



HAL
open science

The irresistible peak-hour: Instrumental and axiological rationales of work hours' synchronisation

Emmanuel Munch

► **To cite this version:**

Emmanuel Munch. The irresistible peak-hour: Instrumental and axiological rationales of work hours' synchronisation. *Transportation Research Interdisciplinary Perspectives*, 2019, 3, pp.100063. 10.1016/j.trip.2019.100063 . hal-02537114

HAL Id: hal-02537114

<https://hal.science/hal-02537114v1>

Submitted on 8 Apr 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

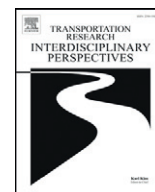
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Contents lists available at ScienceDirect

Transportation Research Interdisciplinary Perspectives

journal homepage: <https://www.journals.elsevier.com/transportation-research-interdisciplinary-perspectives>



The irresistible peak-hour: Instrumental and axiological rationales of work hours' synchronisation



Emmanuel Munch

Research Unit City Mobility Transport, University of Eastern Paris, France
Department of Sociology, University of Bologna, Italy

ARTICLE INFO

Article history:

Received 10 May 2019

Received in revised form 22 September 2019

Accepted 16 October 2019

Available online 15 November 2019

Keywords:

Time
Work
Mobility
Peak hour
Synchronisation
Daily life
Scheduling
Paris

ABSTRACT

An ever-increasing proportion of the French working population today has working hours that are no longer subject to the explicit diktat of their employer. However, in Île-de-France (Paris region), the problems of morning rush-hour congestion continue to worsen. Before trying to solve peak congestion problems, therefore, we need to understand the underlying reasons behind an individual work schedule choices. Why does a person on flexitime commute during rush hour? Our research adopts an interpretive approach and focuses on daily scheduling demands. It draws on the results of a survey (3202 respondents) and interviews (29) with management level employees working in the Plaine Saint-Denis business district. In describing the temporal strategies that explain voluntary peak-hour commuting, we find results along three dimensions: (I) there are coupling constraints (school times, meeting times) that force workers with flexible hours to commute during peak hours; (II) workers with flexible hours and fewer coupling constraints prefer to arrive before or during rush hour in order to enjoy late afternoon activities with family and friends; (III) there are social norms on working hours (ideal of the disciplined worker or the dedicated executive) that limit flexibility by frowning on those who arrive overly late at the office. In conclusion, by revealing the organic intricacy of the factors that lead to synchronisation, our article is able to generate operational recommendations for reducing congestion at peak hours.

1. Introduction

While the proportion of the working population in the Paris region that has a degree of freedom in the choice of working hours is growing (Bouleau and Leroi, 2016) this article seeks to explain the persistence of the phenomenon of the morning rush hour in this area.

The reason for this effort is the persistence of a paradoxical reality: far from leading to more diffuse times of arrival at work, flexitime is in fact associated with a greater concentration of workplace arrival times in Île-de-France (Munch, 2017a). Indeed, in a region that is particularly prone to transport congestion (Koning, 2011), employees since the early 1990s have been increasingly free to choose what time to start work, yet workplace arrival times have not become more spread out; on the contrary, for public transport commuting, journeys are increasingly concentrated within the critical timeframe between 9 and 9:30 a.m. The objective of the article is to show the reasons for this paradox by adopting an interpretive approach: why does the flexibilisation of working hours coincide with greater concentration of workplace arrival times?

This needs to be explained because it runs counter to most of the standard ideas about the causes of rush-hour phenomena. It is usually assumed

that it was factory sirens, the need to clock in, surveillance by the bosses and more globally the standardisation of working practices, that were responsible for the simultaneity of working hours and for rush-hour phenomena (Godard, 2007; Thompson, 1967).

As long as uniform working hours were regulated and dictated by employers, there was little mystery about the rush-hour phenomenon: the cause was the imposed synchronicity of working hours. From the perspective of Transport Economics (Small, 1982; Vickrey, 1969) and at the scale of urban transport networks, the release from uniform and regulated work times was perceived as the necessary and sufficient condition for resolving the problem (Thoemmes, 2013; Hines, 1982). In this era of tertiarisation and flexible working hours, however, the persistence of rush-hour phenomena calls for these assumptions and the theoretical models that underpin them to be re-examined.

In order to attack the problem from a different angle, this article adopts the disciplinary perspectives of the Sociology of Time (Zerubavel, 1985) and the Geography of Time (Lenntorp, 1977), and the scale of the analysis is individual motivations. The scientific goal is to link a workplace arrival time with the reasons that explain it from the employee's point of view.

To fulfil this goal, we will examine the rationales behind the actions of management level employees and public transport users. All of them work in a tertiary hub in the inner Paris suburbs: Plaine Saint-Denis.

E-mail addresses: emmanuel.munch@unibo.it, Emmanuel.munch@enpc.fr.

<http://dx.doi.org/10.1016/j.trip.2019.100063>

2590-1982/© 2019 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

In order to identify the rationales governing the choice of working times, we will draw on a literature review based on the one hand on transport research on the timeframe of day-to-day mobilities and on the other hand on sociological research on social timescale. In the second section, we will draw on quantitative and qualitative methods to present the outlines of our survey methodology and will specify the particularities of our fieldwork terrain. Then, we will outline the three main categories of reasons that explain the decision to arrive at work during peak times. In the third section, we will begin by discussing coupling constraints (school times, meeting times, partner's working hours) which continue to push the majority of employees with flexible working hours to arrive at work at peak times. In the fourth section, we will focus on the other category of our survey population: employees who are not obliged to match timetables with anyone else and can therefore express their working time preferences more easily. We will find that this group too in fact makes little effort to avoid peak times, and that when they do so, they generally choose to arrive earlier for reasons that are only partially linked with the desire for better travel conditions. In conclusion, we will see that over and above the dialectic of preferences and constraints, there exist social norms for working hours that discreetly compel Parisian employees to arrive at work before 9:30 a.m.

2. Literature review

The rationales that explain individual choices concerning the time of arrival at work are often studied in isolation within the different social science disciplines (Thorhaug et al., 2016; Schwane, 2008). In the field of transport research, scientific studies focusing on the choice of travel times assume that urban commuters are governed in their practices exclusively by instrumental motives (Weber, 1978), which can easily be modelled mathematically. In other words, for almost all (visible) transport researchers, “homo-urbanus” (Paquot, 1990) chooses his time of arrival at work on the model of rational choice applied to “homo-economicus” (Pareto, 1906), optimising his preferences while adjusting to certain constraints linked with the coordination of day-to-day activities.

However, by contrast with the models described above, some sociological research has shown that the way we manage our time is frequently driven by motives that are not instrumental or are non-optimal (de Coninck and Guillot, 2013), in particular because there is an ethical component to our relationship with time. When they decide on the duration or the time of an activity (Zerubavel, 1985), individuals refer more or less consciously to “temporal norms” (Rosa, 2013), to systems of values, to what might be perceived as a “right” or “wrong” schedule.

In the same way, people in industrialised countries do not necessarily eat when they are hungry, but when it is mealtime. We do not necessarily go to bed when we are tired but when it is the right time to go to bed. Bed-times or the times of other social activities are the outcomes of normative prescription, which itself is not (entirely) aligned with instrumental rationality or purpose-driven, but more with axiological rationality or value systems.

Rather than being mutually exclusive, the models that explain the times of commuting – a social activity par excellence – need to be combined with models that explain the temporality of social timescales. In other words, this means that the instrumental logics primarily recruited to explain the choices of travel time could be combined with axiological rationales.

2.1. The coupling constraints that influence workplace arrival times

In geography, drawing on the pioneering work of the Scandinavian Time Geography school (Hägerstrand, 1970), we are witnessing significant development of new representational models, the so-called “activity-based approach” to mobilities (McNally, 2000). These models use the everyday activity schedules of individuals rather than their sociodemographic characteristics to model their travel timeframes. For example, for parents of young children, commuting times will be chosen to fit in with the children's

school schedule, the time of a meeting at work and the supermarket closing time.

Here, individuals optimise the management of their daily activities by taking into account the “time constraints” placed upon them (Lenntorp, 1977), beginning with “coupling constraints”. These are constraints that arise from imperatives that require punctual arrival at an “appointment” in the broad sense of the term, i.e. being in a specific place at a specific time and for a duration that is generally agreed (school start times, meeting times...).

Applying Time-Geography principles and activity-based models, some studies have tried to identify the coupling constraints that limit the possibilities of choosing a workplace arrival time outside peak hours. Among these studies are the surveys by Saleh and Farrell (2005) with city-centre employees in Edinburgh, which reveal that school drop-off times affect the choice of working hours. By contrast, Asensio and Matas (2008) find that consumer activities and/or school drop-off times have no impact on working hours. For their part, more recent studies (Aguilera et al., 2010; Li et al., 2014; Zhu et al., 2019) paint a picture of 21st-century urban workers whose commuting time choices are constrained by a complex interweaving of school and family time patterns.

Echoing the economics literature, these activity-based models specify that when there is a degree of “temporal accessibility” for the activities concerned, i.e. a broad range of times during which the activity can be carried out (e.g. shop opening times), individual preferences also come into play in the choice of workplace arrival times.

2.2. The preferences that affect workplace arrival times

The economics literature identifies two main types of preference underpinning the choice of workplace arrival times.

The first relates to the preference for a fast and/or comfortable commute, which motivates certain employees to avoid congestion at peak travel times. The vast majority of studies in transport economics consider this type of preference. They generally draw on so-called scheduling preference models (Small, 1982), which are themselves based on the Bottleneck Model (Vickrey, 1969) used to describe road congestion. According to these models, in choosing when to start work, and therefore when to travel to work, individuals carry out a cost-benefit analysis (Börjesson, 2008) between peak times and off-peak times. They calculate what rush-hour travel “costs” them, in terms of time spent on the road or discomfort in public transport, compared with what an early or late arrival at work “would cost”, mainly in terms of workplace penalties. While these models accurately depict some of the rationales behind the choice of working hours, their weakness is that their approach to these rationales is superficial. In particular, we do not know what individuals mean here when they assess the workplace penalties they risk in deviating from standard working hours (9:a.m.–6:p.m.). It is worth noting, nevertheless, that all these studies indicate that arriving before peak time seems less “costly” than arriving after it (Börjesson, 2008; Kristofferson, 2013; de Jong et al., 2003; Polak and Jones, 1994; Hendrickson and Planke, 1984; Small, 1982) and is therefore more commonly preferred by employees who decide to avoid morning rush-hour.

The second type of preferences much less frequently referred to by economists to describe workplace arrival times. In this case, it is not a preference for avoiding peak periods and for desynchronisation, but instead for synchronisation. According to these studies, it is because flexitime workers prefer to synchronise their leisure times that they also synchronise their working hours, with the result that peak periods continue (Emmerink and van Beek, 1997; Bernheim, 1994). So even when we are no longer obliged to work at the same time as everybody else, we continue to do so because this allows us to have free time at the same time as our social environment and therefore to take part in group activities (playing a sport, going to a show, sharing a meal, going out for a drink...).

For Weiss (1996), although people have a wide variety of “time tastes”, most employees fit in with “standard hours” because, above all other

considerations, they attribute a great deal of importance to the benefits they obtain from their day-to-day interactions.

2.3. The social norms that influence workplace arrival times

For others, however, these moments of synchronisation at work or outside do not necessarily reflect individual preferences and practices that are genuinely chosen by employees. While it is unusual for economics to question what may be hidden behind individual tastes and preferences, sociology for its part considers that there are normative prescriptions that can help us to understand the “preferences” of individuals. For Weber (2013), for example, being late is a form of deviation from normative prescription, the potential consequence of which is a loss of social reputation. On this view, employees with flexible working hours prefer to arrive before or at the same time as everybody else not in order to indulge their tastes or personal inclinations with respect to working times, but primarily to avoid the disapproval of a collective that frowns upon late arrivals. Their workplace arrival time therefore reflects a certain submission to social norms and hence to collective values that are broadly shared in the working world in France, such as discipline and effort (Bouffartigue, 2012; Thompson, 1967).

In 2015, Schulz (2015) compared workplace departure times among flexitime employees in Paris, San Francisco and Oslo. He observed that in the English-speaking world, long working days tend to be disapproved of and penalised by the labour collective, being associated with slowness or poor organisation relative to contractual requirements. Whereas in France, and particularly in the Paris region, an executive who does not watch the clock gains approval because he appears committed to his employer. With regard to the culture of work, working hours in France are controlled and governed by a very rigid labour code. In practice, however, when working hours become more flexible, it is tacit conventions and social norms that play a dominant role in governing the times when people leave work in France (Schulz, 2015). Conversely, in the US these timekeeping norms have much less impact in the organisation of work collectives. For Americans, relations with employers, colleagues and bosses conform to a fundamentally different cultural model, which Alain d'Iribarne and others call “contractualism” (d'Iribarne, 2009; Fischer, 2008). In US companies, therefore, contractual rules take precedence over social control when it comes to timekeeping conventions. Provided that the employment contract stipulates that employees can choose their working hours, they are in principle more able to avoid peak travel times and the working times imposed on the majority.

So far, however, these studies in the sociology of work have never been related to the question of peak time travel and transport problems. This absence of connection between the different disciplines dedicated to the study of the time dimension of social phenomena was identified by William Grossin in his introduction to a *temporal ecology* (Creswell and Plano Clark, 2006). Because this is the situation for our research subject, the article seeks to provide a unified and consistent representation of the rationales of individual actions that explain the decision to arrive at work during the rush hour in Paris region.

3. Survey population and mixed survey methodology

To answer our research question, we chose to survey a population of employees with flexible work hours working in the head offices of large service sector companies. We also opted for a method that combines quantitative survey questionnaires and qualitative semistructured interviews. The qualitative survey fills out the analysis of the constraints and preferences behind working time choices, but also helps us to tackle our third research hypothesis regarding the influence of social norms in the choice of working hours.

3.1. The Plaine Saint-Denis business district

The advantage of our survey location is that it accentuates and catalyses the main factors relevant to our research question. It is located in the Plaine

Saint-Denis business district, a service sector hub in northern Paris that employs some 40,000 people and is very close to two suburb train (RER¹ B & D) stations, La Plaine – Stade de France to the east, and Stade de France – Saint-Denis to the west. Within this sector, we are able to draw on partnerships formed between SNCF Transilien, the regional railway operator, and eight service companies.² Between them, these eight companies employ slightly over 12,000 people, most of them management level employees with flexible working hours who commute mainly by public transport. Starting from this research location, we draw on the combined data from a quantitative survey (3202 questionnaire responses)³ and from a qualitative survey (29 semistructured interviews) both conducted with employees of these eight companies.

3.2. Pragmatism and a mixed survey methodology

In order to better understand the reasons behind the choice of a workplace arrival time, we opted for a survey methodology that combined quantitative and qualitative methods. This approach was seen as pragmatic insofar as our survey design needed to provide an answer to our research question, regardless of theoretical positions, which can limit the capacity to use the appropriate tools.

Because they relate to instrumental rationality and can be explained fairly objectively by the survey subjects, the coupling constraints and individual preferences that may explain the choice of a workplace arrival time are generally investigated using quantitative survey methods (Saleh and Farrell, 2005; Weiss, 1996). From our point of view, while coupling constraints do indeed relate to tangible day-to-day factors (school times, transport timetables ...), preferences for their part relate to complex and organic choices (de Certeau, 1990) that cannot be described with sufficient precision by the mathematical reasoning entailed in the statistical processing of a questionnaire. That is why, while we will only use the results of a questionnaire to discuss the coupling constraints, we have chosen to use the questionnaire and interview results sequentially to describe the outlines of individual preferences.

With this explanatory design (Creswell et al., 2003), the purpose of the qualitative results is to delve into the initial quantitative results in order to provide more detailed explanations. By adding interviews to the questionnaire, the goal here is to give a more fine-grained picture of the form and logic of the individual preferences that underpin a choice of working hours.

Finally, consistently with the goal of complementarity in survey methods (Aldebert and Rouzies, 2011), and in reference to our literature review, we consider that we need to employ another level of analysis to fully decipher what lies behind individual preferences. Greene et al. (1989) use the metaphor of the onion to explain how complementarity makes it possible to measure different facets of a phenomenon in order to obtain a richer understanding. In the present case, the purpose of a quantitative survey is unquestionably to understand what it is in terms of strategies – i.e. of instrumental rationality – that explains the time of arrival at work. However, in terms of axiological rationality, it is also important to know how the different ways of representing and valuing a workplace arrival time influence a time choice. Now it is clear that only close attention to what people say and an analysis of their discourses can provide access to their representations regarding the relative “morality” and “normality” of their working hours. That is why we will use exclusively qualitative survey methods to discuss the influence of social norms in the choice of workplace arrival times.

¹ RER stands for “Réseau Express Régional”. It is a hybrid suburban commuter/rapid transit system serving Paris and its suburbs.

² The regional transport company that operates the suburb train also funded this research, which is the outcome of PhD research conducted under CIFRE (industrial research-based training agreements) with SNCF Transilien.

³ The number of usable responses after cleaning of the database. The anonymous online questionnaire was sent to their employees by each of the companies. The companies could choose a completion period of two weeks between 7 April 2015 and 22 May 2015. At the beginning of the chosen period, their managements sent all employees (both permanent and temporary) with a company email address an invitation to complete the questionnaire. Out of the total of 12,038 employees contacted, 3358 completed the full questionnaire.

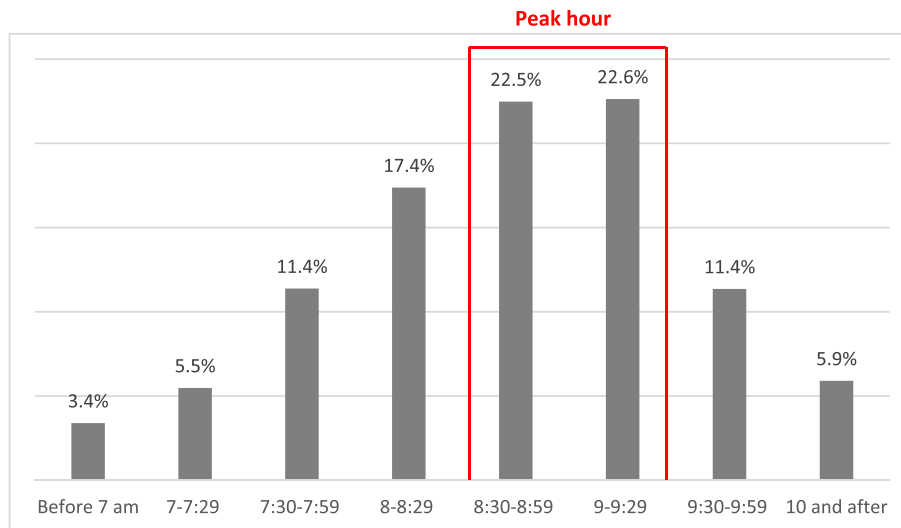


Fig. 1. Distribution of exit times from Gare Stade-de-France Saint-Denis, per 30-minute segment. Legend: At Stade-de-France Saint-Denis station, 22% of morning exits (6–11 a.m.) on working Mondays in 2015 took place between 9 and 9:29 a.m.

Source: Station exit test data for all working Mondays in 2015. TVV–SNCF Transilien centre.

Table 1

Reasons given for working hours sorted on the basis of whether they relate to coupling constraints or individual preferences.

	Spheres of daily life	Actors directly involved	Reasons for schedule
Coupling constraints	Productive	The company and its economic environment	Production norms
	Professional	The individual and the company	Schedules of economic partners
	Social	The individual and their non-work environment	Hours set by employer
Preferences	Individual	The individual	Times of meetings
			Colleagues' schedules
			Creche times
			School times
			Transport timetables
			Partner's schedules
			Non-work activity
Avoiding rush-hour			
Personal preferences			

Source: Author.

3.3. The interview-based survey

The recruitment of the employees for semistructured interviews (29 interviews) followed the questionnaire-based survey, since respondents were given the opportunity to leave their contact details at the end of the questionnaire. The average profile of the interview subjects deliberately differs from the profile of the questionnaire respondents, since interviews were only conducted with people who felt particularly concerned with the problem of rush hour and the organisation of daily schedules. It should be noted that, with the agreement of the interviewees, we were able to compare a respondent's interview responses with their questionnaire responses.⁴ However, the main methodological difficulty coalesced around the construction of the questionnaire, i.e. the formalisation of the variable to be explained and of the explanatory variable.

3.4. The questionnaire-based survey

First, what we consider to be the peak arrival time, i.e. the one-hour period characterised by the largest number of arrivals in the research zone over a day, was determined from exit test data obtained from the Plaine

⁴ Five people had profiles that were too similar to be identified in the questionnaire database.

Saint-Denis stations. This is the period between 8:30 and 9:29 a.m. This timeslot accounts for almost half the arrivals counted in the area on the morning of a working Monday (Fig. 1). Moreover, this time period also corresponds to the peak time for arrival at work on public transport, as identified for Île-de-France (Munch, 2017b).

Second, we decided to ask the employees directly to rank the factors governing their workplace arrival time in order of importance, with the option to rank between one and thirteen answers (Table 1).⁵ In order to make it easier to interpret their reasons for arriving between 8:30 and 9:29, we chose the reason ranked first for each of the respondents.

The other explanatory variables included in the analysis are all control variables that are used to link workplace arrival times (Ott et al., 1980) with certain population categories. These population categories are envisaged from three angles, which define the respondent's identity with respect to their work schedule.

The first angle defines individuals within the personal sphere through the following variables:

- area of residence, sex, age, marital status, number of children, educational qualifications.

The second describes their identity through questions on:

⁵ Twelve reasons identified in addition to an answer "Other". On average, respondents chose slightly fewer than three reasons.

Table 2
Marginal effect of the explanatory variables on the probability of arriving at work during the specified timeslot

Probability that the benchmark individual will arrive during the time slot (in %)	Before 8	8-8:29 a.m.	8:30-8:59 a.m.	9-9:29 a.m.	9:30 a.m. and later
	3.7***	17.3**	19.0**	47.5	12.5***
Variables	Marginal effects				
Stated reason for schedule (fixed hours)					
Production norms	7.7***	-5.8	7.8	-7.0*	-2.7***
Schedules of economic partners	2.2	-3.4	10.2	-4.3	-4.7
Times of meetings	-1.0	-11.8***	1.1	8.5*	3.2
Colleagues' Colleagues' schedules	-0.9	-8.4	-4.1	5.4	8.1
Creche hours	-1.6	-9.5*	-2.4	1.9	11.6
School hours	-2.3**	-12.9***	-6.8**	8.1***	13.8*
Transport schedules	2.3	-4.4	1.0	0.5	0.7
Partner's schedules	7.2***	-1.2	13.4**	-20.1*	0.6
Non-work activity	-3.7	18.1	16.2	-23.6	-7.1
Rush hour avoidance	31.3***	6.7***	-5.5**	-31.5***	-1.0**
Personal preferences	12.4***	-6.2	-5.0*	4.9*	-6.1
Other	9.5**	-5.6	-8.3	3.7	0.8
Area of residence (Paris)					
Inner ring	5.5***	3.3*	0.3	-9.0**	0.0
Outer ring	6.8***	7.1***	1.2*	-13.6***	-1.4
Out of Paris region	11.4**	9.1***	7.6***	-23.3***	-4.9
Sex (Male)					
Female	-1.5***	-1.6	2.4	3.6*	-3.0*
Age (35-44)					
Under 25	-3.3***	-2.7	4.2	3.0	-1.2
25-34	-1.7**	0.6	-2.1	-2.7	5.9*
45-54	1.3*	6.6**	2.5	-5.3	-5.1*
Over 55	1.8**	7.9**	2.8*	-11.5**	-0.9
Marital status (married/civil union)					
Unmarried	-1.7**	-5.8*	1.2	-0.9	7.2*
Cohabiting	-0.5	-8.0	-4.3	8.6	4.1
Divorced	-2.3**	-1.9	-1.4	-1.8	7.4*
Widow(er)	-0.2	-0.9	-1.1	-0.5	2.7
Dependent children (no children)					
1 child	2.5**	1.7	2.4	-1.3	-5.3*
2 children	0.4	2.3	2.4	-2.1	-3.0
3 children or more	0.0	-0.9	7.1	-1.3	-4.9
Qualification (2nd degree)					
Baccalaureate or below	2.3***	9.1***	3.9**	-13.8***	-1.6
1 st degree	2.0**	5.6*	-0.6	-2.7	-4.3*

Significance of coefficients: ***at 0.001; ** at 0.01; * at 0.1; otherwise no significance.

McFadden's $R^2 = 0.188$ Note: The benchmark situation corresponds to the modalities in brackets. The benchmark modalities are the most frequent characteristics for each of the variables. Interpretation: the individual with all the benchmark characteristics is the point of comparison, possessing all the characteristics shown in brackets. For the individual with all the benchmark characteristics, the probability of arriving at work before 8 a.m. is 3.7%. The values given in the "marginal effects" columns describe the divergences from the benchmark modality for each of the variables. In consequence, all other things being equal, people living in the provinces are, compared with Parisians, 11.4% more likely to arrive at work before 8 a.m. In other words, a Provincial who otherwise has all the benchmark characteristics is 15.1% (3.7 + 11.4) more likely to arrive at work before 8 a.m. Source: Rush hour survey - Saint-Denis - May 2015 (3202 respondents).

- socio-professional category, employer, frequency of working from home, theoretical work schedule, actual work schedule.

The third outlines their commuting profile and their route to work:

- travel modes used, sequence of modes, long RER journey or not, total journey time.

For completeness, we could have chosen other control variables from our questionnaire responses, but we chose to limit the number of

explanatory variables to those that proved particularly relevant. The variables not chosen are those which, on the basis of preliminary correlation and modelling analyses, do not improve or do not sufficiently improve our "explanatory model" on workplace arrival time.

Multinomial logistic regression on the time of arrival at work (McCafferty and Hall, 1982) was used to conduct multivariate analyses on the factors that determine an arrival time range. This type of modelling enables us to integrate individual characteristics with coupling constraints and individual preferences to explain schedule choices. The

Table 2 (continued)

Probability of arriving in the timeslot (in %)	Before 8	8-8:29 a.m.	8:30-8:59 a.m.	9-9:29 a.m.	9:30 a.m. and later
	3.7***	17.3**	19.0**	47.5	12.5***
Variables	Marginal effects				
SPC (management)					
Technician	1.9	11.3*	-2.3	-5.2	-5.7
Clerical worker	3.0*	-0.5	-2.7	2.6	-2.4
Supervisor	5.1***	8.4**	-3.1	-12.3*	1.9
Senior executive	3.4**	18.4***	1.2*	-17.0*	-6.1
Company (insurance)					
Bank1	-2.5	-7.9	25.1**	-10.9	-3.8
Bank2	-3.7	-8.6	28.8*	-23.6	7.0
Public1	-0.1	-1.8	11.2	-1.9	-7.4
Public2	2.6***	14.9**	7.0***	-16.7***	-7.8
Public3	0.7	9.2**	5.1*	-9.7*	-5.3
Public4	7.4***	35.6***	1.6***	-33.4***	-11.2
Telecoms	-2.7***	-10.0***	-2.9*	13.9**	1.8
Teleworking frequency (never)					
Some weeks	-0.8	-0.2	-2.9	1.9	1.9
Every week	-0.2	-0.2	-3.7	-5.8	10.0**
Theoretical schedules (fixed schedules)					
Arrival timeslots	-0.3	3.0	-0.4	-4.9	2.6
Free schedules	0.0	3.8*	-1.1	-5.0	2.2
Actual schedules (fixed schedules)					
Arrival timeslots	-2.4***	-7.4***	1.1	4.0*	4.7
Random schedules	-1.6	-8.4*	-3.4	-5.0	18.3***
Transport mode (public T. only)					
Car or motorbike only	0.2	-6.5*	-0.1	5.4	1.0
Bike or others only	0.9	13.8*	-0.5	-11.1	-3.1
Park and ride	1.2*	3.6	-0.4	-0.7	-3.7*
RER journey time (0 or <20 min)					
20 min or more	-0.8*	-3.4*	1.5	2.6	0.0
Journey time (average = 58 min)					
Effect of an additional minute	-0.02*	-0.04	-0.04	0.05	0.05

main advantage of logistic regression here is that, all other things being equal, it specifically isolates the influence of a variable on the schedule practised.

The reference time range chosen is the period 9–9:29 a.m., since this is the period with the largest number of arrivals.

4. Arriving at peak time in response to coupling constraints

Drawing on the data from our questionnaire distributed to employees, we will study the extent to which certain coupling constraints force employees to travel at peak times. We will show that these coupling constraints are mainly of three kinds, and that they have more impact on certain segments of the population.

The table below sums up the effect of each of the variables considered on the probability of travelling to work in each of the 30-minute timeslots. The slots with a red background represent the morning rush-hour (8:30–9:29 a.m.).

Interpretation: the individual with all the benchmark characteristics is the point of comparison, possessing all the characteristics shown in brackets. For the individual with all the benchmark characteristics, the probability of arriving at work before 8 a.m. is 3.7%. The values given in the “marginal effects” columns describe the divergences from the benchmark modality for each of the variables. In consequence, all other things being equal, people living in the provinces are, compared with Parisians, 11.4% more likely to arrive at work before 8 a.m. In other words, a Provincial who otherwise has all the benchmark

characteristics is 15.1% (3.7 + 11.4) more likely to arrive at work before 8 a.m. Source: Rush hour survey - Saint-Denis - May 2015 (3202 respondents).

4.1. Rush-hour appointments: school, meeting and partner schedules

Because the rush hour is the time when the most workers are on the move, it is the period that symbolises the “common denominator” of social life and everyday interactions. It represents the crystallisation of the majority’s coupling constraints. It enables the whole population to meet at work while maintaining the possibility of coordinating with other individuals in one’s social circle (family, friends, shopkeepers...), before or after work.

For parents of school-age children, therefore, school start times profoundly structure the beginning of the working day. In Paris, school times are essentially all the same: lessons start at 8:30 a.m. and gates open at 8:20 a.m.

School arrival times are rigid. At best, parents can drop their children off 10 minutes before the bell. The working hours of parents who take their children to school therefore have the same rigidity, plus the combined duration of the home-school-work journey.

This clarifies why parents who take their children to kindergarten or primary school arrive at work around 9 a.m. Compared with a benchmark individual whose work schedule is fixed and determined by the employer, flexitime employees with school-age children and therefore working

Table 3

The two social norms on working hours.

Source: Author.

	Arrival period	Distinctive mechanism	Effect on the group
Timekeeping norm of disciplined employees	Peak hour	Penalty for individuals arriving after 9:30	Employee cohesion
Timekeeping norm of the dedicated executive	Before peak hour	Promotion for individuals who arrive before 8:30	Competition between executives

hours determined by their children's school times, are in fact 8.1% more likely to arrive at the office between 9 and 9:29 a.m. (Table 2).

The time of the first meeting of the day is also a big determining factor in rush-hour arrivals: employees whose arrival time is mainly determined by meeting times are 8.5% more likely to arrive at work between 9 and 9:29 a.m., than people with fixed working hours. As our respondents explain, by convention the first meeting almost always takes place between 9 and 9:30.

Finally, still midway between professional and personal coupling constraints, there is the impact of the partner's working hours. Compared to an individual with all the benchmark characteristics, respondents who said that their morning start time was mainly determined by their partner's work schedule were 13.4% more likely to arrive at work between 8:30 and 8:59 a.m. The partner's (work) schedule becomes critical if one member of the house has greater constraints than the other. The knock-on effect is that one member of the couple then adapts to the other's constraints. These constraints most commonly affect arrivals shortly before 9 a.m. However, the partner's work schedule only plays its role as a coupling "constraint" when other, "more constraining" activities or people cease to be a factor.

4.2. Sociodemography of the rush hour: women at the centre of the debate

Alongside the coupling constraints we have considered (school times, meeting times, partner's schedule), individual characteristics also affect the choice of workplace arrival times, though they do not seem to be so clearly associated with peak time arrivals. According to Table 2, most of the individual characteristics (age, marital status, socio-professional category, qualifications, area of residence) generally seem to separate the population into those arriving before 9 a.m. ("earlybirds") and those arriving after 9 a.m. ("latecomers"). Whereas coupling constraints (school, meeting, and partner) do more to distinguish individuals with rush-hour arrivals and the rest, specific individual characteristics seem to separate them around an axis of symmetry located at the summit of the peak hour, at 9 a.m.

There is only one sociodemographic variable which, depending on the response, is associated either with more arrivals during rush hour, or with more arrivals outside rush hour: gender.

Independently of all the other descriptive characteristics and constraints in the questionnaire, women are more likely than men to arrive during the rush hour period. There are no statistically significant findings for the timeslots between 8 and 8:59 a.m., though women are less likely (-1.5%) than men to arrive in the earliest timeslot, before 8 a.m. In parallel, and still in comparison with men, women are also less likely (-3.6%) to arrive after rush hour. Conversely, women are 3.0% more likely to arrive between 9 and 9:29 a.m., i.e. during rush hour.

The main benefit of the results of our logistic regression is that they can isolate the effect of each variable. In our model, therefore, all else being equal, more women arrive during peak time. That is why one cannot assert that the reason that more women arrive during peak time is because more of them take children to school. Given that the "school times" variable is fixed when the scheduling practices of women and men are compared, explanations need to be sought elsewhere.

Although the gap is narrowing, women in France and on average still devote 57% more time to domestic activities than men (Brousse, 2015). Moreover, working women are involved in a series of spheres of daily life that demand multiple interactions (Adam, 2004; Davies, 2003) but also reciprocal coordination. Although men and women seem to be more or less equally

involved in the school run (56% of women and 44% of men), women overall continue to have more interactions with the children. They also look more after elderly family members and do more shopping (Schintler, 2001). They therefore have more everyday constraints to manage.

At an individual level, a rush-hour arrival often reflects strategies to coordinate and reconcile numerous coupling constraints. In consequence, if women have to deal with more coupling constraints than men (De Palma et al., 2010; Schwanen, 2007) it is highly likely that, in order to juggle all of them successfully in the course of the day, they will be compelled to arrive at work during rush hour. Given that a number of these constraints could not be listed in the questionnaire (childcare, elderly care, housework, shopping...), it may be that the influence of these imperatives on rush-hour arrival is reflected through the sex of the respondent.

5. Arriving before or during the rush hour as a matter of preference?

We are now going to look exclusively at individuals who primarily attributed their time of arrival at work to their preferences. This subpopulation consists of 962 individuals, i.e. a little more than 30% of the population that completed the questionnaire. In parallel, we will draw extensively on the words of the people interviewed who ticked one of the boxes in the questionnaire indicating that they mainly choose their working hours to suit their inclinations. The employees in question break down into two groups according to the type of inclination selected. The first group consists of 412 individuals who stated that they chose their schedules in accordance with a well identified preference: in choosing their working hours, they mainly try to "avoid periods when the transport network is too congested". The second group consists of 550 individuals who stated that their choice of schedule is mainly determined by a markedly broader set of preferences: "personal preferences".

5.1. Avoiding congestion: killing two birds with one stone

Firstly, individuals who say that they try to avoid rush hour are highly likely to arrive before the peak hour and almost never after. Compared with an individual whose schedule is determined by their employer, individuals who prefer to avoid rush-hour congestion are 31.3% more likely to arrive at work before 8 a.m. This early arrival strategy proves more effective than late arrival as a way of tackling the problems associated with congestion: discomfort, delay, unpredictable journey time, difficulty in making connections and even risk of terrorism.

Indeed, the speed of traffic flows in the "bottleneck" explains why disruptions spread and have more impact on people who travel after the peak period (Vickrey, 1969). In order to benefit from the thinning of traffic after rush hour, one would need to let most of the traffic disperse and arrive not at 9:30 a.m., but nearer 10 or even 10:30 (Tribout, 2014). Conversely, by leaving before the traffic builds up, one can avoid rush-hour effects simply by travelling just before peak time.

Nonetheless, a comparison of the questionnaire results with the responses of interviewees reveals that the choice of work schedule is in fact only very rarely guided strictly by the desire for better travel conditions, even for the populations most sensitive to those conditions (long commutes, older people). From the interviews, it emerges that it is in fact preferences relating to the timing of work and leisure periods that result – somewhat fortuitously – in the avoidance of periods of high congestion. In fact, the objective of rush-hour avoidance can seemingly only be achieved if it is "coupled" with interests and preferences that are not purely travel related.

“What are the factors that determine the time you get to work?”

- *I was wondering about it on the way to the interview, because I hadn't thought about it before. I'm on my own in the RER, whereas my husband, who likes his sleep, leaves later but has a lot more people in the RER.”*
- So your reason for arriving at 8:40 is mainly to for a more comfortable ride on the RER?
- *It's mainly because I am an earlybird, or let's say that I like having long evenings, which means getting home early from work, which means getting to work early.”*

[Léna, fiftyish, married without dependent children, executive, living in Outer Ring, arrival at 8:40 a.m.]

5.2. Scheduling preferences or respect for social norms on working hours? The example of the morning coffee

This observation leads us to the examination of the second group of employees who choose their working hours to suit their preferences. In the questionnaire, they did not say that their aim was to avoid congestion, but simply that they chose their hours on the basis of personal preference.

On the one hand, these workers, who tend to be self-employed, are more likely (+ 12.4%) to get to work early, before 8 a.m. The interviewees who ticked the “personal preferences” box alongside a morning arrival time again explained their preference in terms of the benefits of leaving work early. Moreover, some of them cite the benefit of arriving early when the office is quiet, particularly in open-plan layouts.

On the other hand, and still by comparison with employees whose hours are set by their employer, employees who choose their working hours on the basis of personal preferences are also more likely (+ 4.9%) to arrive during peak time (between 9 and 9:29 a.m.). Here, it is the interviews that help us to decipher this apparently paradoxical preference for the rush-hour period, despite its downsides and negative connotations (Orfeuil, 2000; Ricroch, 2011).

During the interviews, some individuals said that they preferred to arrive in the peak period in order to enjoy the sociability in the workplace at that time. And it would seem that in almost all the companies studied, these moments of sociability take place around the coffee machine:

“Between 8:30 and 9 a.m., everyone goes down to grab a coffee, so there is no one in the offices.”

[Nadia, fiftyish, single without children, executive, living in Outer Ring, arrival around 8 a.m.]

Sophie spoke to us about this preference. She said:

“I don't like having my coffee on my own. In fact, I remember that when my first friend was on holiday, I went to work later in order to arrive at the same time as my other friend.”

[Sophie, thirtyish, married with children, executive, living in Outer Ring, arrival around 8 a.m.]

The preference for morning coffee with colleagues is apparently another factor behind arrival at work during the peak period. However, do these moments of synchronisation around the coffee machine at 9 a.m. reflect individual preferences and practices that employees really want? In certain situations, should they not also be interpreted as a form of submission to what we call “social norms on working hours”?

6. Everyone at work by 9:30: social norms on working hours

In this final part, we propose to investigate the utility of the notion of “social norms on working hours” as an explanatory factor in the choice of work schedules. Social norms on working hours are usually expressed silently, through the mirror of other people's eyes (Mead, 2015) and the

fear of being labelled: what will my colleagues and managers think if I get into work at 10 o'clock? Or else: so-and-so arrives early, so they must be professional and committed. Using mainly our interview records, our aim here is to verify the existence of social norms on working hours as a factor that limits the possibilities of arriving at work after 9:30.

6.1. Two social norms on working hours

Underpinning social norms on working hours, there is a set of practical rules that reflect collective values relating to workplace behaviour. Our focus will be on the bad impression, real or imagined, that arriving late at the office may give, which suggests that there is a practical and tacit rule of office life that one should arrive at work before or at the same time as everyone else. In consequence, this rule may in certain cases also take the form of a compulsory presence in the group around the coffee machine.

This is what Julie tells us. She lives a long way away, has to take her children to school, and can only get into work at 9:45. She believes that her absence at morning coffee is a disadvantage:

“For example, not being there for the early morning coffee means that I am not visible, which can limit my career progress. Your work can be highly rated, but if people never see you...”

[Julie, fortyish, married with children, executive, living in Outer Ring, arrival around 9:40.]

Apart from the tangible importance of being present for morning coffee, we show here that there are symbolic representations that propel employees towards arrival at the office before or during the peak period, and limit the incidence of arrivals after 9:30. However, these symbols very often remain implicit. Whether maintained by line managers or employees themselves, enforced by social control or a form of internalised ethics, they are never discussed within work collectives.

From the interviews, therefore, we observe that time of arrival at work is a symbol of the employee's quality, i.e. of the amount of work he or she does: someone who arrives early is assumed to be a hard worker, someone who arrives at the same time as everyone else is assumed to work normally, somebody who arrives late is assumed to be a light worker. To put it differently, in terms of representations of the work ethic (Thrift, 1990; Weber, 2013), an individual who gets to work before everyone else is a dedicated worker, one who arrives at the same time is disciplined, and one who arrives after is a shirker. In reference to the temporal symbols, our interviews reveal the presence of two social norms on working hours (Table 3) which channel arrival times before 9:30.

6.2. The timekeeping norm of the disciplined worker

The first, the “timekeeping norm of the disciplined worker”, is the central and historical norm of employees that requires individuals to get to work at the same time as everyone else, and in our case particularly not after 9:30 a.m. In accordance with the two sides of social norms, standard schedules are on the one hand positively legitimised by the values associated with salaried employment, such as effort, discipline and more generally the scientific organisation of working time. The internalisation of the norm of the disciplined worker, if it spreads to all employees, has the effect of maintaining the social cohesion of the labour collective.

On the other hand, the other side of this norm is that employees who do not obey the values of timekeeping discipline and arrive after the threshold time of 9:30 a.m. are labelled as shirkers. “Had a nice lie-in?” is the ironic question an office colleague will ask when someone turns up at 10. In this way, late arrivals are potentially exposed to punishment by management or colleagues, which can range from simple teasing to exclusion from the work collective.

“And when you used to go to la Défense at 9 a.m., you didn't mind the crush in the metro?- Yes, I did, it was very stressful.- How stressful?”

Stressful to the point that you would travel later and risk giving a bad impression at work? - *In fact, in my experience Line 1 at Étoile is packed between 8:15 and 9:15. So that would mean deciding to arrive really much later.* - That would have really given a bad impression? - *Totally, even more, because at that time I was working in consultancy firms like ‘...’ And there it was a big no-no. There would be the little jokes: “Had a good lie-in?” You don’t really know if it’s a joke...”*

[*Virginie, thirtyish, with a partner and children, senior executive, living in Central Paris, arrival around 9:40 a.m.*]

6.3. The timekeeping norm of the dedicated executive

The second norm on working hours, though still a minority practice, is probably already dominant in the most common representations underlying executive status in France. In a transitional phase, this outlying norm is clearly in competition with the “norm of the disciplined worker”. This is the “timekeeping norm of the dedicated executive”. Unlike the majority norm that applies to employees in general, this norm does not lead to penalties for individuals who fail to match up to it, but instead distinguishes and rewards executives who demonstrate dedication to their work.

“People in France generally like to fit in with the norm, to follow the crowd and not stand out too much. But that is only one side of things. If you arrive at 8 a.m. and leave at 9 p.m., it’s not necessarily something that will get you into trouble, rather the opposite.”

[*Anne, fortyish, married with children, executive, living in Outer Paris, arrival around 9 a.m.*]

Here, the rules of the norm game compel executives to engage in a form of competition on the number of hours worked. The aim is to spend maximum time at work and potentially to arrive before everybody else (before 8:30) in order to make a good impression:

“I have the feeling that beyond fitting in with the norm, there is also the pressure of other people’s perceptions, if they question whether you work enough, whether you are a shirker? - Before joining “...”, I worked in a consulting and audit firm, and yes there was this sort of unhealthy competition: who is already there when the boss arrives? And who stays the longest? Pressure linked with whether you are effective, productive or not, which is directly linked with the number of hours spent at work. So you feel forced to come early and leave late.”

[*Jean, thirtyish, single, executive, living in Inner Ring, arrival around 9:30.*]

7. Discussion

First, drawing on Time Geography models, our quantitative findings show that the majority of working people (70% of our survey subjects) who are apparently free to choose their working hours, in fact remain restricted in their choices by the need to coordinate with their social environment at certain times of day. So, employees who “schedule-match” with their social environment around their children’s school times, the first meeting of the working day and/or their partner’s morning start time, are more likely to arrive during rush hour. In this sense, they corroborate the findings of Saleh and Farrell (2005) in Edinburgh regarding the impact of the children’s drop-off time on the time of arrival at work. Moreover, our survey targeting a population of management level employees provides new information by specifying that the need to be present for company meetings and to coordinate with one’s partner’s working times also dictates rush-hour commuting.

Nevertheless, these findings on coupling constraints need to be treated with a great deal of caution, because they face a significant methodological limitation. Coupling constraints combine and adjust to each other depending on the objectives associated with them and the resources available to individuals (Aguilera et al., 2010; Li et al., 2014; Zhu et al., 2019). In this

respect, the unilateral use of the top-ranked reasons raises questions about the limitations of the analysis. Out of twelve possible reasons, the respondents on average indicated 2.8 that they needed to juggle in order to establish the chronology of the beginning of their day. It would have been interesting to widen our focus below the reasons cited in the highest position in order to evaluate the common ways reasons were linked together: for example, more often “school” in top position and “meetings” in second, or vice versa, etc...? Bearing in mind this limitation, and cross-referencing with other analyses, we observed that because within any given day they seem to have to coordinate more coupling constraints than men (Adam, 2004; Davies, 2003), working women in our survey were more likely than men to travel during the morning peak hour.

Secondly, and conversely, 30% of employees seem to have genuine degrees of freedom in deciding at what time to start work. Among these employees with fewer constraints associated with work or family interactions, 42.8% (i.e. 12.8% of the total sample) said that avoiding the rush hour was a priority when deciding their working hours. Here, the choices made and the preferences expressed by the individuals during interviews prompt us to question the foundational assumptions of econometric models based on “scheduling preferences”.

True, our findings confirm the trend globally observed in “scheduling preference” econometric models: a majority of employees with flexible working hours who want to avoid the rush hour prefer to arrive at peak time rather than after (Börjesson, 2008; Kristofferson, 2013; de Jong et al., 2003; Polak and Jones, 1994; Hendrickson and Planke, 1984; Small, 1982). Nevertheless, individuals who adjust their working hours to avoid rush hour are not making the binary cost-benefit analysis that these models imply. It is not simply about balancing the expected benefits in terms of travel (time saved, greater comfort) and the potential disadvantages from a professional perspective (punishment by the employer for late arrival). In fact, given the potential professional disadvantages, in order for the scales to fall on the side of avoiding rush hour, the anticipated improvement in travel conditions must be combined with an improvement in the daily activity schedule. Our interviews even show that the primary motive for avoiding peak travel times is the desire for a better daily activity schedule, rather for greater comfort or a faster commute. The individuals who said that they avoided the morning rush hour by travelling earlier explained that their main goal was, for example, to enjoy “long evenings” at home, rather than better travel conditions during the commute to work.

Thirdly, in this article, we show that on the other side of the scales, in this case hiding behind the professional sanctions and penalties to which individuals are exposed when they deviate from standard working hours, are “social norms on working hours”. Referring to a theoretical universe that is closer to the sociology of time (Rosa, 2013) and of work (Bouffartigue, 2012) this concept helps to explain the diversity of the rationales and reasons that individuals cite when they decide on their working hours. These rationales are revealed in the explanations of respondents who did not say that they chose their working hours to avoid congestion, but simply from personal preferences (17.1% of respondents). The fact that the vast majority of these individuals arrive before or during rush hour also indicates that their personal preferences are informed by submission to the social norms on working hours, which themselves are underpinned by adherence to certain collective values.

With this new interpretative framework, therefore, the preferences for synchronisation with the social environment – made possible by an arrival before or during peak hour – are no longer really about preferences in the economic sense of the term (Emmerink and van Beek, 1997; Bernheim, 1994; Weiss, 1996). They are no longer instrumental and purpose driven choices that guide practice, but rather a principle of adherence to shared values that ensure integration into the labour collective. According to these principles, we first find the “social norm of the disciplined worker”, the main effect of which is to impose a form of social penalty on employees who arrive at work after rush hour. Second, and more peripherally, we find the “social norm of the dedicated executive”, which bestows a form of reward on employees who arrive earliest at work. This suggests the utility of starting with social norms and the values associated with them in order

to explain the persistence of rush-hour commuting and the choice of working hours.

8. Conclusion

The article provides insight into the reasons why employees with flexible working hours travel during rush hour.

From a theoretical and methodological perspective, its observations are an argument for the removal of barriers between disciplines and for the interweaving of the explanatory models used to explain work schedule choices. These contributions are threefold in nature:

- 1) With respect to Time Geography (Lenntorp, 1977), the article confirms and specifies how the different coupling constraints in day-to-day life (school times, time of the first meeting and partner's working hours) continue to prompt people to arrive at work during the morning rush hour (8:30–9:29 a.m.).
- 2) With respect to Transport Economics (Vickrey, 1969), it qualifies and defines more organically the two main types of preference previously identified in the literature as explaining a choice of working hours. While the preference for commuting outside rush hour is in most cases reflected in pre-rush-hour arrivals, by contrast with “scheduling preference” models (Small, 1982) our study reveals that this preference is not primarily associated with concerns about travelling conditions. Secondly, the preference for arriving during the peak period in order to synchronise with the social environment (Weiss, 1996) is brought into question, since it seems difficult to conceive of it as a practice that people genuinely choose.
- 3) With respect to the sociology of time (Vickrey, 1969; Rosa, 2013) and of work (Bouffartigue, 2012; Schulz, 2015), the article thus proposes a new approach to understanding the rationales at work behind the choice of working hours. Indeed, it proposes to combine an approach through individual preferences with an approach through social norms in order to better explain why employees with flexible working hours and without coupling constraints continue to commute to work during peak times.

Through the use of mixed survey methods, this research provides a fuller picture of the reasons that may explain why people commute during peak hours, at a time when more and more employees have contracts that apparently offer them leeway to choose their own working hours. First, its advantage is that it brings together models that were previously considered to be mutually exclusive rivals in the scientific field of transport research. Above all, however, it has the advantage of offering to complement the approaches traditionally used in transport studies with an approach inspired by sociological research.

9. Outlook

That being said, this work is still largely exploratory. Its aim is to open up theoretical avenues that will need to be confirmed by other research, rather than to propose an immediately replicable model. We will refrain from generalising findings that are based on practices observed only in Île-de-France, in a necessarily specific cultural context and one, moreover, which is concentrated in a business district that attracts a fairly homogeneous population of workers. Therefore, if future research seeks to provide a more robust theoretical framework for the factors that determine the choice of rush-hour travel, fieldwork will undoubtedly need to be conducted in places that broaden the boundaries – whether spatial (dense business zone with good public transport), professional (executive workers) or cultural (Latin) – inherent to our terrain.

Understanding the reasons behind a choice of working hours is also about identifying in another way the solutions that might result in more employees coming to work before and particularly after peak times. In our view, this inductive approach to identifying the factors that determine the choice of working hours needs to lead to action and provide answers to an operational problem faced by public transport operators and transport organising authorities: how to divert commuter flows to either side of the morning rush hour?

On the basis of the observation that school drop-off times and the time of the first work meeting prompt peaktime arrivals, one possibility would be to modify these factors in order to spread the synchronisation of workplace arrival times. Such a policy of differential timetabling between schools has in fact already been trialled and seems to have borne fruit in the city of Lyon (Verchère, 2013). Moreover, a 10 a.m. threshold for the first workplace meeting is currently being tested in companies in Paris's biggest business district, la Défense (https://www.transilien.com/sites/default/files/atoms/files/communiquedecharte_lissageheuresdepointe_la_defense.pdf, n.d.).

Our findings that commuters do not necessarily base their decisions about commuting times on purely rational objectives raise questions about the effectiveness of the “price-signal” in prompting behavioural changes. This should incite transport specialists to devise other types of instrument than price incentives (cheaper travel outside rush hours) to reduce the concentration of journeys at the most critical time (Eliasson, 2016). Indeed, the recognition of axiological factors and social norms now opens up a new research field, but also new prospects for policies to manage transport demand during peak times.

In fact, in Japan, a country where public transport is very busy at peak times, the governor of Tokyo, Uriko Koike, inaugurated a campaign in the summer of 2017 entitled “Jisa Biz” (jisa means “flexitime” and biz is an abbreviation of the English word business) addressed to employers and workers. She argues for a “reform of work practices”, with the aim of encouraging staggered office hours and working from home in order to avoid jam-packed rush-hour trains. Above all, however, she has argued frequently in the media that “being at work and working are not necessarily the same thing” (Kubota, 2017), just as arriving after rush hour does not mean that one works less or less effectively than other people.

It is becoming increasingly clear that until the question of the social norms on working hours becomes part of the debate, such a reform of work practices will not take place and transport networks will become increasingly congested. Indeed, the norms persist because of what remains unsaid. The influence of unspoken factors is fundamental, precisely because norms often run counter to purely rational motives for action. They can only survive if their arbitrariness remains hidden: is it really necessary for all residents of Île-de-France to be at their desks before 9:30 a.m.?

Acknowledgements

Société nationale des chemins de fer français (SNCF) and Agence Nationale Recherche Technologie (ANRT). CIFRE n°2014/0197.

References

- Adam, B., 2004. *Time*. Wiley.
- Aguiléra, A., Massot, M.H., Proulhac, L., 2010. Travailler et se déplacer au quotidien dans une métropole. Contraintes, ressources et arbitrages des actifs franciliens. *Sociétés contemporaines* (4), 29–45 <https://doi.org/10.3917/soco.080.0029>.
- Aldebert, B., Rouzies, A., 2011. L'utilisation des méthodes mixtes dans la recherche française en stratégie: constats et pistes d'amélioration (20ème colloque de l'AIMS). Vol. 6.
- Asensio, J., Matas, A., 2008. Commuters' valuation of travel time variability. *Transportation Research Part E: Logistics and Transportation Review* 44 (6), 1074–1085. <https://doi.org/10.1016/j.tre.2007.12.002>.
- Bernheim, B.D., 1994. A theory of conformity. *J. Polit. Econ.* 102 (5), 841–877. <https://doi.org/10.1086/261957>.
- Börjesson, M., 2008. Joint RP-SP data in a mixed logit analysis of trip timing decisions. *Transportation Research Part E: Logistics and Transportation Review* 44, 1025–1038. <https://doi.org/10.1016/j.tre.2007.11.001>.
- Bouffartigue, P., 2012. *Temps de travail et temps de vie. Les nouveaux visages de la disponibilité temporelle*. PUF.
- Bouleau, M., Leroi, P., 2016. « Nouveaux modes de travail et mobilité », Paris Region Institute for Urban Planning and Development (IAU Île-de-France). https://www.iauidf.fr/fileadmin/NewEtudes/Etude_1284/ModesTravail_enjeuxMobilite.pdf.
- Brousse, C., 2015. La vie quotidienne en France depuis 1974. Les enseignements de l'enquête Emploi du temps. *Economie et Statistique* 478, 79–117. <https://doi.org/10.3406/estat.2015.10559>.
- Creswell, J.W., Plano Clark, V.L., 2006. *Designing and Conducting Mixed Methods Research*. 1st ed. Sage Publications, Inc.
- Creswell, J.W., Plano Clark, V.L., Gutmann, M., Hanson, W., 2003. Advanced mixed methods research designs. In: Tashakkori, A., Teddlie, C. (Eds.), *Handbook of mixed methods in social and behavioral research*. Sage, Thousand Oaks, CA, pp. 209–240.

- Davies, K., 2003. Responsibility and daily life: Reflections over timespace. In: May, J., Thrift, N., Timespace Wiley.
- de Certeau, M., 1990. [1980], *L'invention du quotidien, 1: Arts de faire*. Gallimard.
- de Coninck, F., Guillot, C., 2013. L'individualisation du rapport au temps, Marqueur d'une évolution sociale. <http://www.revue-interrogations.org>, Accessed date: 24 April 2019 URL <http://www.revue-interrogations.org/L-individualisation-du-rapport-au-temps>.
- de Jong, G., Daly, A., Pieters, M., Vellay, C., Bradley and M., Hofman F., 2003. A model for time of day and mode choice using error components logit, *Transport. Res. Part E* 39 (3), 245–268. doi:[https://doi.org/10.1016/S1366-5545\(02\)00037-6](https://doi.org/10.1016/S1366-5545(02)00037-6)
- De Palma, A., Dunkerley, F., Proost, S., 2010. Trip Chaining: Who Wins Who Loses? *Journal of Economics & Management Strategy* 19, 223–258. <https://doi.org/10.1111/j.1530-9134.2009.00251.x>.
- d'Iribarne, P., 2009. National cultures and organisations in search of a theory: an interpretative approach. *Int. J. Cross-cult. Manag.* 9 (3), 309–321. <https://doi.org/10.1117/1470595809346601>.
- Eliasson, J., 2016. Is congestion pricing fair? Consumer and citizen perspectives on equity effects. *Transp. Policy* 52, 1–15. <https://doi.org/10.1016/j.tranpol.2016.06.009>.
- Emmerink, R.H., van Beek, P., 1997. Empirical analysis of work schedule flexibility: Implications for road pricing and driver information systems. *Urban Stud.* 34 (2), 217–234. <https://doi.org/10.1080/0042098976159>.
- Fischer, C., 2008. Paradoxes of American individualism. *Sociol. Forum* 23 (2), 362–372. <https://doi.org/10.1111/j.1573-7861.2008.00066.x>.
- Godard, F., 2007. Vie publique et vie privée: de nouveaux régimes temporels. *Réseaux* 140, 29–65. <https://doi.org/10.3917/res.140.0029>.
- Greene, J.C., Caracelli, V.J., Graham, W.F., 1989. Toward a conceptual framework for mixed-method evaluation designs. *Educ. Eval. Policy Anal.* 11 (3), 255–274.
- Hägerstrand, T., 1970. How about people in regional science? *Papers of the Regional Science Association* 24, 7–21.
- Hendrickson, C., Planke, E., 1984. The flexibility of departure times for work trips. *Transport. Res. Part A* 18 (1), 25–36. [https://doi.org/10.1016/0191-2607\(84\)90091-8](https://doi.org/10.1016/0191-2607(84)90091-8).
- Hines, E.J., 1982. Estimating users and impacts of a regional alternative work schedule program. *Transp. Res. Rec.* 845, 1–8. <https://trid.trb.org/view/181996>. https://www.transilien.com/sites/default/files/atoms/files/communiqu_e_charte_lissageheuresdepointe_la_defense.pdf.
- Koning, M., 2011. Essais sur la congestion dans les transports à Paris (phdthesis). Université Panthéon-Sorbonne - Paris I <https://tel.archives-ouvertes.fr/tel-00717656/document>.
- Kristofferson, I., 2013. Impacts of time-varying cordon pricing: validation and application of mesoscopic model for Stockholm. *Transp. Policy* 28, 51–60. <https://doi.org/10.1016/j.tranpol.2011.06.006>.
- Kubota, M., 2017. Le train-train d'enfer des Japonais. *Courrier International*, Hors-Serie avril-mai-juin, 75-79.
- Lenntorp, B., 1977. Paths in space-time environments: A time-geographic study of movements possibilities of individuals. *Environ Plan A* 9, 961–972.
- Li, Z.C., Lam, W.H., Wong, S.C., 2014. Bottleneck model revisited: An activity-based perspective. *Transp. Res. B Methodol.* 68, 262–287. <https://doi.org/10.1016/j.trb.2014.06.013>.
- McCafferty, D., Hall, F.L., 1982. The Use of Multinomial Logit Analysis to Model the Choice of Time to Travel. *Econ. Geogr.* 58, 236–246. <https://doi.org/10.2307/143512>.
- McNally, M.G., 2000. The activity-based approach. In: Hensher, D.A., Button, K.J. (Eds.), *Handbook of transport modelling*. Pergamon.
- Mead, G.H., 2015. [1934]. *Mind, Self, and Society: The Definitive Edition*. University of Chicago Press.
- Munch, E., 2017a. Mais pourquoi arrivent-ils tous à la même heure? Le paradoxe de l'heure de pointe et des horaires de travail flexibles. (phdthesis). Université Paris Est <https://pastel.archives-ouvertes.fr/tel-01730589>.
- Munch, E., 2017b. Les périodes de fréquentation des transports collectifs urbains. Quels enjeux pour la planification? In: Zembri-Mary, G. (Ed.), *Concevoir Une Offre de Transport Public*, Territorial Editions
- Orfeuil, J.P., 2000. L'évolution de la mobilité quotidienne. Comprendre les dynamiques, éclairer les controverses. Synthèse INRETS.
- Ott, M., Slavin, H., Ward, D., 1980. Behavioural impacts of flexible working hours. *Transportation Research Record*, Journal of the Transportation Research Board 767, 1–6. <https://rosap.nhtl.bts.gov/view/dot/29861>.
- Paquot, T., 1990. *Homo urbanus: essai sur l'urbanisation du monde et des mœurs*. Éditions du félin. .
- Pareto, V., 1906. *Manuale di economia politica*. 13. Societa Editrice.
- Polak, J.W., Jones, P.M., 1994. A tour-based model of journey scheduling under road pricing. 73rd Annual Meeting of the Transportation Research Board, Washington DC.
- Ricroch, L., 2011. Les moments agréables de la vie quotidienne. INSEE première, 1378 (4).
- Rosa, H., 2013. *Social Acceleration: A New Theory of Modernity*. Columbia University Press.
- Saleh, W., Farrell, S., 2005. Implications of congestion charging for departure time choice: work and non-work schedule flexibility. *Transp. Res. A Policy Pract.* 39 (7-9), 773–791. <https://doi.org/10.1016/j.tra.2005.02.016>.
- Schintler, L.A., 2001. Women and Travel. In: Hensher, D.A. (Ed.), *Handbook of Transport Systems and Traffic Control (Handbooks in Transport, Volume 3)*. Pergamon, pp. 351–358.
- Schulz, J.M., 2015. Winding Down the Workday: Zoning the Evening Hours in Paris, Oslo, and San Francisco. *Qual. Sociol.* 38, 235–259. <https://doi.org/10.1007/s11133-015-9309-0>.
- Schwane, T., 2007. Gender Differences in Chauffeur Children among Dual-Earner Families. *Prof. Geogr.* 59, 447–462. <https://doi.org/10.1111/j.1467-9272.2007.00634.x>.
- Schwane, T., 2008. Struggling with Time: Investigating Coupling Constraints. *Transp. Rev.* 28, 337–356. <https://doi.org/10.1080/01441640701642363>.
- Small, K.A., 1982. The Scheduling of Consumer Activities: Work Trips. *Am. Econ. Rev.* 72, 467–479. <http://www.jstor.org/stable/1831545>.
- Thoemmes, J., 2013. L'histoire oubliée des horaires individualisés: de la désynchronisation choisie à la flexibilité pour l'entreprise. *Revue Française de Socio-Économie* 11, 35–53. <https://doi.org/10.3917/rfse.011.0035>.
- Thompson, E.P., 1967. Time, Work-Discipline, and Industrial Capitalism. *Past & Present*, 56–97. <http://www.jstor.org/stable/649749>.
- Thorhauge, M., Cherchi, E., Rich, J., 2016. How flexible is flexible? Accounting for the effect of rescheduling possibilities in choice of departure time for work trips. *Transp. Res. A* 86, 177–193. <https://doi.org/10.1016/j.tra.2016.02.006>.
- Thrift, N., 1990. *The Making of a Capitalist Time Consciousness. The Sociology of Time*. Palgrave Macmillan, London, pp. 105–129. https://doi.org/10.1007/978-1-349-20869-2_8.
- Tribout, J., 2014. *Les déplacements ferrés lourds en Île-de-France – Une analyse de l'EGT 2010*. Document interne SNCF Transilien.
- Verchère, L., 2013. . cited by Nangeroni C. Horaires décalés, transports moins bondés 550. *Ville Rail & Transports*, p. 28 23 avril 2013.
- Vickrey, W.S., 1969. Congestion Theory and Transport Investment. *Am. Econ. Rev.* 59, 251–260. <http://www.jstor.org/stable/1823678>.
- Weber, M., 1978. [1922]. *Economy and Society: An Outline of Interpretive Sociology*. University of California Press.
- Weber, M., 2013. [1905]. *The Protestant Ethic and the Spirit of Capitalism*. Routledge.
- Weiss, Y., 1996. Synchronization of work schedules. *Int. Econ. Rev.* 37 (1), 157–179. <https://doi.org/10.2307/2527251>.
- Zerubavel, E., 1985. *Hidden Rhythms: Schedules and Calendars in Social Life*. University of California Press.
- Zhu, T., Long, J., Liu, H., 2019. Optimal official work start times in activity-based bottleneck models with staggered work hours. *Transportmetrica B: Transport Dynamics* 7 (1), 657–683. <https://doi.org/10.1080/21680566.2018.1460881>.