

SINGAPORE'S PUBLIC HOUSING CONUNDRUM

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Executive Summary

Singapore's public housing system, managed by the Housing Development Board (HDB), has provided affordable homes to over 80% of the population. There are two primary pathways to owning HDB subsidized flats: Build-to-Order (BTO) flats, which are newly constructed and subsidized but require a 3-5 year wait, and resale flats, pre-owned units sold on the open market after a five-year Minimum Occupation Period (MOP). Despite its successes, challenges such as oversubscription, rising resale prices, and long BTO waiting times have led to growing dissatisfaction.

Key issues include:

- **Oversubscription:** Persistent oversubscription in BTO projects, especially in mature estates, creates perceptions of unfairness.
- **Affordability:** Rising resale prices and speculative behavior undermine the intent of public housing as affordable housing.
- **Public Sentiment:** Delays and reliance on chance in the allocation process fuel frustration.

Proposed solutions include:

- Leveraging advanced forecasting tools to better align supply with demand.
- Enhancing allocation fairness through mechanisms like the Gale-Shapley algorithm.
- Expanding rental support and targeted resale grants for unsuccessful BTO applicants.
- Curbing speculation with stricter resale regulations and clawbacks on excessive profits.

Adopting these measures can ensure public housing remains affordable, equitable, and aligned with Singaporeans' needs.

Introduction

This paper addresses the challenges in acquiring public housing in Singapore, reviews current policies, analyzes the far-reaching impacts of housing affordability issues, and proposes solutions.

The Problem

In 2021, several reports confirmed delays of around six months to one year in the delivery of 5,622 Housing and Development Board (“HDB”) Build To Order (BTO) flats across five projects. In addition to these delays, the average wait time for HDB projects was expected to increase. National Development Minister Desmond Lee stated, “Some have said that waiting times have risen to six to seven years. This is not the case. By and large, barring further unexpected developments, most flat buyers can expect to move into their flats within four to five years after booking their flats” (Oct 5, 2021, The Straits Times). However, this assurance did little to alleviate concerns about delays in housing projects.

HDB has emphasized its commitment to affordability, stating, “When pricing new flats, HDB applies significant market discounts to the assessed market value of the flat, to ensure that BTO flats remain affordable for Singaporeans” (hdb.gov.sg). While BTO flats remain comparatively affordable compared to other methods of homeownership, flats under the BTO system are allotted through computerized balloting. Ninety-five percent of HDB’s BTO supply is reserved for first-time families (unmarried citizens are only eligible for public housing after the age of 35), and a complex algorithm determines allotment.

Although initial entry to the ballot is based on eligibility criteria, a substantial amount of luck is involved, as applicants must choose flats based on randomly generated queue numbers. Applicants who fail to secure a favorable queue number must either try again or turn to the resale market. However, resale flats present their own affordability challenges. The Resale Price Index increased from 131.5 in Q4 2019 to 192.9 in Q3 2024. The continued increase in resale prices

reflects the imbalance between demand and supply in both BTO and resale market segments, highlighting challenges in meeting housing needs through current policies and market mechanisms.

The rising resale prices highlight the tendency to treat the 99-year leased property as an investment or speculative tool, which contradicts the intended purpose of subsidized public housing. To address the concerns of the older population, the government continues to emphasize the role of public housing as both a home and a long-term asset for retirement. As stated by then National Development Minister Lawrence Wong in 2017, “The general point is that the HDB leasehold flat is not only a good home, but also a nest egg for future retirement needs.”

To address the far-reaching issues caused by these challenges, this white paper examines the reasons and proposes solutions for three key problems: oversubscription, housing affordability, and social issues, including marriage and the perception of public housing as an investment.

History and Policy Analysis:

The Housing & Development Board (HDB) is a statutory board under Singapore's Ministry of National Development. It was established in 1960 to provide affordable and quality public housing. HDB flats, each with a 99-year lease, are home to 80% of Singapore's resident population, with approximately 90% of these residents owning their homes (89.7% in total live in own homes - both public and private housing). HDB's strategy is built on three fundamental principles: the concept of sole agency, a total approach to housing, and strong government backing. These principles ensure the efficient allocation of resources and large-scale construction to achieve economies of scale. By 1965, HDB had built 54,000 flats. “HDB played a pivotal role in social development. Public housing has helped to build a unique national identity and collective experiences for Singaporeans.” (2017, UN-Habitat, *Housing a Nation, The Singapore Story*). HDB prioritizes equity in housing over pure market efficiency.

In Singapore, there are 3 ways for a citizen or a permanent resident to own a house. Through BTO, where families ballot for a subsidized public housing apartment, through resale, where BTO apartments that have completed the Minimum Occupation Period tenure (“MOP”), usually 5 years, are listed for sale on the open property market and sold at prevailing market value and through private housing (condominiums and ‘landed properties’). For the purposes of this paper, we will exclude discussions about private housing.

What is Build-to-Order (BTO)?

The Housing & Development Board (HDB) collaborates with the Urban Redevelopment Authority to identify sites for future residential development. Once a location is selected and flat types are determined, applications are invited from prospective buyers. Eligibility is assessed based on factors such as household income and family size, with additional documents requested as needed.

The shortlisting process is governed by an algorithm that considers factors like the flat type applied for, allocation quotas under priority schemes (e.g., first-time or second-time buyers, senior citizens), and household status. Applicants receive a random queue number, with those assigned earlier numbers enjoying a wider selection of flats. To book a flat after receiving a queue number, there is an option fee depending on flat size. (maximum \$2,000)

Procedures for Purchase

BTO and resale flats are directly subsidized by the government to ensure affordability. First-time homebuyers can receive grants of up to \$120,000, subject to eligibility criteria. These grants are credited directly to the buyer's Central Provident Fund (CPF) account, a compulsory savings mechanism.

HDB also provides mortgages at interest rates pegged at 0.10% above the prevailing CPF Ordinary Account (OA) interest rate. OA interest rate is 3-month average of interest rates from major local banks, with a minimum of 2.5% per year. Buyers can choose the lower of prevailing bank rate or the HDB rate. Buyers must ensure their monthly installment does not exceed 30% of

their household income. Loan-to-value limits allow up to 75% of the flat's cost to be financed through loans, with the remaining balance covered by cash, CPF savings, subsidies, or grants.

Post-Ownership Procedures

After successfully booking a flat through the balloting process, buyers pay a token fee to secure their unit. Currently, construction typically takes four to six years. Once the flat is ready, homeowners are prohibited from renting or selling it during the Minimum Occupation Period (MOP), which is five years for most flats or 10 years for flats in prime locations (as of 2021).

After fulfilling the MOP, owners may rent or sell their flats, but ownership is limited to one HDB flat at any given time. This policy reinforces the objective of subsidized public housing: to provide affordable homes rather than speculative investment opportunities.

Problem Analysis:

Oversubscription

When the Asian Financial Crisis struck in 1997, demand for housing plummeted, leaving the HDB with 31,000 unsold units that took over five years to clear. To address this inefficiency, the HDB transitioned to the Build-to-Order (BTO) model, which incorporated demand assessment and allowed applicants to know the expected downpayment and location of their flats before construction. Under the BTO system, construction typically begins if demand for a project exceeds 70% (though HDB claims to have made exceptions in recent BTO launches). This approach minimizes the risk of overbuilding and ensures housing supply aligns more closely with actual demand. Additionally, applicants receive detailed information about the flats, enabling them to make informed decisions.

Despite these advantages, the BTO system faces significant challenges, particularly oversubscription. Data from BTO launches since February 2020 reveals that flats remain heavily oversubscribed. In non-mature estates (not prime locations), 5-room flats are oversubscribed by 6.21 times, 4-room flats by 5.81 times, and 3-room flats by 4.32 times. In mature estates (prime

locations or closer to prime locations), the oversubscription rates are even higher, with 4-room flats leading at 7.34 times, followed by 5-room flats at 6.32 times and 3-room flats at 3.97 times. Demand for 4-room flats is consistently the strongest across both estate types, with mature estates experiencing greater competition.

These high oversubscription rates contribute to public dissatisfaction with the BTO system, as the allocation process is perceived to rely more on chance than need or merit. Many applicants feel that securing a flat resembles winning a lottery, which undermines trust in the fairness of the system. This frustration is pronounced among those who repeatedly fail to secure a flat despite meeting eligibility criteria. While priority schemes aim to address these concerns, they have not fully alleviated the perception of inequity, exacerbating dissatisfaction with public housing policies.

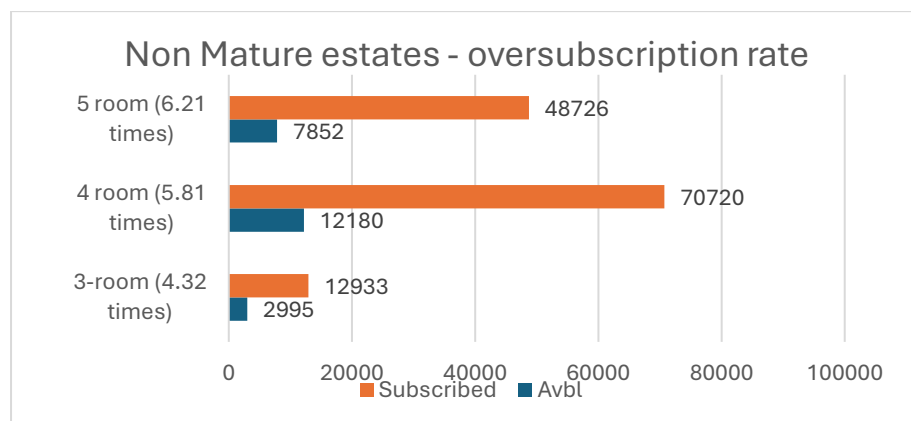


Figure 1 – Non mature estates oversubscription rate

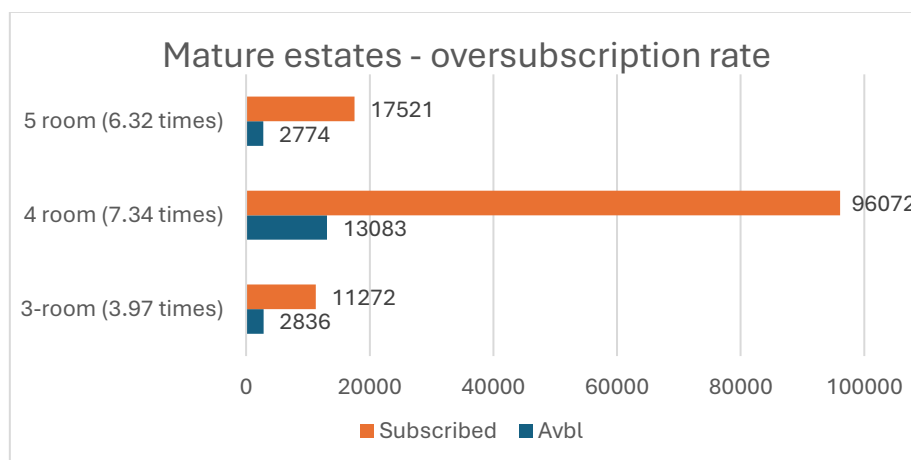


Figure 2 – Mature estates oversubscription rate

Affordability

On average, BTO flats remain aligned with median household incomes, and oversubscription indicates that applications largely meet income eligibility criteria. However, the dynamics of the resale market tell a different story. In Q3 2024, the average resale price of HDB flats (BTO flats sold in the secondary market after the minimum occupation period) reached \$629,856. Notably, 419 HDB flats were sold for \$1 million or more in the first half of 2024, compared to 470 such transactions for the entirety of 2023. In June 2024 alone, there were record-breaking 95 transactions for a million dollars or more, with the highest transaction value hitting \$1.7 million. For reference, the most expensive BTO launch price (before subsidies) was approximately \$700,000. Assuming a maximum initial price of \$700,000, any flat sold for \$1 million or more would yield at least a 42% return over a five-year period. While public housing is designed to be affordable, such significant returns raise concerns about its potential use (abuse) as a speculative investment tool.

If households secure favorable queue numbers in desirable Build-to-Order (BTO) locations, current policies allow them to sell their subsidized flats on the secondary market after fulfilling the minimum occupation period. The fact that public housing can trade for \$1 million or more prompts critical questions about the sustainability of this system and the policy changes needed to preserve its original intent: providing affordable housing for Singaporeans.

The Resale Price Index, which averages resale transaction prices across various towns, flat types, and models each quarter, has shown a steep increase since 2020 (See Figure 3). This trend suggests that, apart from the fortunate who secure favorable queue numbers at desirable locations, many households—particularly those needing to relocate or establish a separate household quickly—are compelled to purchase flats at resale market prices due to the lengthy BTO wait time.

First-time buyers who are parents can rent at subsidized rates through the Parenthood Provisional Housing Scheme (PPHS). This scheme is also subject to a ballot due to the limited

number of rental flats available. In the open market, average rents in 2024 range from \$2,300 for a 400-square-foot two-room flat to \$4,200 for a 1,200-square-foot five-room flat. These high rental costs push households toward homeownership, either by braving the rising prices in the resale market or trying their luck with a BTO flat. Homeownership also offers the advantage of using CPF funds to cover monthly installments, making it a more appealing long-term option.

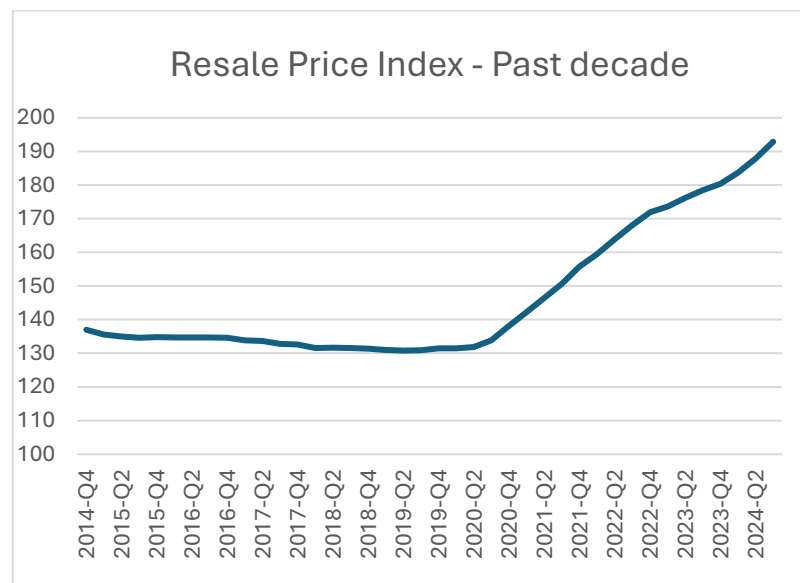


Figure 3 - Resale price index from 2014 to 2024

Family building

In addition to affordability, long housing delays significantly influence Singapore's persistently low fertility rate, which remains below 1. The 2021 Saguin study quantified this impact, finding a statistically significant decline in fertility rates with rising housing prices. For example, a unit increase in resale price index reduced the total fertility rate by 0.0036. This trend is mirrored in other high-density nations like South Korea, where similar challenges in housing access correlate with declining birth rates.

Public sentiment

Construction bottlenecks during the COVID-19 pandemic heightened public dissatisfaction with the BTO system. While issues such as oversubscription, rising resale prices, and their impact on family building have long been concerns, delays in flat delivery exacerbated and compounded

these challenges. Post the pandemic, opinion on the housing market in Singapore has been extremely unfavorable.

An example - A basic sentiment analysis on the top commented post on reddit related to housing rendered the results in Figure 4.



Figure 4 - Word cloud analysis

Figure 4 is a word cloud analysis on the post with 456 comments “Today I failed to get a BTO flat for the 9th time in a row” by user u/ValuablePie in r/Singapore a subreddit with 1.5 million members.

Frequent words (apart from functional words like mature, non-mature, resale, flats) include tries, times, chance, ballot, lottery, queue, difficult, priority, child, married, and demand indicating the role of luck in allotment of flats and the repercussions of unmet demand in starting a family.

While this is anecdotal data, similar sentiments have been acknowledged in speeches by key ministers, highlighting the widespread dissatisfaction with the current system and the pressing need for improvement. Minister for National Development Mr. Desmond Lee acknowledged concerns about housing affordability and said that the Government has been "carefully monitoring" the housing market. We are committed to keeping public housing affordable and accessible, to meet the housing aspirations of Singaporeans, and to help

Singaporeans own their own homes. This is a key, long-standing national priority, and provides the foundation for us to raise our families, bring up our children, and build strong communities," (Sep 2022). Aligning public sentiment with meaningful reforms is crucial to restoring confidence in the housing system.

Suggested Solutions

Better demand forecasting

The issue of empty flats prompted the shift to the Build-To-Order (BTO) system, which addressed inefficiencies in the earlier model. However, the BTO system faces challenges such as limited land and frequent oversubscription, raising concerns about demand modeling.

To better align supply with actual demand, HDB could leverage historical data, population trends, and advanced forecasting tools. By analyzing resale market behavior and using simulation models to anticipate demand fluctuations, HDB can refine allocation strategies dynamically.

While HDB's computerized balloting system assigns queue numbers with priority for certain categories, its exact mechanism is not publicly disclosed. Incorporating elements of the Gale-Shapley algorithm (see [Gale-Shapley Algorithm Explained](#)) could complement the current system by enhancing transparency and fairness. Gale-Shapley's two-sided matching framework (used in other allocation problems, such as school placements or medical residency matches.) could optimize queue assignments by aligning participants' preferences with housing board priorities, ensuring a stable and fair allocation. However, this may be complicated to implement as applicants would have to rank new developments in preference, and HDB algorithm has to rank applicants in preference for each development. For the algorithm to work effectively, HDB must encourage participants to rank developments based on their true preferences, minimizing strategic behavior. Additionally, the scalability of such a system and clear communication of its mechanics would be critical to ensure transparency and trust.

The Ministry of National Development has emphasized rigorous audits of the balloting process to ensure fairness. Building on these efforts, regular updates to demand modeling algorithms and incorporating advanced matching principles like Gale-Shapley could further improve efficiency and public confidence in the system.

Rental Support to Ease Long Wait Times

Budget 2024 introduced rental vouchers for eligible couples, allowing them to rent in the open market while waiting for their BTO flats. While this is a positive step, scalability is crucial. Expanding the scheme to include all eligible couples, determined by income levels, at the application stage could significantly ease the burden of long waiting times. However, a balance must be struck between addressing immediate housing needs and managing HDB's growing deficits, which stood at \$6.775 billion in 2023.

Preserving the Intent of Public Housing

The rise in million-dollar HDB flats and significant returns in the resale market highlights the need for a mindset shift regarding subsidized public housing. Measures such as stricter resale regulations, including extended minimum occupation periods (the 10-year period introduced for prime location BTOs in 2021) curb speculation. An additional measure to consider is to penalize profiting from resale beyond a certain threshold. If the profit margin is over a certain percentage (adjusting for inflation and renovation costs), grants provided for the house can be entirely clawed back. The profit percentage threshold should be a balance between affordability and seller motivation, to avoid supply demand imbalances.

Targeted Support for Unsuccessful BTO Applicants

For families unable to secure a BTO flat due to oversubscription, additional support is essential. Introducing extra grants for resale flat purchases, scaled based on the number of unsuccessful BTO attempts, would provide meaningful relief. Such targeted financial assistance would help bridge the gap between BTO and resale buyers, ensuring a fairer and more inclusive housing system for those excluded from the BTO process.

Through price discrimination (prime area BTOs are priced higher than non-prime areas), and from August 2023, through penalties for withdrawing after receiving a queue number (there is one free pass after which first timers will be placed under second timers category and second timers cannot apply to ballot for 1 year) HDB is already tackling ‘casual applications’ that cause a negative externality on other applicants chances.

A Dynamic and Adaptive Housing Model

These solutions provide a broad framework to address the growing dissatisfaction with public housing. Instead of resorting to short-term appeasement or drawing comparisons to cities like Hong Kong, San Francisco, or New York to create a more favorable image of the existing public housing system, HDB should leverage additional resources and non-public information to gain deeper insights into housing demand. By dynamically refining the public housing model, HDB can create a more adaptive system that better aligns with the evolving needs and expectations of Singaporeans.

Cross applications across the world

Rather than focusing on comparisons with other cities to emphasize the strengths of Singapore’s public housing system, insights from these cities can be used to drive innovation and improvements in the existing framework.

The discussions so far have revolved around public housing. However, private housing—comprising condominiums and landed properties—remains priced beyond the reach of the average person. For instance, a private condo at a mature location with a 99-year lease is typically priced between \$1,400 and \$1,800 per square foot, alongside substantial stamp duties. These prices are comparable to Manhattan and Tokyo but are lower than in Hong Kong and Seoul. Singapore’s public housing market, in contrast, is comparatively less impacted by rising global interest rates due to its structured mortgage system. This system incorporates the use of Central

Provident Fund (CPF) balances, which reduces default risks. Additionally, a robust public housing sector acts as a stabilizing buffer, mitigating volatility in the private housing market.

Examining cities like Hong Kong, San Francisco, and New York goes beyond mere policy comparisons, but adapting their approaches to complement Singapore's housing system. For instance, Hong Kong's Special Stamp Duties impose aggressive penalties on short-term property flipping, while Manhattan and San Francisco's rent control measures address tenant affordability. Tokyo's flexible rezoning policies increase supply and stabilize housing prices. These strategies offer valuable lessons and a broader framework for Singapore to evaluate and refine its policies, ensuring it remains proactive in meeting market demands and evolving public expectations.

Conclusion

In a city-state spanning just 287 square miles, housing nearly 80% of the population in subsidized homes is a remarkable achievement. Over the years, it has adapted its policies, such as increasing the Minimum Occupation Period (MOP) for prime developments and restricting second-time balloting, to address emerging challenges. However, sustaining this success requires continuous innovation and adaptability. By refining its housing policies to meet current demands while anticipating future aspirations, HDB can ensure its public housing system remains equitable, sustainable, and responsive to the evolving needs of Singaporeans.

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