Judgment and Decision Making, Vol. 7, No. 2, March 2012, pp. 165–172

Professionally biased: misestimations of driving speed, journey time and time-savings among taxi and car drivers

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Abstract

People make systematic and predictable mistakes regarding estimations of average speed and journey time. In addition, people have been shown to commit a time-saving bias by underestimating the time that can be saved when increasing from a low speed and overestimating the time that can be saved when increasing from a relatively high speed. These misestimations have been shown to relate to biases in judgments of the speed required to arrive at a specific time and to choosing unduly high speed. Professional drivers, such as taxi drivers, might be less susceptible to these biases due to their increased driving experience. In the current study, we interviewed taxi drivers about a journey they were currently making and examined their estimations of journey time, average speed and time savings. Compared to a group of non-professional car drivers, taxi drivers showed the same considerable misestimations of driving speed, journey time and time savings as non-professionals. However, overestimations of time savings among taxi drivers were smaller than those made by car drivers. We discuss the practical significance of these findings.

Keywords: speed estimations, time estimations, time-saving bias, speed choices, professional drivers.

1 Introduction

Estimating driving speed is not an easy task. Research on mean speed estimation indicates that people make systematic errors in estimating average speed. For example, when judging the mean speed of a trip that included two parts, one with a higher speed and one with a lower speed, people overestimate the weight of the higher speed and underestimate the impact of the lower speed on the average speed of the entire trip (Svenson, Eriksson, Salo, & Peters, 2011; Svenson & Salo, 2010). For example, when drivers were asked to estimate the mean speed of a journey when it was possible to drive at a high speed (e.g., 120 kph) for most of the trip except for a limited part of the trip, where speed limit was significantly lower (e.g., 30 kph), the mean speed of the entire route was overestimated (Svenson & Salo, 2010). In contrast to previous theoretical assertions that people assign equal weights to different speeds when estimating the mean speed of a trip (e.g., Lann & Falk, 2006), these studies found that people actually assign different weights to different speeds, usually overweighting higher speeds and underweighting lower speeds (Svenson, Eriksson, Salo, & Peters, 2011; Svenson & Salo, 2010).

This research was supported by a grant from the Israeli Road Safety Authority. We thank Ola Svenson, Jon Baron and two anonymous reviewers for their helpful comments.

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1.1 The time-saving bias

Consistent misestimations of average speed can sometimes lead to misestimations of the journey's time at different speeds and the difference in journey time between a higher to a lower speed. Specifically, it may cause drivers to make mistakes when trying to estimate the impact a speed change might have on their journey time. Indeed, people have been found to make systematic and predictable errors regarding speed and time estimations when they need to evaluate the impact a speed change can have on journey time. Several studies have shown that people consistently fail to accurately estimate the time saved when increasing speed or the time lost when decreasing speed. Generally, people tend to underestimate the time saved when increasing from a low speed and overestimate the time saved when increasing from a high speed. Additionally, people underestimate the time lost when decreasing from a low speed and overestimate the time lost when decreasing from a high speed (Fuller et al., 2009; Peer, 2010a, 2010b, 2011; Svenson, 1970, 1971, 1973, 1976, 2008, 2009).

For example, Svenson (2008) presented participants with pairs of speeds (initial and higher) and asked them to estimate where a higher time saving would occur. Participants were asked to consider two alternative road improvement plans, each designed to increase the mean travel speed on a road, and to choose which plan would save more time by increasing the road's mean speed limit relative to the road's current mean speed limit. For exam-

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

ple, participants were asked to judge which of the following two road improvement plans would save more time: increasing the speed limit from 30 to 40 kph or increasing it from 70 to 110 kph. In this example, as in most of the other examples used in this study, participants relatively underestimated the time that can be saved when increasing from a low speed and overestimated the time that can be saved when increasing from a relatively high speed. For example, people favored the plan that increased mean speed from 70 to 110 kph over the plan that increased the mean speed from 30 to 40 kph (Svenson, 2008).

Participants' responses contradicted the correct answers given by the physically correct formula for calculating the time gained when increasing speed:

(1) $t = cD\,(1/V_1 - 1/V_2)$,

where c is constant, t is the time gained, D is the distance traveled and V_1 and V_2 are the original and increased speeds, respectively (e.g., Svenson, 2008). By using this formula, one can see how participants' choice of road improvement plan was biased. For example, using a distance unit of 10 km, the time saved by increasing mean speed from 70 to 110 kph is three minutes whereas when increasing from 30 to 40 kph the time saved is about five minutes. These findings were replicated in other studies that used different questions and different modes of presentation (Peer, 2010a, 2010b, 2011; Svenson, 2009).

These faulty estimations of time saved (or lost) may have important consequences on drivers' speed choices and speeding behavior. Specifically, faulty estimations resulting from the time-saving bias may affect drivers' perception of the speed necessary for arriving at their destination on time. The bias in estimations of time saved have been found to be highly related to drivers' personal choice of speed (Peer, 2010a; 2011). When increasing from a low speed, the underestimations of time saved led drivers to overestimate the speed required to complete the journey at a given time and to choose unduly high speeds (Peer, 2010a). In contrast, when increasing from a relatively high speed, overestimations of time saved led drivers to underestimate the required speed and to choose lower speeds (Peer, 2011).

1.2 Biases among professionals

Professional drivers, such as taxi drivers, might be less susceptible to this time-saving bias given the fact that taxi drivers have to decide on an on-going basis at what speed to drive in order to arrive at their destination at a desired time (to pick up a waiting customer, for example). Taxi drivers have been found to show superior memory and cognitive ability when estimating driving distances. These professional drivers made better judgments regarding a route's distance than non-professional drivers, but only when that route was described as the actual driving route. However, when routes were presented as straight lines, taxi drivers made the same degree of errors as non-professional drivers (Peruch, Giraduo, & Garling, 1989). On the other hand, professional truck drivers have been found to posses a similar degree of self-enhancement bias as non-professional drivers. Most truck drivers portrayed themselves to be safer and considerate drivers than the "average driver" or the "average truck driver". Most truck drivers also underestimated the speed they are usually driving compared to the "average driver" or the "average truck driver" (Walton, 1999).

The effects of experience or expertise on judgment and decision-making have been studied in many other studies in various domains such as medical decision-making (e.g., Adam & Reyna, 2005; Fernbach, Darlow, & Sloman, 2010; Redelmeier & Shafir, 1995; Reyna & Adam, 2003; Slovic, Monahan, & MacGregor, 2000; Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006; Ubel, Angott, & Zikmund-Fisher, 2011) financial decision-making (e.g., Fox, Rogers, & Tversky, 1996; Olsen, 1997; Russo, Meloy & Wilks, 2000; Simonsohn, 2010), among sport judges and experts (e.g., Bar-Eli, Azar, Ritov, Keider-Levin, & Schein, 2007; Keren, 1987; Pope & Schweitzer, 2011; Pope & Simonsohn, 2011; Tsyzka & Wielochowsky, 1991), among law professionals (e.g., Englich, Mussweiler, & Strack, 2006; Enough & Mussweiler, 2001; Fox & Birke, 2002) and among professional test-makers (Bar-Hillel, Budesco, & Attali, 2005). All of these studies showed that professionals were not superior to laymen in making judgments and decisions that pertain to their area of expertise (but see Gurmankin Levy & Baron, 2005, and Reyna & Lloyd, 2006 for exceptions).

Reviewing the above research on expert fallibility to judgmental biases, it seems that the increased experience, motivation and exposure to the evidence that should have directed the professionals away from biases did not help them outperform lay people. In the current study, we focused on a group of highly experienced taxi drivers and examined whether they committed the same biases as non-professional drivers have shown in the past regarding estimations of driving speed and time savings. We thought it would be important to examine taxi driver in their natural environment. Thus, we boarded taxis on the street and interviewed the taxi drivers about the actual journey we asked them to make. Our predictions were that taxi drivers would make considerable mistakes regarding the average driving speed or the time that could be saved when increasing speed. We compared taxi drivers' responses to a group of non-professional drivers in order to examine whether taxi drivers' biases were similar, higher or lower than non-professional drivers.

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

2 Method

Participants. The sample included sixty drivers: Thirty taxi drivers, all from the vicinity of the city of Jerusalem, Israel, and additional thirty car drivers which were students at the Hebrew University of Jerusalem. All taxi drivers were male and ranged in age between 24 and 71 with a mean age of 41.8 (SD=12.8). Five of the car drivers were male and 24 were females (one did not state a gender) and ranged in age between 20 and 63 with a mean age of 34.5 (SD=13.4). Taxi drivers had held a driving license for an average of 20.4 years (SD=11.2), of which an average of 9.4 years (SD=9.2) spent driving a taxi. Car drivers had held a driving license for an average of 8.4 years (SD=6.4) at the time of the study.

Design and procedure. Taxi drivers were approached by the experimenter (the second author) when she boarded their taxi as a passenger. The experimenter made trips either from her house to the Hebrew University of Jerusalem or the other way around. All taxies where hailed on the street. After boarding the taxi, the experimenter asked the taxi driver if he would be willing to answer a few questions for a research survey regarding driving behavior. This was done only after the experimenter boarded the taxi and the trip started. The experimenter made it clear that even if the taxi driver would not participate in the study, the trip would be completed and paid for. Four taxi drivers declined to take part in the study and they are not included in this study. After gaining consent, the experimenter went on to ask the taxi driver several questions regarding the journey.

First, the drivers were asked to estimate the expected duration of the journey and the average speed of the journey. Next, drivers estimated how much time they could save if they were able to increase their average speed by 10 or 20 kph for the whole journey. Following that, drivers were asked to imagine that they had to complete this journey in exactly 10 minutes and to estimate what is the minimal speed required to complete this journey in 10 minutes and to indicate what speed they would personally choose in such a situation.

The questions were asked at the beginning of the journey and the interview lasted a few minutes. The experimenter recorded the taxi drivers' responses on a predesigned form. The conversation between the driver and the experimenter was audiotaped (at the permission of the driver) and both authors reviewed the recordings before analyzing the data to ensure all answers were recorded accurately and completely. At the end of the experiment, the taxi driver was thanked and the trip was paid for in full.

Car drivers were approached in the Hebrew University campus and filled out a paper-and-pencil questionnaire in return for course credits. To participate in the study, students had to state that they were active daily car drivers and that they had held a car-driving license for at least one year. Car drivers answered the same questions as taxi drivers with one major difference: Instead of being asked about a trip they are actually making, they were given a description of the trip from the experimenter's house to the university or the other way around. Car drivers were told that this trip's distance is about 6.5 km and were asked to imagine driving this journey on regular hours when there was not any heavy traffic on this route. The questions that followed pertained to this trip and were similar to the ones given to the taxi drivers, with wording modifications made when necessary. Participants were asked to give their intuitive judgments without making any formal calculations. Lastly, both groups of drivers were asked to provide demographic details including gender, age and years of having a driving license.

3 Results

There were no differences in any of the measures between the groups of participants (both taxi and car drivers) who responded about a journey from the experimenter's home to the university or the other way around. Thus, these sub-samples were collapsed.

3.1 Estimations of journey time and average speed

Taxi drivers were asked to estimate the duration of the journey and the average speed for the journey. To our fortunate surprise, we discovered that taxi receipts included a recording of the exact duration each journey took (the mean of which was 12.7 minutes with a standard deviation of 2.9 minutes) as well as the exact distance of each journey (the mean of which was 6.25 km with a standard deviation of .35 km). By dividing driving distance with journey time, we were able to calculate the average speed each journey actually took. We were then able to compare drivers' estimations of journey time and average speed to the exact values of each journey. Table 1 shows the means and standard deviations for taxi drivers' estimations vs. car drivers' estimations as well as the mean differences between the taxi drivers' estimations and the car drivers' estimations and the corresponding t values.

Taxi drivers estimated the journey time between 6.5 to 15 minutes, with an average of 10.53 (SD=2.4) and estimated the average speed of the journey between 50 and 80 kph with a mean speed of 68.83 (SD=7.9). As mentioned above, the actual average journey time (based on the values gathered from taxis' receipts) was 12.7 (SD=2.9). We calculated the difference in estimated vs. actual journey time by comparing each driver's response

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

Table 1: Differences between estimations of taxi vs. car drivers

Estimations of:	Taxi drivers mean (s.d.)	Car drivers mean (s.d.)	Mean difference	t
Journey time (minutes)	10.53 (2.4)	13.7 (5)	−3.17	−3.11*
Average speed (kph)	68.83 (8)	68.67 (14.7)	.17	.06
Time saved for a 10 kph increase	1.54 (1.1)	4.13 (3.8)	−2.59	−3.6*
Time saved for a 20 kph increase	2.85 (1.5)	5.96 (4.2)	−3.11	−3.82*
Required speed (kph)	75 (15.7)	66 (23)	9	1.77
Personal choice of speed (kph)	70.17 (12.1)	70.33 (17.6)	−.17	−.04

* $p < .01$.

to the actual time recorded on the taxi's receipt and found that 70% of drivers underestimated the journey time with a mean difference of −2.17 (SD=3.9) that was statistically significant, t(29) = −5.01, $p < .01$. In contrast, car drivers' estimations of journey time were on average of 13.7 minutes (SD=5.1), which was significantly higher than that of taxi drivers (10.53, SD=2.4), t(58) = −3.11, $p < .01$. Compared to the actual average time done by the taxis, car drivers slightly overestimated the journey time, although not in a way that was statistically significant.

A larger bias was found in the estimations of average speed, where 100% of the taxi drivers overestimated the average speed to be, on average, 68.83 kph. Compared to the correct average speed (which was 29.6 kph according to the aforementioned calculation based on the time and distance recorded on the taxis' receipts), this showed a mean difference in estimations of average speed of 37.36 kph (SD=8.9). This difference was, of course, statistically significant, $t(29) = 25.78$, $p < .001$, and showed that taxi drivers overestimated the average speed by about two times the actual average speed. Car drivers' estimations of the average speed were not different from those of the taxi drivers (means of 68.67 vs. 68.83, SD=14.7, 7.9, respectively), $t(58)=.96$, $p > .05$. Thus, both car and taxi drivers grossly overestimated the average speed of the journey.

3.2 Estimations of time-savings when increasing speed

Both taxi and car drivers were asked to estimate the time they could save by increasing their average speed by 10 or 20 kph for the entire journey. In order to examine whether these estimations were correct or biased, we used each driver's personal estimation of the average speed of the journey as the starting point and examined how each driver estimated the time that could be saved by increasing by 10 or 20 kph from the average speed they themselves provided. For example, if a driver estimated the average speed of the journey to be 60 kph, we calculated how much time increasing to 70 or 80 kph could save. This was done for each driver separately using the appropriate distance value: for taxi drivers we used the distance recorded on the taxis' receipts and for car drivers we used the 6.5 km distance that was given in the question. For example, if a taxi driver estimated the average speed of the journey as 60 kph and the distance on the taxi's receipt was 6 km, we used Formula (1) to calculate how much time increasing from 60 kph to 70 or 80 kph could actually be saved for a 6 km journey (.86 or 1.5 minutes, respectively) and compared these to the driver's estimations of time savings.

The mean estimations of time savings among taxi drivers were 1.54 or 2.85 minutes, (Md=1, 3; SD=1.1, 1.5, respectively), for increasing by 10 or 20 kph, respectively. In contrast, the mean actual time savings (which were calculated for each driver separately, as explained above) were .72 and 1.28 minutes, respectively. The mean difference between actual and perceived time savings among taxi drivers was .86 minutes (about 52 seconds) for increasing by 10 kph and 1.64 minutes (about 98 seconds) for increasing by 20 kph. Paired t-tests showed that these differences were statistically significant (t(27)=3.99, 5.41, respectively). For car drivers, the mean estimations of time savings were 4.13 or 5.96 minutes, (Md=2.3, 5; SD=1.1, 1.5, respectively, $p < .01$), for increasing by 10 or 20 kph, respectively. In contrast, the mean actual time savings (which were calculated for each driver separately, as explained above) were .82 and 1.43 minutes, respectively. The mean difference between actual and perceived time savings among car drivers was 3.33 minutes for increasing by 10 kph and 4.55 minutes for increasing by 20 kph. Paired t-tests showed that these differences were statistically significant (t(28)=4.84, 5.87, respectively, $p < .01$).

We proceeded to compute a time-saving bias measure for each driver by computing the ratio between the perceived time saving and the actual time savings (that was based on the driver's own estimation of initial average speed). This ratio shows a percentage number where a

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

value of 1 means no bias at all, values higher than 1 show overestimations of time savings (e.g., 1.2 shows an overestimation of 20%) and values lower than 1 show an underestimation (e.g., .80 shown an underestimation of 20%). However, these ratios assign higher weights to overestimations (which are not constrained) and lower weights to underestimations (which are constrained by zero). In order to correct this, we computed a log for each ratio, calculated an average between the two logged ratios and then unlogged that average (by multiplying it with a power of 10).[1] This allowed us to arrive at an adjusted measure of the time-saving bias that assigns equal weights to an overestimation by double (a ratio of 2) and an underestimation by half (a ration of .50) and treat these as two symmetric errors. The adjusted time-saving bias score was, on average, 2.41 for taxi drivers and 5.13 for car drivers. Both these scores were significantly larger than 1 for both taxi and car drivers (t(26,28)=5.4, 4.69, respectively). The difference in the adjusted time-saving bias score between taxi and car drivers was also statistically significant (t(54)=2.86, $p < .01$).

To summarize the results thus far, it seems that taxi drivers underestimated the duration of the journey and overestimated the average speed of the journey. Although car drivers estimated the duration of the journey better, they also overestimated the average speed of the journey. In addition, both car and taxi drivers overestimated the time that could be saved when increasing speed by 10 or 20 kph, from the initial average speed they themselves estimated. However, this bias was much larger among car drivers than it was for taxi drivers. We will discuss the practical significance of this finding in the Discussion.

3.3 Estimations of required speed and speed choices

Drivers of both groups were also asked to imagine that they had to complete the journey at exactly 10 minutes and to estimate the required speed for arriving on time. We calculated the actual required speed to complete the journey at 10 minutes by using either the journey distance on taxis' receipts for taxi drivers or 6.5 km for the car drivers. This resulted in a mean actual required speed of 37.52 kph for the taxi drivers and 39 kph for car drivers. As can be seen in Table 1, both taxi drivers' and car drivers' estimations of the required speed (75 and 66 kph, SD = 15.7, 23, respectively) were much higher than the actual required speed.

To test whether these overestimations were statistically significant, we used a paired samples t-test for the taxi drivers (comparing each drivers' estimations with the actual required speed based on his specific journey), which produced a statistically significant result ($t(27)=12.04$, $p < .01$). For the car drivers (who all had the same distance of 6.5 km, thus the same actual required speed of 39 kph) we used a one-sample t-test that showed that the mean estimation of required was statistically larger than the actual required speed ($t(29)=6.44$, $p < .01$). Although taxi drivers' estimations of the required speed were somewhat higher than those of car drivers, these differences were not statistically significant, ($t(29)=1.77$, $p > .05$). Thus, it can be concluded that both groups considerably overestimated the speed required to complete the journey at exactly 10 minutes.

The next question asked drivers to choose a speed they would personally drive at in such a situation. As can be seen in Table 1, both taxi and car drivers chose a speed of an average of about 70 kph and there was no statistically significant difference between the two groups. In order to examine how many of taxi and car drivers chose a speed above the speed limit that could be considered as speeding, we counted the number of drivers who's speed choice was above 60 kph (more than 10 kph above the legal speed limit on that road). Among taxi drivers, 80% chose to speed while among car drivers 60% chose to speed. This difference was not statistically significant (Chi square = 2.86, $p > .05$).

We also examined whether drivers' speed choices were related to the degree they committed the time-saving bias in previous questions (captured by the adjusted time-saving bias score explained above). There was a moderate positive correlation between the adjusted time-saving bias score to personal speed choices among car drivers ($r = .44$, $p < .05$) and a moderate positive correlation among taxi driver ($r = .38$, $p < .05$). These correlations showed that, the more the driver committed the time-saving bias, the higher his personal speed choice was.

4 Discussion

Taxi and car drivers' made considerable and systematic errors in estimations of average speed, journey time, time savings when increasing speed, and the required speed to arrive at a given time. As predicted, estimations of average speed were grossly exaggerated in about two times the actual average speed for both car and taxi drivers. This could be due to the fact that, when making such estimations, drivers underestimate the impact of periods of the journey in which they drive at low speeds or idle at stop signs, traffic lights or due to heavy traffic. Indeed, it has already been shown in previous studies (Svenson, Eriksson, Salo, & Peters, 2011; Svenson & Salo, 2010) that people underestimate the impact of driving at a lower speed for part of the journey. The findings of this study further exemplify this bias in people's overestimations of average speed.

[1] We thank an anonymous reviewer for suggesting this approach.

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

Journey time was underestimated by most of the taxi drivers and slightly (but not significantly) overestimated by car drivers. One may argue that underestimations of journey time might be beneficial to taxi drivers, who wish to present the journey as more appealing to their customer. However, because the experimenter asked the questions after she boarded, taxi drivers did not have any incentive to present the journey time as shorter than it really is. Thus, we can claim that these underestimations indeed reflect taxi drivers' genuine estimations.

Although we did not plan it, we were fortunate to discover that we could deduce the actual driving time, distance and average speed from the taxi receipts. This enabled us a much more precise criterion to which we could compare taxi drivers' estimations of journey time and average speed. The fact that such evidence is clearly also available for the taxi drivers themselves suggests that taxi drivers rely on their informal intuitions when estimating journey times and average driving speed. Also, the fact that car drivers' estimations of average speed were not different than those of taxi drivers suggested that both groups are susceptible to the same kind of bias, and that taxi drivers' experience does not provide them with any advantage in this respect.

Both taxi and car drivers overestimated the time that could be saved when increasing speed. To recall, we examined these estimations using drivers' own estimations of initial average speed as the starting point, and not the actual average speed, which was much lower and would have produced an unrealistically larger bias. We found that taxi drivers' overestimations were more than two times larger than the actual time that could be saved. Car drivers' estimations were even larger, about five times more than the actual time that could be saved. Although these results are sizeable, one must evaluate the practical significance of these findings. Although taxi drivers significantly overestimated time savings, their errors were, on average, around one minute or so. Considering the fact that taxi drivers were asked "on the road" and thus were not expected to give very accurate responses, it is possible that this bias is a result of the constrained scale drivers implicitly used. It is probably unlikely for a taxi driver to give a response of "38 seconds" or "1 minute and 17 seconds" and, in fact, none did. Thus, it seems that, from a practical point of view, taxi drivers' bias was not very significant. Even if one treats taxi drivers' overestimations as a significant bias, it was much smaller than the bias car drivers exhibited. Car drivers grossly overestimated the time that could be saved by more than five times the actual time savings. This implies that, although taxi drivers' experience did not eliminate the bias, it reduced it considerably. One may also argue that, in fact, taxi drivers' bias was, practically, insignificant while car drivers' bias was of practical significance.

However, the relatively short distance of the journey (about 6.5 km) actually hampered our ability to find evidence for larger sized biases. In such short distances, time savings are very small and the difference between a correct to a biased response are small to begin with. Thus, it could be that had we used a lengthier journey we would have been able to detect the presence of a similar bias among taxi drivers. Future studies may try to examine taxi drivers' estimations of time savings when increasing speed in journeys of larger distances.

Taxi drivers' estimations of the required speed to arrive on time were, as predicted by the time-saving bias, much higher than the actual required speed. This bias corresponds to the previously found overestimations of the journey's average speed. It is predictable that since drivers estimated the average speed of the journey to be a little below 70 kph (on average) and the duration of the journey to be a little over 10 minutes, that they would estimate the required speed to arrive at 10 minutes to be a little below 70 kph. It was interesting, though, to see that car drivers overestimated the required speed somewhat less than taxi drivers. Although this difference was not statistically significant, it could have been easily explained. Taxi drivers might provide higher estimations because they include a kind of "safety margin" in their estimations of required speed, believing it is better to arrive sooner than to be late, even at the cost of increasing risk.

Although there were small differences between car and taxi drivers in their estimations of required speed, there were no differences in both groups' choices of the speed they would personally select in such a situation. Both car and taxi drivers chose a mean speed of 70 kph if they would have been asked to complete their journey at exactly 10 minutes. These overestimations could also be related to the previously found overestimations of average speed and of the speed required to arrive at 10 minutes. More importantly, for both car and taxi drivers, personal choices of speed were correlated by the degree of their time-saving bias: the higher the bias, the higher (and more biased) the speed chosen. Also, these overestimations led both taxi and car drivers to choose a speed that is highly above the speed limit, thus expressing their intention to speed. Although taxi drivers did so more frequently than car drivers, these differences were not large or significant.

To conclude, the findings of the current study showed that professional taxi drivers are not immune to the various biases in estimations of journey time, average speed, time savings and choices of driving speed. The time-saving bias has been found to produce overestimations of time savings and overestimations of required speed that led to unduly high choices of personal driving speed. The implications of the current findings for actual driv-

https://doi.org/10.1017/S1930297500002990 Published online by Cambridge University Press

ing speed are yet to be examined, but we can predict that the time-saving bias, as well as biases in estimations of journey time and average speed, affects everyday driving behavior as well. Taxi drivers' experience on the road and their high exposure to instances of driving in various speeds, distances and times, did not aid them in countering these fundamental cognitive biases. Future studies may examine what factors, if any, could be used in order to reduce the time-saving bias and facilitate better judgments and choices of driving speed.

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