

Economic Externality of Congestion Tax: Impact of Electronic Road Pricing (ERP) charges on Real Estate Prices in Singapore

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ABSTRACT

Singapore has implemented an Electronic Road Pricing (ERP) system since 1998 as a form of road congestion tax to alleviate traffic flows during the peak hours in designated areas in the central business district (CBD) and the Orchard Road shopping belt. The views were mixed between the government and users of space on possible unintended consequences of the congestion tax on real estate prices. This paper aims to verify the above views by empirically testing if the congestion tax has impacted real estate prices in Singapore. Based on the locations of the ERP gantries and access roads, we demarcate the boundary of the ERP restricted zone (cordoned areas) and assign real estate transactions into a treatment group and a control group. We then use the hike in the congestion rate taking effect from November 1, 2010, one of the most extensive reviews since 1998, as an exogenous shock to test if significant difference-in-differences was observed in real estate prices before and after the rate change. Our tests cover private real estate markets, which include commercial, office, retail and residential, for the periods from November 2007 to June 2013. The result shows that when the congestion tax rate increased in 2010, the retail property prices dropped by nearly 19%, if retail properties were located within the ERP cordoned areas. However, the office and residential properties in the treatment area bounded by the ERP gantries show no significant responses to the rate hike. Our falsification tests do not reject the findings that ERP charges create negative externality to retail real estate market.

Keyword: *Congestion Tax, Traffic Management, Electric Road Pricing (ERP), Externality Effect, Real Estate Prices,*

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