

## CHALLENGES OF URBAN TRAFFIC MANAGEMENT: THE NEED TO SUSPEND PROHIBITIONS ON MOTORCYCLES

Muhammad Daud

Motorcycles are a primary transportation mode, and they act a catalyst for economic development in developing cities by increasing access to employment and entrepreneurship opportunities. Recognition of this central role of motorcycles necessitates greater consideration of the costs and benefits of their prohibition that is occurring in places such as Southeast Asian cities. In order to achieve effective transportation systems and equitable urban development, cities need to better understand the drivers of growth alongside the advantages and future trend of motorcycles.

The common arguments for getting rid of motorcycles, such as congestion, pollution, and road accidents, are basically borne by other vehicles too. But motorcycles' domination over other transportation modes in the majority of Southeast Asian countries—the percentage of households owning a motorcycle varies above 83% in Malaysia, Indonesia, Vietnam and Thailand [1]—have made it prone them disproportionate blame. Prohibitions of motorcycles are further justified as developing cities typically benchmarked their development with that of western developed cities where cars dominated urban development and motorcycles generally served as recreational. A hint of this claim can be drawn from a statement issued by the Malaysian authorities describing the innovation of motorcycle ride-hailing services as obsolete and hence forbidden in a modern Kuala Lumpur [2].

The practicality of motorcycles for the vast majority of people in developing cities has contributed to it becoming the primary mode of transport in those places. Motorcycles are highly affordable compared to cars and offer greater mobility than bicycles. In places where the street are severely congested, such as Bangkok and Jakarta, the 2<sup>nd</sup> and 3<sup>rd</sup> most congested cities in the world [3], motorcycles gain a competitive advantage over alternative modes by being able to move nimbly between larger vehicles.

In Southeast Asian cities, motorcycles promote inclusive growth by integrating larger labor markets. Developing cities feature disorganized street patterns and consist of urban villages where basic infrastructure is lacking and they are resultantly underserved by reliable mass transportation. While developing cities focus on providing mass rapid transportation in places with existing infrastructure and resources, motorcycles are making every corner of the cities accessible. This integration provides greater access to jobs for various income groups and in turn, greater cultivation of economic diversity.

Aggressive bans on motorcycles would constrain these economic benefits by preventing people from making the most efficient choice and, eventually, in turn, making them worse off. Prohibition of motorcycles in developing cities is unlikely to incentivize greater use of public transportation given that the condition of mass transportation systems in many developing cities is fragmented and strained. Instead, it is likely to push the transition to other private vehicles like cars. Such policies are costly and unlikely to be successful.

### **Failure of prohibition**

China presents an interesting case of the unfavorable outcomes of motorcycle bans, where worsening traffic congestion remains unsolved and other unanticipated issues have also emerged in cities implementing bans. For instance, Beijing and Guangzhou, amongst other cities banning motorcycles have not seen significant changes in traffic congestion since the ban was put in place over a decade ago. Last year, Beijing and Guangzhou saw an increase of 8% and 7%, respectively, in congestion levels, and both remain within the top ten Asian cities ranked for worst traffic congestion [4].

Unanticipated issues arose inside the prohibiting cities when the market responded to the ban by inventing the electronic bicycle to substitute motorcycles. Recognized as a regular bicycle by local law, the e-bike is consequently subject to fewer regulations, such as licensing or requiring users to wear helmets, which has promoted reckless behavior. A recent study shows e-bike fatalities almost equaling its growth [5].

Market adoption of the e-bike eventually exacerbated traffic congestion. A couple of intuitive reasons for that case are as follows. First, because e-bikes are more affordable, loosely regulated and greener, they have been more attractive than motorcycles in pulling more riders on the street. Second, the ban coupled with a growing middle and upper class in China encouraged city dwellers to shift to a more convenient option: cars.

Unfortunately, there is not enough evidence available to draw a conclusion on the policy's contribution to air quality improvement, which was the known objective of the ban. However, if air quality were the primary concern, an intervention in the usage of larger vehicles or in coal burning, which emits higher volumes of pollution, would have been more reasonable. China's recent decision to include the e-bike, which is claimed to have comparable emission rates to a bus [6], on its list for the two-wheeler vehicle ban adds further confusion on what this policy was trying to achieve.

### **Future trend**

While motorcycles pose certain challenges that must be addressed, they also provide economic and social benefits that are not leveraged in their absence. Evidently, motorcycles offer higher efficiency than cars and have a lower impact on traffic congestion. A study in Belgian cities found that a modest percentage shift from cars to motorcycles could significantly reduce travel time [7]. Furthermore, this study provides evidence on the benefits that motorcycles offer to society by consuming less road and parking space, requiring less energy, and producing less greenhouse gases. While smaller carrying capacity is a drawback for motorcycles, this issue is not necessarily addressed in everyday car usage, where capacity may be higher, but one-passenger trips are prominent. Building on the Belgian study, some developed cities such as Melbourne are acknowledging the advantage of motorcycles in the face of the city's increasing traffic congestion and have begun promoting a shift away from cars as part of the solution [8].

Safety is a valid concern about motorcycles, but recent innovations suggest greater control over the elements that contribute to road accidents. As demonstrated by application-based ride-hailing motorcycle taxi companies in Jakarta and Bangkok, economic incentives can be effective in promoting safer driving. These companies, on top of having codes of conduct for their drivers,

allow customers to give after-service feedback through a driver rating system that is tied to the amount of bonus payment a driver will receive. Presence of competition among these companies also ensures that safety measures are well enforced. In fact, “a safer ride” is used as a marketing tagline by one of the largest motorcycle taxi companies. Southeast Asia is expecting a larger role of motorcycle taxi companies in reshaping the street environment as they continue to secure large investments and expand in major and second-tier cities [9].

Another safety concern for motorcycles lies on its inherent features like the instability of two wheels. However, prototypes of self-stabilizing motorcycles were launched recently [10]. With this technology, a manufacturer claimed, accidents in slow-moving traffic involving motorcycles could be greatly reduced. This new technology also puts manufacturers closer to producing a self-driving motorcycle that could make the ride even safer.

The rise of autonomous vehicles, including cars and trucks, is also predicted to make the road safer for motorcycles. In Malaysia, where the road fatality risk is the highest amongst Southeast Asian countries, 47% of fatal motorcycle crashes involve cars and trucks [11]. As robots take over the wheel, motorcycles face a lower probability of collision with other vehicles due to human error, such as failure to anticipate blind spots [12].

As urbanization is happening more rapidly in developing cities where resources are limited, traffic management demands innovative solutions. Resorting to draconian approaches, such as motorcycle prohibition, evidently results in worse traffic conditions. Such approaches, furthermore, yield unintended consequences and block opportunities for other possible solutions. Cities should suspend further prohibition of motorcycles and reassess preconceived notions of what are good or right forms of urban development. The first part of that reassessment is to measure how much benefit motorcycles generate and how much of the cost borne by motorcycles could be reduced in the presence of new technologies. Only through this improved understanding will cities have a better chance of finding a solution that actually works.

## References

[1] J. Poushter, “Car, bike or motorcycle? Depends on where you live”, Pew Research Center, 2017. [Online] Available: <http://www.pewresearch.org/fact-tank/2015/04/16/car-bike-or-motorcycle-depends-on-where-you-live/>.

[2] “End of the road for Southeast Asia’s bike taxis?”, *South China Morning Post*, 2017. [Online]. Available: <http://www.scmp.com/week-asia/politics/article/2112922/edn-road-indonesias-motorbikes>.

[3] “TomTom Traffic Index”, Tomtom.com, 2017. [Online]. Available: [https://www.tomtom.com/en\\_gb/trafficindex/](https://www.tomtom.com/en_gb/trafficindex/).

[4] Ibid

[5] “Why Chinese cities are banning the biggest adoption of green transportation in history”, *Forbes*, 2016. [Online]. Available: <https://www.forbes.com/sites/wadeshepard/2016/05/18/as-china-chokes-on-smog-the-biggest-adoption-of-green-transportation-in-history-is-being-banned/#2776a09c141b>

[6] C. Cherry, J. Weinert and Y. Xinmiao, “Comparative environmental impacts of electric bikes in China”, *Transportation Research Part D: Transport and Environment*, vol. 14, no.5, pp. 281-290, 2009.

[7] I. Yperman, ‘Commuting by motorcycle: impact analysis”, *Transportation & Mobility* Leuven, Leuven, 2011.

[8] City of Melbourne, “City of Melbourne Motorcycle Plan 2015-2018”, City of Melbourne, Melbourne, 2016.

[9] M. Lee, “SoftBank, Didi Hand \$2 Billion to Uber’s Biggest Asian Rival”, *Bloomberg.com*, 2017. [Online]. Available: <https://www.bloomberg.com/news/articles/2017-07-24/grab-raises-2-billion-in-record-round-for-southeast-asia>.

[10] A. Morby, “Honda unveils self-balancing motorcycle that can drive itself”, *Dezeen*, 2017. [Online]. Available: <https://www.dezeen.com/2017/01/12/honda-unveils-self-balancing-motorcycle-design-transport-ces/>.

[11] M. Abdul Manan and A. Varhelyi, “Motorcycle fatalities in Malaysia”, IATSS Research, vol. 36, no 1, pp. 30-39, 2012.

[12] M. Stock, “Self-Driving Cars Will be the Best Thing to Happen to Motorcycles”, *Bloomberg.com*, 2017. [Online]. Available: <https://bloomberg.com/news/articles/2016-10-11/self-driving-cars-will-be-the-best-thing-to-happen-to-motorcycles>.