

That condo is moving out of reach

THERE have been several episodes of residential property price escalations in Singapore that may have overshot income levels. But just how do we determine if private property prices have become more or less affordable?

We have developed a housing affordability index that might add an additional indicator to help answer policy questions on housing affordability. Standard measures that link property prices to annual incomes are not enough. Here we present a more meaningful index that we developed primarily to assess the affordability of private residential housing in Singapore.

Buying a residential property is a long-term decision. We need, therefore, a measure of a household's long-term income. For this we obtained unpublished data from the Department of Statistics on median household income since 1990 by age of household head at five-year intervals from age 20 to 64. The raw data shows income peaks occurring at age groups 30-34 and 55-59. If we remove the effect of different birth cohorts from the data, we can see that income peaks around age 50.

From the above income data, we used statistical techniques to estimate the income of different birth cohorts over their working age. From this, we computed a time series of lifetime incomes as the discounted present value of future income streams – that is, calculating future incomes in terms of today's dollars.

Chart 1 plots the lifetime income of middle-income earners by birth year. Significantly, the lifetime incomes of those born before the 1960s were stagnant. As can be seen from the chart, whether one was born in 1926 or 1956, the lifetime median income hovered around \$500,000 in 2000 prices. (Most of these cohorts were in their old age during our observation period.)

The lifetime median incomes of those born after 1960 were significantly higher, coinciding with the rapid economic growth of Singapore at that time. But the lifetime median incomes of those born after the mid-1970s taper off. This is because these people began their working lives after the mid-1990s, when the economy entered a turbulent period beginning with the 1997-98 Asian financial crisis.

Having developed a chart tracking the lifetime median incomes of different cohorts,

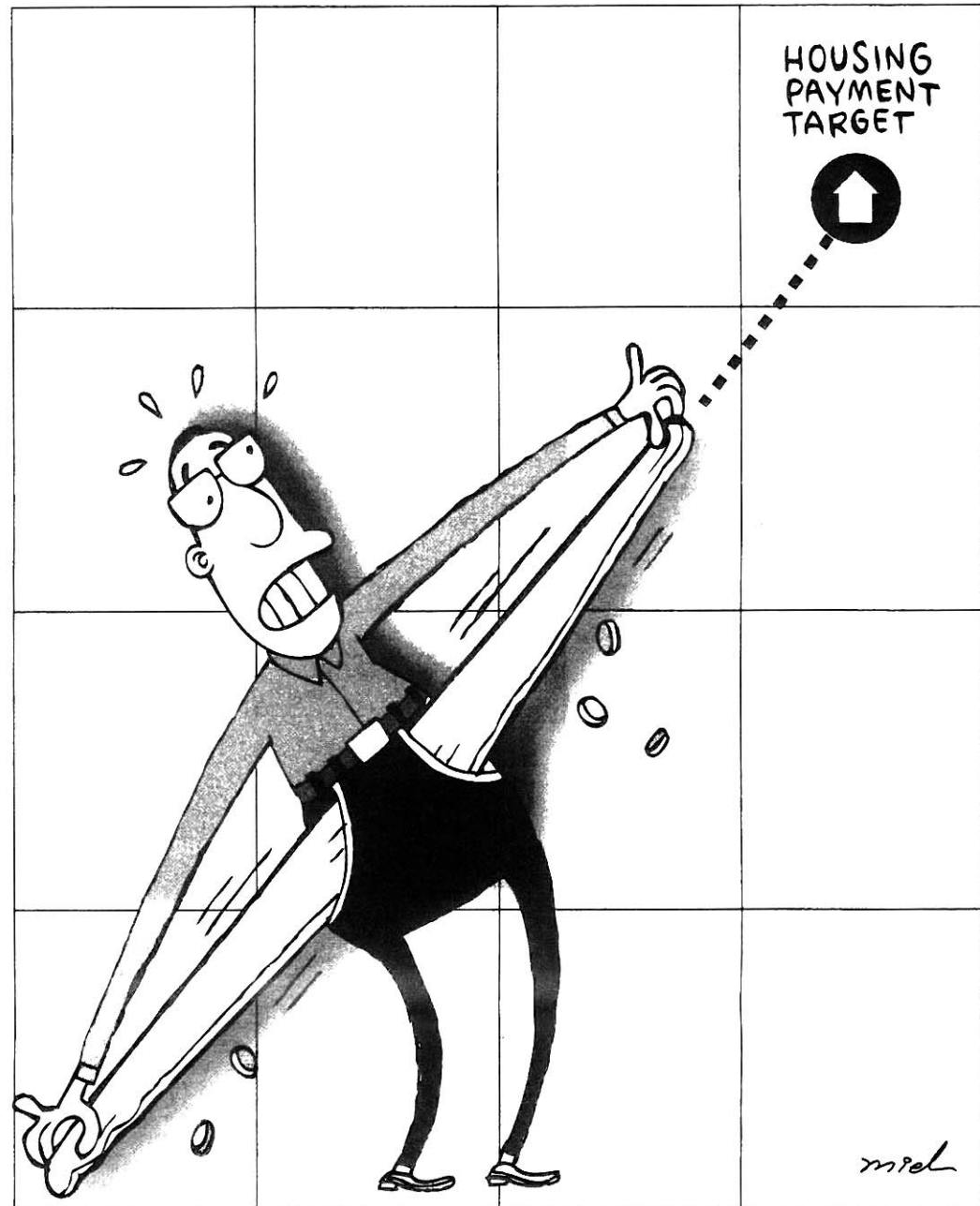
we linked this to property prices to derive an index. We divided long-term income for any chosen age group by the price of a selected type of property. This gives us a housing affordability index, which in essence measures property price against the median lifetime income of a household.

Chart 2 plots the income-price ratio for the 30-year-old group each year considering buying private residential property. We focus on this age group because that is roughly the age at which people might begin to buy private residential property. One graph on the chart looks strictly at this income-price ratio.

The other graph "with HDB upgrader effect" tries to capture the wealth effect generated by rising HDB resale prices. We assume that the 30-year-old had bought a subsidised HDB flat, resold it, and directed all cash proceeds from the sale into the purchase of a private property. In practice, not all HDB resale proceeds accrue to the seller, but for lack of available data, we assume that it does. This means the "HDB wealth effect" as represented on the graph is an overestimate, but it provides a useful indicator nevertheless.

Chart 2 is instructive. In 1975, a 30-year-old's lifetime income was nearly five times the amount he would have paid for a private property. But with prices rising, by 1983, his lifetime income would have sufficed to purchase only one private property. This trend continued: By 1997, a 30-year-old's lifetime income would have been enough to pay for only about 60 per cent of the price of an average private property.

In other words, as a result of the rapid increase in property prices in the early 1980s, private housing affordability dropped rapidly. After recovering somewhat in the late 1980s, affordability further declined in the 1990s when property prices escalated to unexpected heights. Last



year, affordability moved in the downward direction.

Generally, since 1992, the index has hovered around unity – that is, lifetime income has just about equalled the price of one property. The pattern is the same even for HDB upgraders, though their affordability is somewhat better.

An income-price ratio of unity means that a middle-income household that buys an average-priced private property would be locking up its entire lifetime income in that property. The price escalation in the mid-1990s pushed the income-price ratio below unity, indicating a scenario of perpetual debt if a middle-income earner had committed to an average- (or higher-) priced private property.

The same computations using the data available since 1990 for average-priced HDB resale flats show a much better picture. The HDB affordability index dropped from

eight in 1990 to three in 1996 and then recovered to five between 2001 and 2006. The price hike last year led to a slight drop in the index to 4.5, which means lifetime earnings were equal to 4.5 times the price of an HDB flat.

An optimal rate for property price inflation should be one that does not erode housing affordability. The long-term growth rate of our lifetime income measure is about 4-5 per cent, which has also been the long-term growth rate of per-capita disposable income. But the long-term increase in property prices has been much higher.

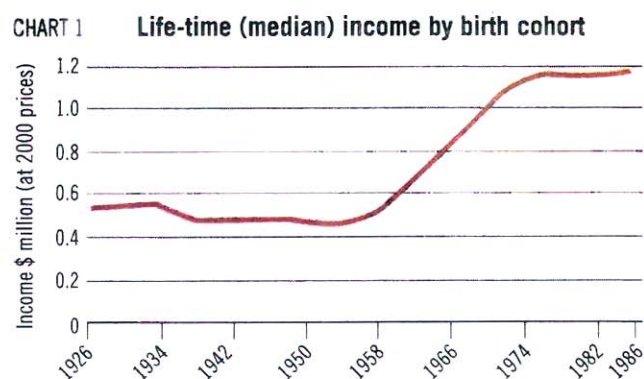
There are serious implications when housing affordability is eroded to the point where higher prices do not translate into higher wealth for property owners. For example, if affordability sinks below unity, this generation's lifetime income would not be enough to pay for the proper-

ty, so the wealth from higher prices cannot accrue to the property owner today. Housing wealth may end up being transferred to the children of the current owners.

If this occurs, a question would arise: How to balance the cost of private property to the current generation against the benefits that might accrue to their children of having higher-valued properties?

On this point, our colleague Professor Basant Kapur thinks that a system of intergenerational transfers may work, whereby children can compensate their parents for such properties once they start earning. The complex of issues this raises would require another detailed research paper to examine.

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Source: NUS

