

Mobility in a global city: Making sense of Shanghai's growing automobile-dominated transport culture

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Abstract

Shanghai continues to position itself as the financial capital of the Chinese mainland economy. The concomitant explosion in wealth, the increasing penetration of consumer culture, the immigration of vast numbers of non-Shanghainese to the city seeking work and the dispersal of the city to the periphery all have significant implications for mobility. This research poses three questions: 1) How do people move around Shanghai? 2) Why do they move in this way? 3) How does this choice of mobility impact on their being and sense of agency? Adopting a qualitative methodology, we approach mobility as a cultural phenomenon and seek to uncover the meanings that car drivers and transit riders attach to mobility and how this impacts their life and their experience of Shanghai. We found that in spite of the fact that Shanghai now has the most extensive metro system in the world, there is a growing materially, culturally and socially embedded automobile culture. The car has a resilient symbolic appeal for the residents of Shanghai. While the automobile is enabling in some routine functions of daily life, collectively it has diminished the agency of people in Shanghai. Congestion, pollution and psychosocial pressure to buy a car portend a socially unsustainable system of mobility. While the metro enables vast numbers of individuals to perform the functions of daily life, it is becoming overcrowded and is associated with the spatial and class-based segregation of people.

Keywords

car culture, mobility, Shanghai, urbanisation, urbanism

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Introduction

Shanghai is China's most economically viable city. With its increasing global influence on the service-sector economy, both Chinese people and foreigners are moving to

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Shanghai for its economic opportunities. The population of China's largest city officially stands at 24.15 million and counting (according to Shanghai Statistics Bureau, as cited in *China Daily Online*, 2014; *The Economist*, 2015b). Since the early 2000s, the boundary of the city has been expanded to cover a much larger area, and the diversely themed so-called 'new towns' have been continually built around the original centre (see Chen, 2009; den Hartog, 2010). Like many other large cities, the centre has become the hub for economic transactions, while the areas surrounding it have the structural responsibility of accommodating the people who are travelling to the centre on a daily basis for work.

This macro urban economic planning seems to be the logic of the global service economy model: to reserve the central city area, with its state-of-the-art infrastructure, for business and the demographic class who have the capital to afford the premium prices of the prime real estate, often associated with both convenient access to the best infrastructure, as well as the socio-cultural status it confers (Harvey, 2008). What this means for mobility in a large city like Shanghai is that every morning and evening, about 60% of the city's residents are moving into and out of the city for work (den Hartog, 2010). In other words, most of the residents of Shanghai experience on a regular basis the most massive, intense and often-uncomfortable temporary migration, which occurs during the eight-hour interval of their white/blue collar life circle. Hence, the principal questions for our research are: First, given the circumstances described above, how do people move around the city?; and, second, why do they move in this way?

Our third research question is, how does the intense daily commute of Shanghai residents affect their being and sense of agency? Given the narrative of this paper, an apt

metaphor here may be cars on the road. For example, if someone gets caught in a traffic jam, not only is that person an element of the congestion itself, but they are also their own agent to decide how they would like to deal with the distress of getting stuck on the road. The driver could turn on a radio, could call someone on their cellphone or could grudgingly complain about lost time. In other words, the driver has their own agency, but it is limited by the structure of the system of which they are inherently a part. That is to say, how do the millions of car owners and transit riders deal with the intense congestion on the roads and the overburdening of the public transportation system on a daily basis just to get to and from work?

Literature and theoretical discussion

To begin to explore these questions, it is useful to frame Shanghai's economic ascendancy and its implications for daily transport, but especially car ownership, in a number of interdependent contexts: the rise of the middle class in the global South, the aspirational consumption of this rising class and the symbolism with which they imbue the motor car. Underpinning this is an expanding global neoliberal economic paradigm and culture. The irony of this economic paradigm being embraced by the Chinese Communist Party is not unfamiliar to Chinese scholars, and indeed to general readers.

As early as 2003, Myers and Kent noted that in 20 middle-income countries, there was a burgeoning class of one billion new consumers 'with an aggregate spending capacity, in purchasing power parity terms, to match that of the US' (Myers and Kent, 2003: 4963). These countries constitute the newer members of the OECD and include, for example, China, India, Mexico, Poland and Turkey. The Brookings Institution

(2010) estimates that today 28% of the world's population is middle class, but that by 2022 it will surpass 50%, and by 2030 it will be two-thirds (Kharas and Gertz, 2010). This rise of the middle class is associated with a marked geographical redistribution from West to East, with most of the new middle class today residing in Asia. Furthermore, Asia's share of the global middle class may increase to more than two-thirds from just over a quarter today, and China's middle class market is likely to become the largest middle class market by 2020, overtaking the US, which will then be taken over by India's middle class market in the decade that follows (Kharas and Gertz, 2010). As McMichael (2009: 2) notes, 'the symbols of their affluence [the new middle class] are car ownership and meat consumption'. Over the past decade, private vehicle ownership in Mumbai has increased 57% as its growing middle class rush to buy cars (Karkaria, 2014). So ubiquitous is the car in cityscapes across the world that the accoutrements of the car dominate our built environment (car parks, petrol stations, traffic signals, roads and highways; see Freund and Martin, 1996: 4). This 'accommodation' of the private automobile has led to the physical and indeed psycho-social transformation of cities, beginning in the second half of the 20th century, so that as Miller (2001:1) argues 'The relationship of much of humanity to the world became increasingly mediated ... by a single machine – the car'.

The preponderance of the automobile has spawned a body of social science literature attempting to unspool its resilient symbolism (Featherstone, 2004; Lutz and Fernandez, 2010; Miller, 2001; Sheller, 2004; Sheller and Urry, 2000, 2006; Urry, 2006). In particular, Urry (2006: 18) argues that automobility is 'the major item of *individual consumption* after housing which provides status to its owner/user through its sign-values (such as speed, home, safety, sexual desire, career

success, freedom, family, masculinity, genetic breeding)'. Sheller (2004: 228) moves beyond conceptualising the car as an aspirational consumer good, and emphasises the need to understand the affective dimension of driving in order to translate this knowledge into more efficacious efforts to displace entrenched car cultures. She argues that the private automobile is so ubiquitous in our culture that we actually experience the world through the car via our aural, visual, olfactory, proprioceptive and what Sheller (2004) calls 'interoceptive' senses. Indeed, several of our interviewees spoke of the particular feelings of power and freedom they experienced behind the wheel (see Findings section for an explication of these feelings). Sheller and Urry (2006) refer to the emergence of a 'new mobilities paradigm', which specifically grounds understandings of automobility in the social sciences, attempting to understand the purposes of mobility for work, pleasure and travel. They argue that as we live in automobilised societies, the social sciences and urban analyses can usefully provide insights into how cars shape urban life (Sheller and Urry, 2006: 8). Our own approach to investigating and theorising about Shanghai's car culture, and wider transport culture, operates from such a social science paradigm, seeking to unravel the meanings behind the ownership of a car in Shanghai.

In urban China, the site of our own research, recent social science literature on car consumption and driving renders vivid insights into how the car is collectively imagined and deployed in the iterative routines of quotidian life (i.e. Barmé, 2002; Hessler, 2010; Zhang, 2009). For example, Zhang's (2009: 193) extensive ethnography of automobility in Guangzhou underscores how in contemporary China the automobile conspicuously marks the economic status of the individual or family. Within the law profession, he reveals, 'car ownership is at least a

peer review standard among the lawyers' and clients frequently make assumptions about a lawyer's competence by the car he/she drives (Zhang, 2009:195).

In Shanghai, one of the most intriguing issues for us is the fact that the demand for car ownership is extremely high despite its state-of-the-art – and, needless to say, the world's most extensive – metro transit system. In any other city, there seems to be a correlation between the amount of government investment in public transportation and reduced rates of private vehicle ownership. Additionally, in those cities, private vehicle ownership is further discouraged by extra mechanisms of control such as traffic congestion fees, license plate bidding, exponential fees for public parking spaces and so on. Apart from parking fees, these instruments of control seem to have the opposite effect in Shanghai. While the investment in public transportation is unsurprisingly among the world's largest – US\$150 billion as of 2015 – and the mechanisms of control remain comprehensive, private vehicle ownership continues to skyrocket. According to data from the China Association of Automobile Manufacturers (CAAM), total car sales in China up to the last quarter of 2014 rose 6.6 percent to nearly 19 million units. This rate represented half of the 13.9% increase in 2013 from the previous year because of tighter government controls, according to the CAAM (China Association of Automobile Manufacturers, 2014). Nevertheless, vehicle sales for the next few years are expected to remain strong and to increase. In Shanghai itself in 2014, according to the Shanghai Bureau of Statistics, there were 2,550,900 cars – more than 10 % of the private automobile population nationwide – which represents an 8.5% increase from the previous year. 1,834,300 of these were private vehicles, representing an increase of 12.3% from previous years.

Shanghai citizens pay a very high price for a license plate (sometimes even more than for the new car itself) just so that they can own a car. This despite the fact that the Shanghai subway system is the world's best in terms of its length and network – at 588 kilometers as of 2014, and, according to the Shanghai Shentong Metro Group, a state-owned enterprise responsible for this particular mode of transit, it is slated to expand to 804 kilometers by 2020 (*Railway Gazette*, 2010; Swanson, 2015). To put it in perspective, the network will be double the length of the London Underground in 2020. Despite the system's impressive plan, the expansion of the metro seems to go hand-in-hand with the process of spatial and class-segregation. In fact, as a recent study of car ownership has shown, owning a car in Shanghai is not just expensive – it is, in fact, the most expensive city in the world in which to own a car according to the Purchasing Power Parity (or PPP) index (as reported in the *Economist*, 2013). According to this study, the cost of owning a brand new private automobile in Shanghai is the world's highest, both before and after combining the purchase price of the private automobile (on average US\$125,000) and the running costs associated with it for the first three years (on average US\$20,000), such as road taxes, registration fees, mandatory service without major repairs, insurance and petrol consumption at the rate of 12.4km/litre. This is puzzling given that the cost of living as well as the average income in Shanghai cannot, in any way, be compared to those of other major cities on the index's list such as New York, London and Tokyo, where the cost of owning a car is just a fraction of Shanghai's. In addition, Shanghai's high price tag for car ownership does not take into account the cost of the license plate and parking. License plates (*chepai*) sold through government auctions can cost as much as CNY100,000 or

US\$16,000.00 as of the first quarter of 2015 (Lu, 2014).

Methodology

Traditionally, studies of transportation as well as treatment of the problem of automobility have originated from engineering, transport economics, transport infrastructure and land use perspectives. Consequently, their focus has been on how to manage traffic. While such approaches offer a valid and insightful paradigm for understanding motorisation, this paradigm reduces the car to an item with both use and exchange value, which is the end product of a production chain (Kopytoff, 1986). This can be contextualised within the western-inspired modernist framework of development popular in the second half of the 20th century and replicated by many non-western countries with the support of the World Bank and the Asian Development Bank, especially in the transport sector. The resulting explanation is that growth in incomes leads to growth in motorisation, as consumers make independent choices within a free-market economic system (Dargay et al., 2007). Townsend (2003) notes that there is also 'a concept of linear technological change which is in the public interest, and which is inevitable and value-free'. The problem is, however, that such a framework excludes understandings of the automobile as a 'culturally marked' product (Kopytoff, 1986: 64).

Following the recent social science turn in mobility studies discussed in the previous section, this study in Shanghai also consciously moves away from transport enclave debates around transport and automobility and adopts a qualitative approach, because such an approach acknowledges that people bring meaning to phenomena in their life. That is, the residents of Shanghai (both local Shanghaiese and in-migrants) attribute

meanings to car ownership, rendering it a cultural artefact.

Epistemologically, this approach is interpretivist, that is it involves an ontological inquiry into the process of ascribing meaning to phenomena by social actors in the world (Bryman, 2001; Denzin and Lincoln, 2005). As such, the meanings attributed to the car in Shanghai are continuously created by car owners, aspiring car owners, car corporations and their marketing departments, as well as government investment in the automobile industry. Interpretivism is also aligned with phenomenology. According to Schwandt (as cited in Denzin and Lincoln, 2005: 297), 'phenomenological analysis is principally concerned with understanding how the everyday, intersubjective world (life-world) is constituted'. Ideas and beliefs are generated and sustained through the interactions between people (David, 2004: 40). The process of making meaning, then, is always social. Our study is philosophically influenced by the interpretivist and phenomenological paradigm, as it focuses on what car ownership and transit usage means for the residents of Shanghai, and how the attribution of these meanings involves a set of social actors.

In this research, we combine the expertise of the two principal investigators: the sociology of public health, and urban anthropology and urban development and planning, together with long-term on-site research in Shanghai, which has been our research place of residence since 2011 and 2013, respectively. In order to understand the social meanings attributed to car ownership but also transit patronage in Shanghai, the primary research method that we used was qualitative interviews with a total of 100 participants. Quantitative analysis, while offering its own useful understandings, fails to capture rich discursive data that in-depth interviews often unearth. For example, relying on statistical analysis alone, one could

easily draw the conclusion from looking at the expansiveness of Shanghai's metro system that the system must be efficient. Open-ended interviews, however, reveal other meanings. As one of our informants has shared with us, 'the fact that Shanghai Metro is the world's largest system does not really mean anything to me', he said. 'Nobody wants to be packed like sardines in the metro, but do I have any other options? Of course if I have money, I will buy a car too', he emphasised. In other words, without understanding the experience of the riders themselves, it would be impossible to understand the residents' aspirations to own private vehicles, an insight which is crucial to policy-making.

The interviewees were all local Chinese people (Shanghainese and non-Shanghainese) and were contacted through our own professional and personal networks. The interview group included males, females and individuals of varying ages, occupations and education backgrounds. As our main focus was car ownership, however, the greater proportion were middle class professionals, those most likely to be able to afford cars. Believing their own names are too hard for foreigners to pronounce, Chinese people often assign themselves English nicknames. As such, where an English name is quoted, it was the interviewees themselves who provided that name. The interviews were conducted in Mandarin and/or English (one researcher speaks fluent Mandarin, and the other basic Mandarin, so often the English language interviews were allocated to the latter researcher). The more educated interviewees (often car owners) frequently spoke enough English to comfortably participate in interviews and to elaborate on specific meanings. The location of the interviews varied according to the exigencies, and sometimes spontaneity, of each situation: workplaces, cafes, in the owner's car, in residential alleyway house courtyards,

riding the metro and even at sporting events. Where feasible, we sought to interview the person in situ, at a time or place where they were using their particular mode of transport, in order to better understand the function and meaning of that transport mode in their daily life.

Another set of challenges posed by generations of social scientists studying China is, precisely, the complex layers of social meanings, and how various groups interpret them (Kopytoff, 1986). One of the ways of thinking about it is in the discourse of 'face value' (or *mianzi*) (Column 2, Figure 1), or the idea that maintaining the reputation of an individual in his/her circle of acquaintances, no matter how superficial that reputation may seem, often trumps most forms of economic rationality. Well-known traditional examples include big banquets, exquisite gift-giving, as well as ritual ceremonies such as a weddings, annual ancestral worship and so on, in which the entire family would pool all their available resources to put on a performance that the family is 'prosperous' (see Smart and Zhang, 2006). Owning a car may have much symbolic resonance for an individual's circle of acquaintances, signifying that the individual is 'well off enough' to be able to afford an important status symbol. The importance of this 'face value' (*mianzi*) should not be reduced to a simplistic notion of the individual being economically unreasonable, given how much we have learned about the history of intimate social relations in traditional Chinese society (see Wank, 1996; Yan, 1996; Yang, 1994). Traditional economic understandings of transport choices cannot capture such significant socio-cultural nuance.

In the fashion of anthropological research, our interviews have enabled us to gain access to responses that were not official (*guanfang*), or a standard set of answers commonly used in maintaining the informant's 'face value' (*mianzi*). Drawing on the

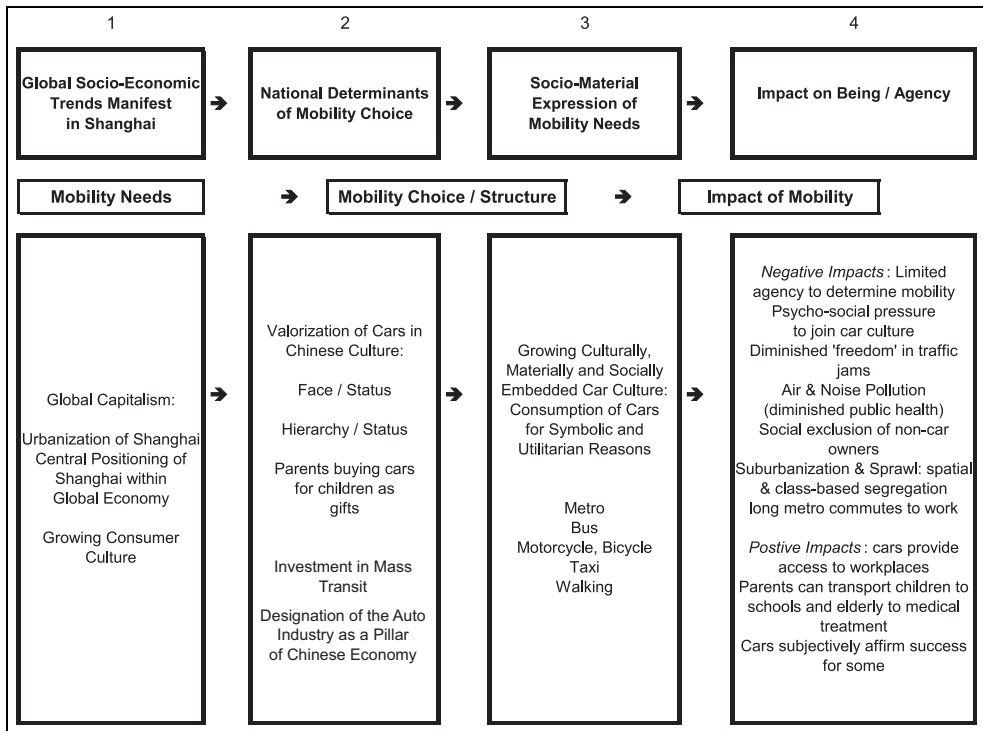


Figure 1. A conceptual framework of Shanghai's automobile-dominated transport culture and its impact on being / agency.

interview data to articulate the meanings of car ownership in Shanghai, this material is put in counterpoint with bigger questions about mobility and transport in the city.

Findings

Given Shanghai's growing wealth as the financial centre of the mainland economy, its residents increasingly move around the city by private automobile, but also by metro, bus, motorcycle, taxi, bicycle and on foot (Column 3, Figure 1). We found that as a means of quotidian transport, car ownership was, not surprisingly, highly valued. Within the overall transport culture of Shanghai, we identified a very resilient culture of car consumption, which is socially, materially and culturally embedded.

We found that our interviewees in Shanghai own or often aspire to own cars for symbolic reasons, and, to a lesser degree, for pragmatic reasons. This we refer to as the 'socio-material' expression of mobility needs (Column 3, Figure 1), which indicates that the material or utilitarian expression of mobility needs includes walking, riding motorcycles and bicycles and taking taxis, as well as significant public transit patronage, especially of Shanghai's ubiquitous metro system and its buses. However, an automobile culture is ingrained and growing. This has strong ties to aspirational global consumerism, the consequence of China's increasing embeddedness within the global economy and Shanghai's rapid urbanisation as it positions itself as a major global financial hub (Column 1, Figure 1).

This aspirational consumerism is also modulated by strong elements of Chinese culture that valorises hierarchy and face saving (as discussed in the introduction and methodology), manifest in this case via car consumption (Column 2, Figure 1). The tension between the forces of global consumerism and Chinese culture encourages individuals to purchase cars for mostly symbolic reasons. We argue that this transport culture, in which the automobile dominates the imagination and aspirations of many, impacts greatly on the 'being' and agency of Shanghai residents for the following reasons: it valorises car ownership as a symbol of success and consequently creates a psycho-social pressure to purchase a car, but doesn't necessarily deliver on its promises of 'freedom' and self-satisfaction when the aggregate impact is that everyone is caught in a traffic jam; it produces vast amounts of airborne pollution which diminishes the health of Shanghai residents; it reinforces socio-economic inequalities as non-car owners often experience a sense of social exclusion; and it disperses some individuals to the periphery of the city without sufficient infrastructure (Column 4, Figure 1). Practically speaking, it does offer some people more ready access to workplaces, allows parents to transport children to schools and elderly family members to medical treatment, offers escape from the masses on Shanghai's metro and has the psycho-social impact (even if subjective and perhaps ultimately fragile) of affirming financial and personal success for many (Column 4, Figure 1).

The most often cited reasons for owning or aspiring to own a car were: status, the perceived freedom a car affords, convenience, to avoid the overcrowded metro, to access workplaces and to better look after one's children. Since China's opening up in the late 1970s, the car has become an integral part of the global consumer economy. In a consumer culture, specific commodities are used

to position oneself in the social hierarchy (Williams, 2009). Featherstone (1991: 27) argues, 'within consumer culture there ... persist prestige economies, with scarce goods demanding considerable investment in time, money and knowledge to obtain, and handle appropriately. Such goods can be read and used to classify the status of their bearer'. In China, as in many emerging economies, a private car is such an item and is highly prized by many as a symbol of economic success.

Among our research participants, the perceived status of car ownership was highly prevalent and expressed in a variety of ways. Richard, a 29-year-old male university administrator, who owns a Volkswagen, said 'cars show you are rich ... have a high position in society'. Ci Ci, a 30-year-old self-employed Creative Director, also expressed a similar sentiment. He said 'Chinese people are materialistic ... they want to show they have money, so they buy a car'. Interestingly, however, Ci Ci, like several others, did not seem to believe that the ubiquity of cars in Shanghai is a problem. This suggests to us that cars are a normative phenomenon in the urban landscape to which people have become inured. Frank, a 33-year-old restaurant manager, offered insight regarding this material culture. He explained that the aspiration to own cars in Shanghai reflected China's stage of socio-economic development. That is, the nation's emergence from a rural past to a modern industrialised and increasingly service-based economy produces the psycho-social desire to express that material transition through status consumption, especially the car. Marco, a 38-year-old restaurant manager, expressed a similar sentiment. He said:

because China is becoming rich, the people don't know what is important ... they think status like car is important. They think money is the most important thing and a car will

improve their life. These people, for example farmers' children coming from the countryside to Shanghai, need education to change their mind / life. Then they will understand what is the real happiness.

Indeed, similar research in Bangkok suggests the same phenomenon is active there (see Williams, 2009).

Mr. Peng is a successful businessman in his 40s, who moved to Shanghai from Hubei. He is married with one child. Mr. Peng took out a loan to buy a BMW four-seat sedan and, together with his monthly mortgage, is finding the repayments on his car a financial stress and admits he may have made a mistake. Asked then why he bought such an expensive car, he replied, 'It's all about how others see you ... I need a good car so that when I go pick up my client they would think of me as someone they can trust. That goes the same way with my daughter's expensive school. We need to be in the "club"'. Ms. Zhao, a 29-year-old manager of a microloan company, owns a 'shocking red' Mercedes. She said, 'For my job, I need a nice car – there's no question about it – otherwise why would anyone trust me and the ability to take care of their assets?'. Jie is a 32-year-old Shanghaiese partner in an architectural company who spent CNY80,000 to buy a license plate and then CNY200,000 on a black Volkswagen. Apart from wanting a car to transport his architectural models around, Jie said 'Social status is another thing, and I can't deny that, but as a partner of a company like mine, the clients would like to see something that somewhat shows and expresses the fact that you are a "successful" businessman, and owning a nice black car is one of them'. Outside of work, however, he rarely uses his car as he lives with his parents in the city centre and relies on taxis and the metro. Apparently the expense of his car purchase is justified by the status it confers in his professional life.

These comments suggest two forces at play: Shanghai's exploding (global) consumer culture (Column 1, Figure 1), over the past 15 years especially, exhorts individuals to display their growing wealth via aspirational purchases, chief amongst them the automobile. This is reinforced by the Chinese cultural elements of 'face' and hierarchy (Column 2, Figure 1), which in a consumer culture also find expression in status purchases. Several research participants made a distinction between local Shanghaiese and those who moved to Shanghai from other parts of China. For example, Larry, a 32-year-old Educational Coordinator at a local university, who owns a BMW, runs a BMW club and exhibits car fetishism, said that Shanghai continues to experience a vast and rapid process of urbanisation, drawing countless outsiders to the city seeking a better life, i.e. material success. Often, he said, these people are less educated and imbue the automobile with more status than local Shanghaiese. Their struggle for financial success may be greater, thus strengthening what we term the 'psycho-social desire' to signify it through aspirational consumption. Again, this phenomenon has been noted in similar research in Bangkok (see Williams, 2009).

Another manifestation of status is the phenomenon of parents in China buying cars for their children as wedding or graduation gifts. Jeffrey is a 30-year-old divorced Shanghaiese bar manager and father of a small child. Jeffrey has owned one car in his life, and only for the one year he was married. Although he has never held a driver's license, Jeffrey's father bought him a car as a wedding gift. Both he and his wife already had apartments, and in Shanghai culture a car completes the package. In fact, when Jeffrey was a teenager, his father told him that as a man he needed to get a driver's license and a car. Without a car or an apartment, his father warned, Jeffrey could not

find a girl. Jeffrey gave the car to his ex-wife when they divorced, but his father still hopes Jeffrey will 'grow up' and buy a car in the future. The social construction of masculinity around car ownership is, of course, pervasive across cultures (see Williams, 2009).

The comments of the interviewees above confirm that in a global consumer culture, identities are penetrated by consumerism, which has increasingly replaced traditional signifiers of identity such as religion, ethnicity and nation. This phenomenon has been extensively covered in the literature on consumerism (e.g. Chua, 2000; García Canclini, 2001; Jayne, 2006; Miles, 2004; Zukin and Maguire, 2004). The consumption of mobility, especially, has always been glamorised in global advertising. Cohen and Gössling (2015: 2) discuss hypermobility in modern society and point out that 'the high social status associated with frequent corporeal mobility in some more privileged societies, specifically by air and road, is at least partly attributable to its glamorization in the media and other forms of public discourse'. Global advertising has constructed personas of successful and attractive people whose identity is anchored in the ownership of a particular automobile brand. Mr. Ren, for example, is a very successful 60-year-old Shanghaiese owner of a technology company who has risen from very humble beginnings to significant wealth as a result of taking a risk in the newly emerging stock market in Shanghai the early 1990s. He decided to buy a Mercedes, he said, because he 'deserves luxury' after all his hard work. Mr. Ren is the quintessential sophisticated Mercedes persona whose success in business confers him the privilege and right to pamper himself with a car that demonstrates his wealth.

Advertising, needless to say, has always constructed car ownership as a symbol of freedom, especially a kind of privileged freedom for those with the financial means to

purchase an automobile. For example, Larry, the 32-year-old Educational Coordinator and BMW owner referred to earlier, said 'I feel myself is the car ... I feel free ... I can be the master I know all the roads. It's a pure joy'. Similarly, Grapp, a 34-year-old game engineer and member of Larry's BMW club, said he 'feels freedom and power' when driving his car. This sense of freedom is often, especially for men, bound up with the sense of a man-machine fully customised to express the owner's identity. 'Personalized cars reduce mental and corporeal insecurities and anxieties creating spaces of man-machine co-existence to which drivers become emotionally attached' (Cohen and Gössling, 2015: 5). The reality, however, is often a lack of freedom when the impulse to buy freedom and status clogs the roads with too many cars and causes routine traffic jams. Larry, for example, simultaneously acknowledged the increasingly egregious nature of Shanghai's traffic jams, in which he frequently gets caught on his 50 km round trip journey to work. As Montgomery (2013: 184) points out:

... cars fail to deliver the experience of freedom and speed that we all know they are capable of bestowing in a world of open roads. The urban system neutralises their power. Luxury and sports cars might still offer their drivers a status bump, but the car's muscles cease to matter when it is surrounded by other cars.

Our findings on the symbolic resonance of the car in Shanghai are supported by Zhu et al. (2012). The researchers conducted a questionnaire survey of 563 university students at Fudan University in Shanghai and at Jiangsu University in nearby Jiangsu Province. As a social cohort more likely than their less-educated peers to have the income to purchase cars in the future, these university students represent a very useful analytical sample. The authors concluded:

there is a strong planned intention of car ownership among Chinese college students. The desire for car ownership becomes present at a relatively early age when purchasing power is still absent, indicating that the car has become deeply ingrained within the Chinese consumer imagination. (Zhu et al., 2012: 318)

The authors point out that the symbolic value accorded cars by this generation will very likely drive future car ownership rates, and that there exists a strong normative expectation that everyone should own a car in the future. In fact, 58% of the students surveyed either agreed or strongly agreed that owning a car 'would be a necessity in the future' (Zhu et al., 2012: 320–321). Several of our own research participants imagined life would be better in the future when they could afford a car. For example, Hu, a 19-year-old waitress who relies on a motor scooter to get around Shanghai, said that 'everything will be better in the future' when she has the money to buy a car. Frank, a 30-year-old café manager, said 'In China, many people want to own car as family didn't have car in the past ... they think life is better with car'. Besides the desire to purchase what was previously unattainable for many Chinese people, especially such a visible symbol as the car, many people project themselves forward into an imagined future made better by owning a car. While the authors of the survey group above also note the practical benefits of car ownership, they ultimately conclude that the embedded norm of expected car ownership among the young means that the automobile is much more than a practical means to get around the city for Chinese people. It is richly affective and symbolic. In order to diminish this car culture in the future, the authors suggest that, apart from continued investment in public transportation, measures are required to diminish the psychosocial valuation granted cars in the minds of young Chinese people.

One of the most egregious impacts of Shanghai's car culture is air pollution (*The Economist*, 2015a; *Shanghai Daily*, 2013). The main airborne pollutants emitted by cars include nitrogen oxides (NO_x), carbon dioxide (CO₂), hydrocarbons (HC) and suspended particulate matter, commonly known as PM_{2.5} (Zhu et al., 2012: 321). Levels of PM_{2.5} frequently reach unhealthy, and occasionally hazardous, levels in Shanghai. Air pollution is a serious public health issue and is associated with respiratory disorders, the aggravation of heart disease and cancer (Poboon, 1997). All of the research participants agreed that Shanghai's air quality is a problem. They attributed it to cars, but also to factories. When questioned about how to control the car culture to reduce pollution and generally improve the urban environment, many research participants demonstrated little agency. That is, they seemed reluctantly accepting of the car culture's impact and had often not imagined how it could be controlled. They rarely had suggestions for how to control car ownership or usage, and many were not aware of measures to do so in other global cities such as Singapore and London. Singapore is an exemplar, well known for two major instruments to control automobile ownership and usage: the Certificate of Entitlement (or COE) which is a license that people need to bid for in order to purchase a car, and ERP (Electronic Road Pricing), a system of congestion charging whereby vehicles are automatically charged for using roads at specific times and locations. In 2013, London also introduced a congestion charge on vehicles entering the city centre, with considerable success. Shanghai's registration plate auction is similar to the Singaporean COE. In 1986, Shanghai was the first city in China to introduce the license plate bidding system. Eight thousand to 9000 license plates are issued at monthly auctions. Plates cost between CNY72,600 and CNY135,677.

Recently, the success rate has been less than 5%. This has spawned the growth of a new business in which prospective car owners hire companies to bid on their behalf for a nominal fee roughly equivalent to 10% of the license plate cost (Shanghai Statistical Bureau, as cited in Lu, 2014).

When we offered the measures of Singapore and London as examples for Shanghai to follow, the research participants generally agreed, but often with limited enthusiasm. Some expressed an air of resignation as though automobility is inevitable and normative. A few even said that car ownership and the freedom to use one's car at any time one chooses, and free of charge, is an individual right. For example, Richard, a 36-year-old Educational Counselor at a local university doesn't own a car and doesn't necessarily want to, but said that the high cost of license plates in Shanghai is unfair because 'it's people's right to own a car'. Frank is a cosmopolitan 33-year-old manager of an Italian restaurant. He doesn't own a car and relies on his motor scooter to get around central Shanghai, where he lives. Frank is aware of the controls used in Singapore and London but says 'they are not fair as people should be able to drive their car where they want, when they want', and so is not in favour of their introduction in Shanghai. He also disagrees with the system sometimes used in Beijing, which alternates car usage according to the odd or even number of the license plate. 'Anyway', he said, 'some Chinese people are so rich that they just buy two cars with both an odd and even number plate, so they can drive every day'.

A very common thread in conversations with car owners was that they would find it hard or impossible to either give up their cars or to use them less, as they had already got used to them. While they recognised the benefits to the environment if they did so, short-term personal interests prevailed over

collective interests. Larry, the 32-year-old Educational Coordinator referred to earlier, said that if he lived in the centre of Shanghai (currently he lives in a distant residential area in the newly developed area of Pudong), he might use his car less and use a bicycle for some trips. He admitted that 'it's hard because once you have a car, it's kind of an addiction'. This same sentiment was echoed by a number of others, including Richard Qiu, a 29-year-old Educational Counselor, who said 'After I bought a car, I think I became a bit lazy ... I don't want to take the bus and the metro is too noisy, crowded, busy It's difficult to give up a car'. While individuals acknowledged the benefits to the environment and the urban amenity of Shanghai if there were fewer cars on the road, the impulse to change their lifestyle for a collective and intangible goal was very limited. As Steg and Gifford (2005: 61) point out, 'Improvements in collective qualities of life, as attempted through sustainable transport, may conflict with individual short-term interests, especially when individuals must adapt their lifestyles in order to reach the sustainability goals'.

In sum, we found a sense of impotence regarding the growth of the car culture, a perception that cars and their associated pollution are the norm and sometimes a contradictory impulse to not stand in the way of car ownership or usage in spite of the pollution and congestion they cause. After all is said and done, our research also suggests that it would be misleading to ignore the practical benefits of cars altogether. In many cases in Shanghai, cars serve as the only means of transportation, especially for the residents who live in the outer suburbs of the city – often because they do not have the financial means to live closer to the city centre – where the metro network has yet to connect them to the important service nodes. We found that people rely on cars to get to work between nodes yet to be connected by

public transportation, to drive a child to school located off the transportation grid, to purchase food and household products from a mall or to transport elder members of the family to medical treatment. The sale of land rights to real estate developers, especially in the suburbs where there is still room for growth by the local government, has undergirded a specific pattern of urbanisation in major Chinese cities for almost two decades (Himanen et al., 2008: 187), forcing cities, especially our case study Shanghai, to develop in a concentric fashion. The centre of the concentric structure is where the most artificially priced land can be found, based on the demand of the upper middle class residents.

Conclusions

In this paper, we have deliberately chosen to investigate Shanghai's transport as a cultural phenomenon. We have found that while Shanghai's transport culture includes the world's most extensive metro, private car ownership dominates the aspirations and imaginations of our interviewees. As such, we identified a culturally, materially and socially embedded car culture, which continues to grow steadily. This transport culture has created what Garrett Hardin (1968) refers to as the 'tragedy of the commons', a theory which argues that the aggregate impact of many individuals acting in their own self-interest can be the destruction of a common system or resource base. In this case, when the residents of Shanghai exercise their right to car ownership, the cumulative impact (many cars on the road) either destroys the system for all, or diminishes its benefits. Instead of 'freedom', there are perpetual traffic jams, poor air quality and the social exclusion of individuals who cannot afford cars. The system becomes environmentally and socially unsustainable.

Literature on urban sustainability recognises that if economics is concerned with maximising human happiness or social welfare, then auto-centric transport systems need to be replaced by sustainable mass transit. As Litman (2003) points out:

Sustainability requires maximizing the social welfare provided by material resource consumption Some factors that help increase more efficient and sustainable transport can increase people's quality of life and happiness (Steg and Gifford 2005). For example, reducing automobile travel and increasing walking and cycling tend to increase fitness and health, and increase equity.

Shanghai has invested greatly in the metro, yet the dream of car ownership is ingrained and normative. This study reminds us then that transport choices are more than utilitarian. People continue to aspire to car ownership for symbolic reasons.

We have argued that while this transport culture enables some important routine functions in daily life (see Column 4, Figure 1), it has many negative impacts on the being and sense of agency of Shanghai residents (see Column 4, Figure 1). Ultimately, the system constricts their agency to determine mobility that raises their social welfare, and the collective social welfare.

Finally, we argue that the burgeoning car culture in Shanghai needs to be understood and addressed also as a cultural phenomenon. The driver at the wheel in Shanghai is also a consumer who sees his/her car as a cultural touchstone, symbolising his/her material success. As the authorities continue to invest in the Shanghai metro and mass transit in general, they should also invest in bicycle infrastructure. Yet more than this is required, as our findings suggest. The resilient symbolism of the automobile itself needs to be targeted and displaced, and the symbolic appeal of mass transit and cycling needs to be raised. Cars have many practical

functions and enable the iterative performance of quotidian routines, as we have found above. Yet, in the interests of social sustainability, global warming and public health, mobility can no longer find status and respect in private automobility alone. In many cities, such as Bogota and Paris, the car is pulling into the curb and making way for a more soft-edged and sustainable form of 'cool', healthy and environmentally-conscious mobility: mass transit, cycling and walking. As Shanghai's burgeoning wealth draws people into cars, it is urgent that authorities understand automobility as a cultural phenomenon and act to de-market the private automobile and raise the status of mass transit and cycling. Therein lies the possibility of agency.

In addition, the license plate bidding system in Shanghai may appear justifiable as a way to disincentivise prospective drivers from adding more private vehicles to the already congested roads. However, there is also an element of what the anthropologist Paul Farmer (2006: 1686) would call 'structural violence' against a certain class of people who actually need automobiles. In other words, the issuing of additional license plates should not be determined by how much money individuals who wish to drive are able to use in the bidding process, but should instead be determined by an individual's need for possessing a private vehicle. For a parcel messenger, a moving service or a taxi driver, a car would mean a job and an income; therefore, they should have the right to possess this important tool central to their profession, as opposed to having to compete in an unwinnable bidding competition with prospective drivers who have more money to bid for license plates. If suburbanisation continues to operate as the city's main planning program, the lower middle class who can only afford to buy or rent houses on the outskirts of the city with its much less advanced infrastructure should perhaps also be given priority

in possessing private vehicles in order to commute to work, send their children to school and so on. This structural violence – both by definition and by design – entails economic, political and legal social structures that stop individuals, groups and societies from reaching their full potential. That is to say, the suburbanisation of the low wage class and this form of structural violence has a profound impact on the agency – or the lack thereof – of the lower middle class.

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