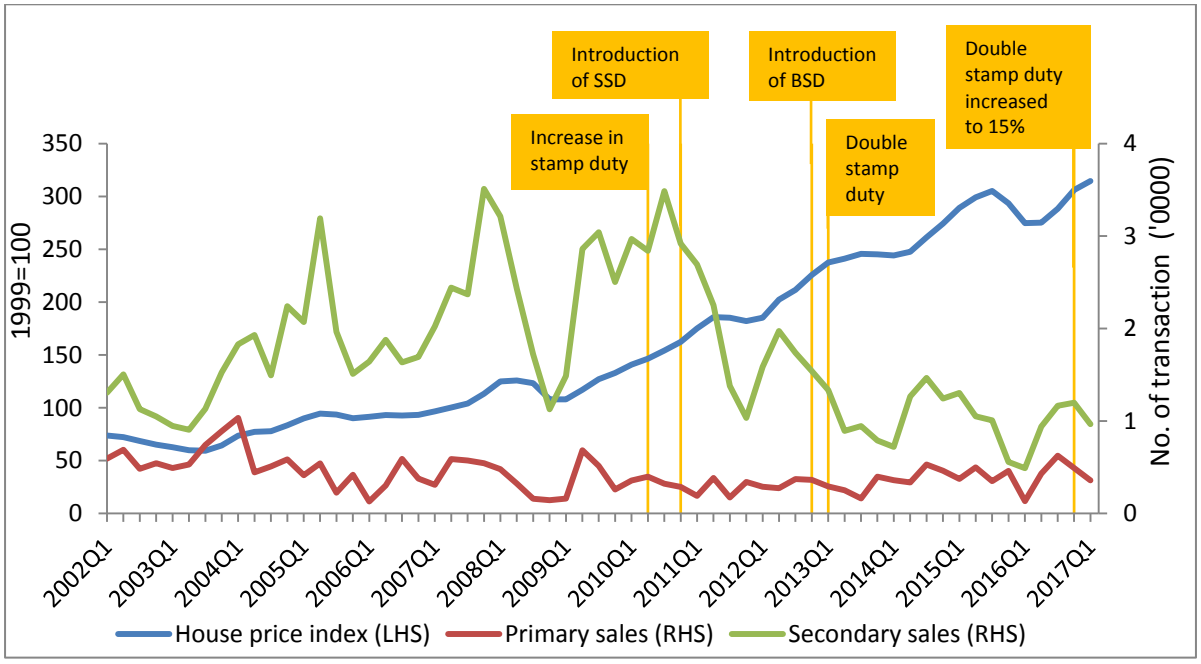
A simple microeconomic analysis of stamp duty in Hong Kong: Impacts on the primary and secondary residential market

This short article concerns the microeconomic analysis of stamp duties in Hong Kong. It explains how they fail to suppress the house price in the city. Simple basic algebra and supply-and-demand diagrams are used in the analysis.

In addition to other market cooling measures such as lowering the loan-to-value (LTV) ratio, stamp duties (BSD, SSD and DSD) are taxes imposed on different cohorts of home buyers in Hong Kong, attempting to reduce the house price by tightening the demand. It all started in April 2010 when the range of stamp duty increased from HKD 100 and 3.75% to the range of HKD 100 to 4.25%[1]. As of 1Q17, five stamp duty-related measures have been taken. The diagram below shows the timeline of these measures (source: SCMP) as well as the house price index (according to the Rating and Valuation Department, RVD) and, primary and secondary sales volume (according to Land Registry).

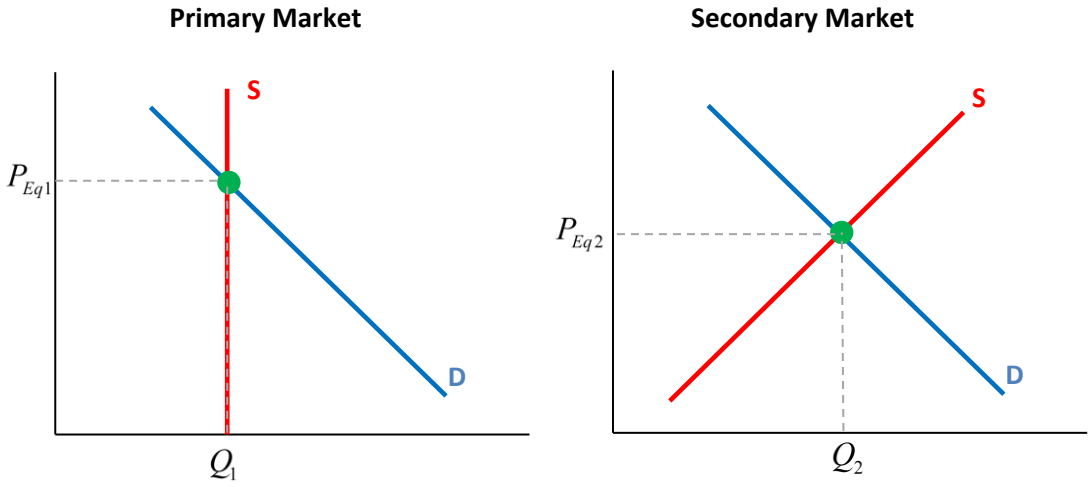


Prior to the second quarter of 2010 (2010Q2), the correlation between the house price and the volume of secondary sales remained positive, with Pearson correlation coefficient of 0.73. However, these two variables move in the opposite direction since 2010Q2, with Pearson correlation coefficient of -0.76. The observation here is that these measures reduce the demand for housing yet push up the house price. This can be explained by microeconomics.

To illustrate, the supply-and-demand diagrams are shown below with quantity and price on the horizontal and vertical axis respectively. In the primary market, unless the developer decide to sell the residential units in different rounds, the supply of housing is fixed in short run as the acquisition of land, planning, government's approvals and the construction take time. The supply of housing in the secondary market depends on the willingness to sell of the home owners in and is determined

[1] See https://www.gov.hk/en/residents/taxes/stamp/stamp_duty_rates.htm.

by many different factors. In general, the higher the house price, the more is supplied in the market. Also for both markets, the price is at the equilibrium level where the supply of housing is equal to the quantity demanded.



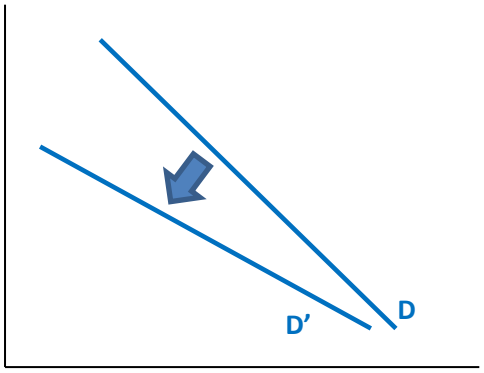
Regardless of the type, these stamp duties are proportionate taxes imposed on the buyer. The immediate effect of the tax is the non-parallel shift in the demand curve. To see this, assume that the demand curve is given by,

$$P = a - bQ$$

where a and b are positive constant terms. If the tax paid by the buyer is $(100 \times \theta)\%$ of the price paid, the buyer now prepares to pay, $P + \theta P$, for some quantity Q. This means that the demand curve now has the form,

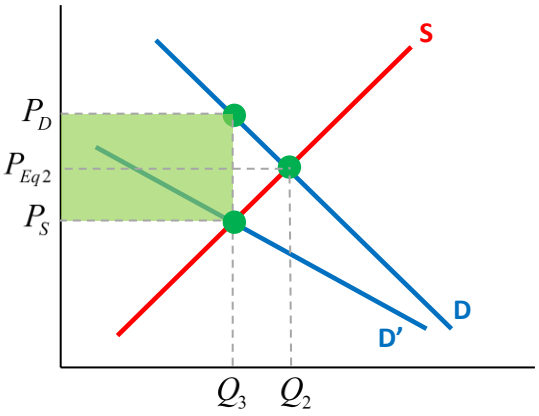
$$P + \theta P = a - bQ \Rightarrow P = \frac{a}{(1+\theta)} - \frac{b}{(1+\theta)}Q$$

Resulting in smaller intercept and slope in the new demand curve, this is equivalent to a non-parallel downward shift in the demand curve. Graphically,



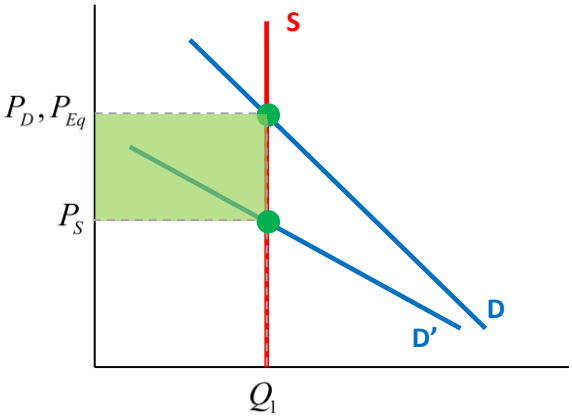
The immediate impact on the secondary market is the decrease in quantity sold (from Q_2 to Q_3 in the below diagram). The size of the decrease depends on the size of the tax which is shown by the height of the green rectangle, $P_D - P_S$. The total amount of tax collected by the government is $(P_D - P_S) \times Q_3$, the area of the green rectangle.

Secondary Market



It is worth to note that P_D is the transacted price and is the price the buyer pays. Since $P_D - P_S$ is collected by the government, P_S is the price received by the seller. In our example, the equilibrium price P_{Eq2}, also the pre-tax price, is right between P_D and P_S. This means that the tax burden on the buyer $P_D - P_{Eq2}$ is the same as that on the seller $P_{Eq2} - P_S$. In reality, the tax burden depends on the slope of the curve. As an example, consider the primary market in which the supply curve is vertical, as shown in the diagram below.

Primary Market

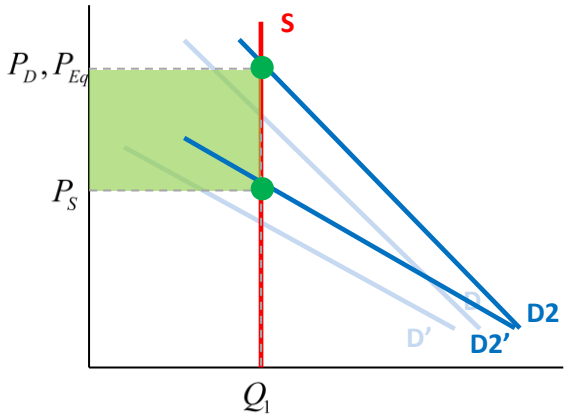


The result is that the price paid by the buyer is the same as the pre-tax price (i.e. the equilibrium price). In other words, tax burden fall entirely on the seller. This is evidenced by some developers offering a 100% stamp duty subsidy for buyers, e.g. the sales of Crescendo by Cheung Kong Property Holding[2].

[2] See http://www.scmp.com/property/hong-kong-china/article/2069186/ck-property-first-offer-100pc-stamp-duty-subsidy-bid-sell.

The story of imposing the stamp duty on home buyers does not end here. Recall that the quantity demanded in the secondary market has decreased, some of this demand ($Q_2 - Q_3$) enters the primary market causing a right shift in the demand curves in this market, as shown in the diagram below (D to D2 and D' to D2').

Primary Market



With the fixed supply, an increase in demand pushes up the price. This can be observed in the first diagram in this article; sales in the primary market are remained largely flat regardless of the price.

The conclusion is clear and is stated below.

- The stamp duty causes a decrease in demand and a price increase in the secondary market.
- It also leads to an increase in demand and a price increase in the primary market.
- Given the fixed supply in the primary market in the short-run, the tax burden falls entirely on the seller.
- If in future new stamp duty is introduced or the existing ones are lifted, house price will climb further.