Using lotteries instead of auctioning is both inefficient and inequality-creating

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Yew-Kwang Ng, Emeritus Professor in the Department of Economics at Monash University, compares the use of the lottery and auctioning to allocate scarce goods

In a recent eBook for Open Access Government, I discuss the anti-market sentiment, including why it is common, based on incorrect reasonings, and how recognising this mistake may make us more accepting of the beneficial market expansion. Here, I discuss a specific manifestation of this anti-market sentiment: Using the lottery to allocate scarce goods (including resources and services) instead of using the market (such as auctioning). An example is the allocation of permits for car ownership. In Singapore, a Certificate of Entitlement (COE) is required to buy a car. Singapore allocates these COEs by the most efficient Vickrey second-price auction. (1)

Beijing uses the lottery, Shanghai uses first-price auction, and Guangzhou uses a mixture of both. We can see a spot in these cities' relative inclination toward economic efficiency. The ranking is clear: Singapore, Shanghai, Guangzhou, and Beijing. Lotteries are also often used to allocate limited permits for buying houses and medical services.

The limitation on the number of cars is due to the various external (i.e., imposed on others, including the whole society/world) costs involved. These include the congestion of roads, emission of greenhouse gases and other forms of air pollution, noise pollution, accidents, and the relative competition effects of car ownership, especially the luxurious ones. Ideally, the most desirable treatment is directly taxing the various external costs at the respective amounts of damages imposed. Congestion and pollution costs can be approximated by levying heavy taxes on petrol.

The relative competition effect could be accounted for by setting heavy taxes on cars themselves. If these more efficient methods are not used for some reason (including technical and political), the limitations on the number of cars may partially achieve the objective. Given this limitation, COEs should be distributed by auction instead of lottery. While many may know that using a lottery is inefficient, as no elicitation of the willingness to pay is done, most people believe that it is at least fair, as everyone has the same chance ex ante. Here, I argue that the use of lottery is not only inefficient but also inequality-creating and, hence, not really fair.

Equality and efficiency

Most people believe that using the lottery is fairer than auctioning because the rich have a much better chance of getting the scarce goods under auctioning, while the ex ante chances for all are the same under the lottery. Using the lottery has equality but no efficiency; using auctioning has efficiency but no equality. It may seem that we cannot be in favour of either one outright. However, as my article ('Welfare Economics: Promoting Equality Through General Policies') in the July issue of Open Access Government argued, a principle for the optimal balance between efficiency and equality is efficiency supremacy in all specific issues, leaving equality to be promoted by general policies including taxes/subsidies on total incomes. As allocating scarce goods is also a specific issue, we should follow efficiency supremacy and use auctioning.

If equality is not sufficiently promoted, we should increase our efforts in the general equality promotion policies. In this way, we can achieve the highest level of equality given any level of efficiency or achieve the highest level of efficiency given any level of equality. The trade-off between efficiency and equality is optimized accordingly. Also, starting from any situation not observing efficiency supremacy in some specific issue, moving to efficiency supremacy and with appropriate strengthening in the general policies promoting equality would make every income group better off.

If we compare those who obtain scarce goods through lottery and those through auction, we note that the latter have to pay higher prices than those losing out, while the former do not. These lottery winners are not more deserving; they do not pay/contribute more; why should they get the scarce goods? They win out by pure chance/luck. Luck is an important reason accounting for inequality in income/wealth, including the luck of being born with high income-earning abilities, born into parents of high wealth and good connections, and pure luck in activities and business. Thus, it is ironic that those adverse to inequality would favour a method of distribution that creates more inequality by using luck to distribute scarce goods.

Under allocation by lottery, people spend time, effort, and resources to try to gain some chance of winning. Some years ago, in Hangzhou (a city in China near Shanghai), people fainted and fought each other when tens of thousands of people tried to get the numbers for one hundred apartments. If winning one of these 100 numbers is worth $100,000 each, rational people may spend up to $1,000 each if the chance of winning is estimated to be 1%. The allocation may attract 10,000 people, each spending $1,000. The total costs wasted are thus ten million dollars, which equals the total net values of all the 100 items. Therefore, using the lottery allows enormous consumer surpluses to dissipate completely.

As many people may be biased towards overestimating the chance of winning, the result is likely that the surpluses are more than wholly wasted. The time, trouble, and resources wasted during the lottery allocation process are purely wasted. On the other hand, the high

prices paid by winners of auctioning can mainly be used to benefit the whole society, including directing towards the lower income groups if so desired. The inferiority of lottery in comparison to auctioning is enormous.

Endnote

1. Bidders indicate the maximum prices over which ones would forgo the opportunity. If one hundred cars are allowed, the highest one hundred bidders get the COEs, but each pays only the price of the top losing bid (the 101st highest) plus one dollar. (This one dollar is to keep the 101st-highest bidder quiet). This is to avoid underbidding. If one has to pay the total price bided, one gains nothing in winning if one bids to the highest willingness to pay. So, everyone underbids to some extent to gain something. As the underbidding is not uniform, actual allocation may go to those NOT with the highest willingness to pay. This makes the first-price auction (where winners pay the amounts bided) less efficient than the Vickrey one.

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