORE BUSINESSES AND JOBS THAN IT DESTROYS

Inset n°2

Creative destruction according to Schumpeter

Joseph A. Schumpeter (1883-1950), one of the greatest economists of the 20th century, was particularly interested in the role of innovation in long-term growth cycles. Technical progress is the engine of economic growth. It would be linked to "innovation clusters" that occur unevenly. The analysis of Schumpeter's economic theory assumes that the economy is cyclical and imperfect. Radical innovations are rare, and can take different forms (transportation by railway then the automobile, production with robotics, communication with the internet and the emergence of online platforms). They reveal a set of

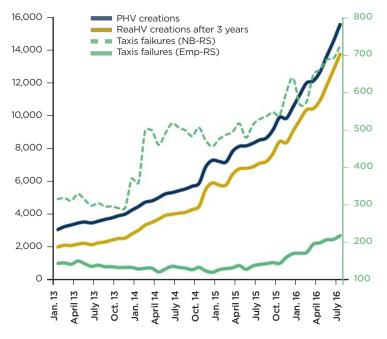
secondary innovations that stimulate activity. The consequence of innovation is the emergence of a monopolistic profit allowing the economy to enter a period of transition. This transition would be characterised by "creative destruction", synonymous with the creation of jobs and markets to the detriment of the destruction of other jobs and markets. Thus, in 1942, in 'Capitalism, Socialism, Democracy', he explains that "the new does not emerge from the old, but appears alongside the old, competing with it to the point of destroying it."

The creation of private hire vehicle companies far exceeds taxi failure rates in France

The appearance and development of private hire vehicles seems to have contributed to the see graph n°12 page 8). The average increase in taxi failures between 2013 and 2016 is 25% higher than the average number of failures between

2007 and 2012 (in number, compared to 3.7% for all failures in France). Between January 2013 and August 2016, each taxi failure in France resulted in an average loss of 3.38 jobs (compared with 3.6 jobs between January 2008 and December 2012 and the appearance of Airbnb).

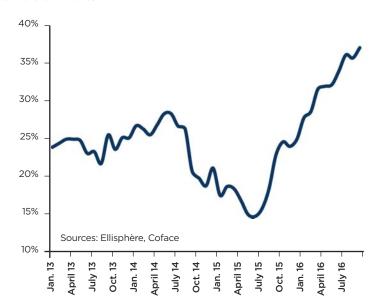
Graph n°10Evolution of the creation of private hire vehicle self-employed entrepreneurs and taxi failures (number and employees) in France



The Ile-de-France region is unsurprisingly more affected than the rest of France, with a 135% increase in taxi failures between 2013 and 2016, probably due to the high concentration of private hire vehicles in this region. Over the period studied, Ile-de-France taxi failures account for an average of 25% of national taxi failures and this share has been increasing since 2015 (see graph $n^{\circ}11$ page 8).

On the private hire vehicle side, business creations have been multiplied more than fourfold since 2013 (around 50% per year on average, see graph n°10), reaching about 16,000. This increase is more pronounced than all business creations in France. Taking into account the limited business life span of self-employed entrepreneurs does not change the situation. Since according to Insee, only one in two self-employed entrepreneurs are still in business after three years, we have distinguished creations and net creations (15). These early disappearances only marginally affect the volume of creations between January 2013 and June 2016 (see graph n°10).

Graph $n^{\circ}11$ Evolution of the share of taxi failures in Ile-de-France compared to total taxi failures in France



Not surprisingly, this increase in private hire vehicle creations is even more significant in the case of Ile-de-France (+718% since 2013). In number, they increase from 1,500 to nearly 12,000 creations (about 75% of the total).

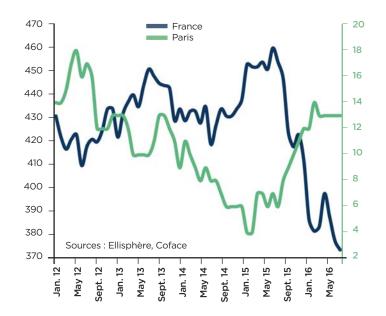
In the end, the number of private hire vehicle creations very easily covers the number of failures observed in traditional taxis, even taking into account the early disappearance of the activity of many self-employed entrepreneurs (see table n° 1). Finally, even if the number of jobs destroyed for one traditional taxi company failure is much (3.38) higher than that of one private hire vehicle creation (0.9), the net employment balance is positive.

Overall, the share of private hire vehicle creations represents 2.6% of the total number of companies created in France. Compared to the creation of net jobs, the share of jobs created by private hire vehicles represents 8% of market jobs and 6% of jobs in the service industry.

Table n°1

Balance creations jobs Taxi / PHV France	12-13	12-14	12-15	08-16
Number of taxi insolvencies A - Jobs destroyed by taxis insolvencies	131	118	168	224
	367	452	633	746
Number of companies created PHV B - Jobs created by PHV* % jobs created by PHV* (IDF)	2 759	5 863	9 002	14 404
	2 483	5 277	8 102	12 964
	66%	73%	77%	78%
B - A Evolution of the balance in number Change in the balance in%	2 116	4 825 128%	7 468 55%	12 218 64%

Sources: Ellisphere, Insee, Coface



Until 2015, the impact of AIRBNB on the growth of Parisian hotel failures was not very salient

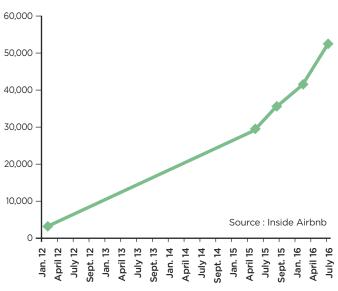
The emergence of Airbnb has apparently not affected the financial health of hotels in France and especially in Paris, where most of the company's offerings are concentrated. Between January 2012 and December 2014 (excluding 2015 which was marked by the attacks that penalized the industry), hotel failures remained roughly stable (+0.7%, or 430 per year on average). This is lower than the growth of all failures, at +1.5% over the same period. The jobs destroyed as a result of these failures declined by 19% over the same period. The failure of a hotel in France generates on average, a loss of 5.8 jobs between January 2012 and December 2014. In Paris, there is a sharp fall in failures (-57% between 2012 and 2014) (see graph n°12), although the number of Airbnb rooms offered increased from around 3,000 to 25,000 in Paris between 2012 and October 2016s (see graph n° 13 page 9).

 $^{^{\}ast}$ Real new jobs of PHV* 0.9 (80% full time + 20% working half time)

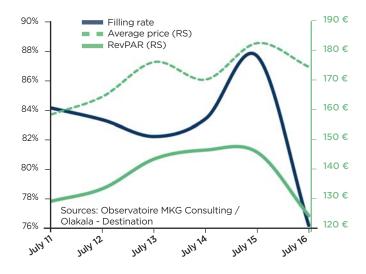
The terrorist incident mark a break in the growth of Parisian hotels defaults

But while between 2011 and 2015, the average annual changes in average prices (+4%), revenue per room (16) (+3%) and occupancy rates of hotels in Paris (+1%) were positive, they have deteriorated since 2015, that is to say after the attacks. The average price of Parisian hotels fell by 4%, revenue per room by 15% and the occupancy rate by 13%. Business failures have increased by 117% among Parisian hotels. It should be noted, however, that the analysis focuses on a small sample, which is therefore very volatile (6 to 13 over one year, see graph n°15). At the same time, the Airbnb supply almost doubled (see graph n°13).

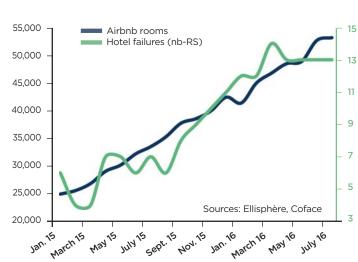
Graph n°13 Croissance du nombre d'annonces Airbnb à Paris



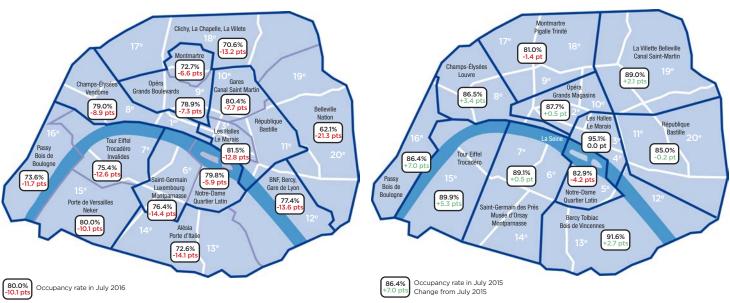
 $\label{eq:Graph nonlocal} \begin{tabular}{ll} $\tt Graph \ nonlocal \\ \end{tabular}$ Evolution of the occupancy rates and prices of hotels in Paris



Graph $n^{\circ}15$ Evolution of hotel failures in Paris, and of the number of rooms offered by Airbnb after the Paris attacks



Maps 3 et 4: Evolution of hotel occupancy rates by tourist area in the capital in July 2016 and 2015



THE OUTLOOK FOR THIS ECONOMY WILL DEPEND ON REGULATION

In June 2016, the European Commission issued a list of legal recommendations with respect to the collaborative economy in order to avoid abuses. These directives tend towards a light regulation of this branch of the economy. Nevertheless, in France, legislation concerning the collaborative economy is based on an ambivalent logic. On the one hand, legislation concerning the 'useful' and non-profit collaborative economy (also known as 'co-consumption') remains flexible, like French public finance, which decided not to tax this branch (17), and BlaBlaCar who was granted legal status by the energy transition law in August 2015. Moreover, the lucrative carpool such as Uber is still considered an unfair practice by the majority of the French political class. In this sense, the Grandguillaume Act aims to reduce the potential supply that private hire vehicles represent in order to "pacify" the private hire vehicle and taxi market.

More restrictive regulations ...

FOR AIRBNB

As part of the Social Security Financing Bill, additional revenue from collaborative platforms will be taxed. Each individual renting out movable and immovable property, generating income in excess of €23,000 and €7,720 respectively, will be required to register with the Self-Employed Social Security Regime (RSI) and accordingly pay the expenses. One study (18) estimates that 5% of owners on Airbnb own 20% of the accomodations and confirms that some of the individuals renting out spaces use collaborative platforms as their main source of income.

The Digital Republic Act (also called the Lemaire Act ⁽¹⁹⁾), enacted in October 2016, will force Airbnb to monitor and penalize hosts who would rent their main residences more than 120 days a year ⁽²⁰⁾. In addition, the owner will change the status of his or her residence to a "commercial area", more than 20,000 ads out of the 50,000 in Paris ⁽²¹⁾ would be affected in 2016. To do this, tourist homes owner file an application for authorisation from the town in order to obtain "a declaration number" which they must show in their advertisements.

FOR PHV

Regarding the legislation regulating Uber, the Grandguillaume Act leads to increasing the passenger maximum of LOTI drivers to ten people rather than two (22). They will be able to obtain the status of private hire vehicle drivers (much more binding) provided that they have at least one year of experience. Secondly, Section 5 of the Act is intended to standardise the conditions for access to the private hire vehicle and taxi statutes.

... which could have adverse consequences on the actual economy

AIRBNB

Situation in Paris

Implementation of the Lemaire Act, planned in 2018, is expected to result in short-term shortfalls for the economy. Direct expenses (23) of travellers staying in Paris Airbnb accommodations amounted to 980 million euros at the end of August 2015 for one year (0.2% of GDP of the Ile-de-France). If 40% of owners renting out space as accommodations could be subject to sanctions, the opportunity cost for the Parisian economy could amount to 400 million euros. Moreover, the advantage for tourists hosted by Airbnb hosts, particularly in the savings they realize (see graph n°2 page 2), part of the additional expenses incurred by the cost of a hotel room (see graph n°7 page 5) will not be consumed. And this cost is currently estimated at €100 per day (difference between the average price of a hotel room and an Airbnb room in Paris).

In addition, 93% of Airbnb hosts in Paris have only one dwelling on this site, confirming the idea of setting up a supplementary income. The 218 million euros of revenue generated between September 2014 and August 2015 are allocated to 30% for current expenses and 20% for a rent or a real estate repayment. They are therefore partly reinvested in the French economy.

For example, the combination of the spending effect for customers (even in combination with a declining hotel price) and the revenue effect on hosts could result in a lower circulation of money which will have a negative impact on activity.

⁽¹⁷⁾ Excerpt from the Official Bulletin of Public Finance of 30 August 2016 entitled "Total Revenue"

⁽¹⁸⁾ Les Echos Weekend Survey conducted by Gaël Chareyron (ESILV Paris), Sébastien Jacquot (EIREST Paris-1) and Saskia Cousin (Canthel Paris -5)

⁽¹⁹⁾ The decree is expected to be submitted in spring 2017 for implementation as of early 2018.

⁽²⁰⁾ This reform aims to reinforce the initial 120-day rule enacted in the 2014 Alur Act.

⁽²¹⁾ Inter France Survey of 17 June 2016 entitled "Airbnb s'accapare le cœur de Paris [Airbnb monopolises the heart of Paris]".

⁽²²⁾ Between 2009 and 2015, the number of LOTI drivers in France increased from 20,000 to 70,000 according to the Taxi/Private Hire Vehicle Observatory

⁽²³⁾ Statista, sources: Airbnb and Asterès

11



Encadré 3

Evolution of foreign regulations concerning of rented accommodations

Paris among London and San Francisco

In recent months, Airbnb has been subject to numerous regulations in various countries. As the latter are not standardised, sanctions have a more or less severe degree of restriction. The city of London seems to be the least reluctant to Airbnb development. For Paris, the restriction takes two forms. Before the implementation of the Lemaire Act, regulation could be considered light due to the 120-day rule which is more accommodating than that in London. However, after the introduction of the law, Parisian regulations would become less flexible than those of its neighbours. Indeed, the fact of having

to submit a declaration to the town hall in order to be able to rent out your housing on the site translates into a restriction on level with that of San Francisco. New Yorkers recently announced the introduction of a deterrent fine of up to \$7,500 for users who do not comply with the 30-day rule. To enforce the law in San Francisco, and compel owners offering their homes for rent as accommodations to register on the official platform of the town hall, the town has planned to directly penalize online platforms with a fine of \$1,000 per day, per user.

Table n°2 Different regulations on Airbnb

Date of last regulation	Town	Limit of rental days for main residence	Declaration of housing at the town hall or on a dedicated platform	Possibility of renting the entire house	Restrictive fine
before 2018 After 2018	Paris	120 days maximum	No Tyes	Yes	The user may pay up to a €5,000 fine
May 2015	London	90 days maximum	No	Yes	No
June-16	San Francisco	90 days maximum	Yes	Yes	The platform must pay €1,000 per day per "illegal" user
October 2016	6 New-York	30 days minimum	No	No (yes behond 30 days)	The user may pay up to a €7,500 fine

FOR PHV

Uber's comparative advantage consists of linking supply to demand in real time. Since the evolution of the taxi supply is relatively low given the evolution of the acquisition of taxi licenses over the last 20 years, a reduction in the Uber supply would result in a positive income effect for the remaining players in the taxi market but negative for demand through a price effect, which would be revised upwards.

The most extreme scenario would be a permanent removal of the application. Many cities have already banned Uber from the local economy like Hamburg, Düsseldorf and Frankfurt (all in Germany). Similarly, Spain, Thailand and South Korea have suspended or banned the application. The effects of the forthcoming regulation entail considerable uncertainty about the extent of the supply reduction that will have an impact on employment.

We have formalized a statistical model to explain the evolution of the unemployment rate in lle-de-France according to the evolution of private hire vehicle creation and taxi failures. Our sample is from January 2012 to June 2016. The equation estimated by the least squares method is as follows:

$$\begin{split} \Delta(\textit{Unemployment}_t) &= \alpha + \beta x \Delta(\textit{PHVCreation}_t) \\ &+ \gamma x \Delta(\textit{TAXI Failures}_t) \\ &+ \epsilon_t \end{split}$$
 Table n°3

Statistical results of the estimate by the least squares method

	Coefficient	Standard deviation
α	0.02	0.003
β	-0.03	0.008
Υ	0.005	0.002
R ²	0.43	

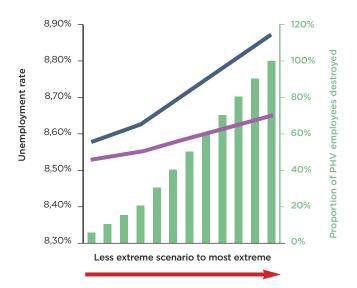
The model, without taking into account taxi failures (γ =0), results in a sharp rise in unemployment (see graph $n^{\circ}18$) that would follow a consequent decline in private hire vehicles. By including taxi failures in the model, the "loss of private hire vehicles" effect is partially offset by a reduction in taxi failures that could result in a more moderate increase in unemployment (a 20% loss in private

hire vehicles would theoretically decrease 100% of taxi failures and therefore would entail an increase in the unemployment rate of 0.15 point versus 0.23 point initially). If regulation of the collaborative economy seems necessary in order to control abuses, a policy of reducing supply would therefore lead to an increase in unemployment according to this model.

Graph n°16

Evolution of the unemployment rate in Ile-de-France based on a scenario of private hire vehicle destruction

Proportion of private hire employees destroyed
Unemployment rate
Unemployment rate considering positive effect on taxis' activity



Sources: Insee, Ellisphère, Coface

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