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Supply and Demand Analysis of Indonesia's Subsidized Housing Program

Isti Budhi Setiawati [1]✉, Teddy Trilaksono[2], Vanessa Aurelia[3]

[1,3] Department of Business Economics, School of Business and Economics, Universitas Prasetiya Mulya

[2] Department of Business, School of Business and Economics, Universitas Prasetiya Mulya

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Abstract

For a large proportion of Indonesian people, owning a home is merely a dream, especially since house prices continue to rise. Consequently, an increasing number of low-income people (MBR) are not able to own their own homes. This has encouraged the Indonesian Government to release the 13th Economic Policy Package, The Million House Program, and several other financing policies to help MBR obtain affordable housing. In this investigation, an analysis is conducted on the supply and demand of MBR housing in Indonesia. Policy development recommendations to decrease the size of the housing backlog are also provided. This research utilizes the panel data method to analyze data from 34 provinces in Indonesia over a period of 5 years, also by gathering primary data with FGD method toward the property business owners and authorized local government whose in charge in subsidized housing policy. The results illustrate that the human population is the sole factor that affects the growing demand for subsidized housing. Possible solutions to accommodate this increase in demand include a building rights title (HGB), like the financing scheme, and the development of flats, rather than individual housing methods.

✉Corresponding author :
Address: : Jl. R. A. Kartini (TB Simatupang), Cilandak Barat, DKI Jakarta 12430, Indonesia
E-mail: isti.setiawati@pmbs.ac.id

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INTRODUCTION

Shelter is a primary human need, second only to food and water (Warnock & Warnock, 2007). Houses and flats can provide shelter. Consequently, communities may prioritize housing over other needs (Damayanti & Utomo, 2014). Over the past few years, house prices have been increasing for more than 50% compare to the last 10 years (Yuniati, 2013).An increasing population and economic growth has resulted in increased welfare. This has led to a rise in the demand for home ownership. On the other hand, a limited amount of land results in a rise in land prices, which decreases the number of houses and flats that can be built (Olanrewaju & Woon, 2017). Based on the law of supply and demand, this makes the demand curve shift to the right, resulting in housing prices above the equilibrium.

The various factors previously mentioned have resulted in a backlog of houses. This backlog refers to the difference between the supply and demand for houses. In 2018, the backlog could reach 13.5 million units. Approximately 800 thousand housing units are required annually to keep up with annual population growth and urbanization. However, only 400 to 500 thousand housing units are being built annually. Therefore, the demand is greater than the supply. As a result, the backlog continues to rise and there is a 400,000unit shortage every year. In addition, there are currently 3.4 million uninhabitable houses and approximately 38,000 hectares of urban slums (World Bank, 2014).

At the end of 2015, 11.8 million households (17.3% of the population) lived in non-owned dwellings (e.g., rent, contract, hitchhiking, official housing, or no home at all). On the other hand, there are many luxury housing developers who are reluctant to provide medium and low-cost housing. This is because building a low-cost residential area of 5 ha requires years of process of licensing and large costs (BPS, 2016). The problem that often arises in meeting the housing needs of the entire community, including "Low-income People", who are also called "Masyarakat Berpenghasilan Rendah" (MBR), is the certainty of fluency payments, especially for very long payment periods (over 15 years). According to Hartono, Budiman, and Hastuti (2020), 80% of research respondents included in the MBR category said that the housing subsidy facility for the MBR group at this time was not on target. This is because the targeted installment amount exceeded their capacity. Warnock and Warnock (2007) said that it is important for the MBR to provide definite liquidity support. This support can be sourced from the government, who deals with the problem of potential bad payments. This can be a safety net for financial institutions providing credit.

To increase the number of MBR's owning their own homes, the Government has launched a million-housing program that offers affordable monthly down payments and installments. Starting in 2017, the construction of subsidized low-cost housing will continue to be rolled out and accelerated to ensure that the economic policy package XIII runs effectively and achieves the right targets. There is also an Interest Rate Subsidy facility and down payment assistance to help MBR to own private residences.

Million National House Development Program is the manifestation of the implementation of the second and fifth points of the Nawacita Priority Agenda issued by the President of Indonesia, which is improving the quality of life of the Indonesian. To apply their goals, the Indonesian government has developed effective policies and strategies through the Housing Financing Liquidity Facility (FLPP). The FLPP was formed to reduce the burden on the National Budget of Revenue and Expenditures (APBN) and ensure the availability of long-term funds in the housing finance framework. Under the FLPP scheme, government funds are allocated annually to finance housing ownership for the target group. In principle, these funds must be returned to be rolled back for subsequent financing. In this

way, it can become a long-term fund and the government will no longer need to allocate funds to finance housing in large quantities. The FLPP scheme is implemented by a mechanism for combining FLPP funds with the implementation of bank funds.

The FLPP is also known as a Home Ownership Credit (KPR). The FLPP has the following characteristics: (a) long-term in nature; (b) fixed interest throughout the term of the loan; (c) relatively low interest rates; (d) VAT free; and (e) interest includes life, fire and credit insurance premiums. With the characteristics of these mortgages, it is expected that housing prices will be cheaper and people can obtain relatively affordable mortgage installments to reduce the risk of bad credit (PPDPP, 2018).

Since its launch in 2010, more than 538,554 FLPP units have been distributed throughout Indonesia. In 2016, the government launched housing advance subsidy assistance and housing loan interest subsidies to provide housing finance assistance in addition to the FLPP (Ministry of Public Works, 2020). Despite this, housing down payment subsidies and housing loan interest subsidies remain at risk. Inadequate targets for the provision of KPR-FLPP and the difference between the needs and availability of housing for MBR in each region could trigger fiscal risks. Therefore, there is a need for mitigation efforts to prevent fiscal risks and reduce the increase in the fiscal burden on the FLPP's revolving fund financing and subsidy expenditures for the interest difference subsidy program.

The improvement of the MBR debtor criteria is developed overtime to ensure that the housing finance program is right on target. As a Public Service Agency (BLU), the Center for Fund Management and Housing Financing (PPDPP) needs to check the suitability of the KPR-FLPP applicants using the MBR debtor criteria to determine who can utilize the KPR at 5 % interest. The mitigation of the MBR debtor criteria that is right on target is needed so that the government can provide an effective and efficient housing supply.

The primary purpose of this activity is to analyze the demand and availability of housing for the MBR as a recommendation for the Indonesian Government and stakeholders involved in developing a future housing finance assistance policy. To provide a more specific analysis of the supply and demand of subsidized housing for MBR in Indonesia, we asked the research questions as "How is the analysis of the housing supply and demand for the MBR a recommendation for developing future housing finance assistance policies, especially to reduce the number of backlogs?", And "What considerations are needed in the preparation of future FLPP revolving fund requirements?"

There is a close relationship between a person's economic conditions, with the scale of priority needs for life and priority housing needs, in the matter of determining housing policy (Shams, Mahruf, Shohel, & Ahsan, 2014). Broadly speaking, the procurement of urban housing for MBR is strongly influenced by many policy aspects (e.g., government policy making, laws, regulations, institutions), government programs in the field of housing, aspects of implementation, micro activities (e.g., implementing organizations, funds), the procurement of mature land or land ready to build and the implementation of housing development (Djemabut, 1986; Parashar, 2014).

The community affordability of housing must be considered to provide housing for all community groups. The affordability of home ownership is the ability and willingness of a household to spend part of their income to finance housing. There is a very close and interrelated relationship between households, household finances, and the type of house desired (Sukmarini, 2019). Theoretically, and based on the results of research in the field, the type and economic structure of a household will affect the type of housing occupied. This is because the affordability of housing is influenced by the level of the family's income, the price of the house offered, and other daily

expenses. In general, public expenditures on housing should be a maximum of 30 % of income (Schwartz & Willson, 2006), which is the same proportion as food expenditures (Olanrewaju & Woon, 2017).

Many people want to own a house, but do not have the ability to make cash payments. For this reason, installments can be used to buy or own a house. Installments are better known as loans for a certain period of time. Credit payments or installments make owning a home more affordable. These bank products are better known as mortgages. Mortgages are financing for the general public who want to own a house.

However, in general, financial support by banking institutions in granting credit to consumers or prospective borrowers is done through the process of applying for credit and analyzing credit for loans submitted based on the administrative procedures that have been taken. The principle of financing analysis for credit used in banking is called the Five C's of Credit Analysis, namely Character, Capacity, Capital, Collateral, and the Condition of the Economy (Baiden, 2011; Brody & Frank, 1998). Banks can analyze the prospective debtor's credit application if the requirements set by the bank have been met. With regard to the completeness of the supporting data for credit applications, banks assess the completeness and correctness of information from prospective borrowers by conducting bank interviews and on the spot visits to the debtor's place of business.

Not everyone can access credit financing from banking institutions. MBR and people without a permanent income cannot obtain financing. Banks have very strict requirements and assessments, so this institution is extra careful in lending, including KPR. The bank is very exposed to a credit risk, given its lending-based business activities. In addition, the bank's business has a high debt-to-capital ratio (highly-leveraged). Each increase in the default rate of each debtor (default rate) will potentially have an impact on the reduction in bank capital (Kasmir, 2007), even though the bank can make the collateral owned as a source of capital credit to third parties.

The Ministry of Public Works and Public Housing (KemenPUPR) classifies the MBR into two target groups written in the Minister Regulation No. 552 / KPTS / M / 2016. The regulation states that the most Subsidized KPR Target Groups are: (1) groups entitled to receive KPR, a maximum monthly income of IDR. 4,000,000; and (2) groups that are entitled to receive a KPR for flats, with a maximum monthly income of IDR. 7,000,000. The minimum area of a house is 21 m2 and the maximum is 36 m2. The maximum price of the house is divided by the region. However, the decree does not mention whether the income of the target group for the recipient houses is personal or family income.

There are 4 scenarios that might arise. Firstly, the husband and wife work and have a combined total income of IDR. 4,000,000, where each person's income is lower than IDR. 4,000,000. Secondly, the husband and wife work, but one of the salaries is ≥ IDR. 4,000,000, while the other individual's income is ≤ IDR. 4,000,000. Thirdly, only the wife or husband works and that one person's salary is ≤ IDR. 4,000,000. Fourth, 1 unmarried individual has an income of ≤ IDR. 4,000,000 (KemenPUPR, 2016). When viewed from the 4 scenarios, the scenario can be referred to as MBR. However, when examined further, each scenario has a different magnitude of dependents.

The amount a household earns affects the ability to make mortgage payments. The backlog in housing is one of the indicators used by the Government. The backlog is set out in the Strategic Plan (Renstra) and the National Medium-Term Development Plan (RPJMN). It is related to the housing sector and used to measure the housing needs in Indonesia. The home backlog can be measured from two perspectives: 1) residential and 2) ownership. The home backlog from the perspective of occupancy is calculated by referring to the ideal calculation concept: 1 family occupies 1 house.

The formula used to calculate the housing backlog from the perspective of occupancy is as follows:

Backlog = ∑Family – ∑House

Source: PPDPP (2010); Perpres (2015)

In the attachment of Book 1 of the Republic of Indonesia's Presidential Regulation Number 2 of 2015, concerning the 2015-2019 National Mid-Term Development Plan (RPJMN), the baseline backlog for housing in Indonesia in 2014 was 7.6 million. The concept of habitation in the calculation of the backlog illustrates that each family is not required to own a house. The Government facilitates that every family, especially those belonging to the MBR, can live in a decent house, either by renting, contracting, buying, or inhabiting their own home, or living in a house belonging to a relative, as long as there is a certainty of a secure tenure (Perpres, 2015).

The home ownership backlog is calculated based on the home ownership rate, or the percentage of households that occupy their own home. The basic data source used in this calculation is sourced from the Central Statistics Agency (BPS). In the context of utilizing data and information to support the implementation of FLPP fund distribution and management tasks, the PPDPP continues to utilize various strategic housing data. This data includes the home ownership rate and the percentage of households that occupy their own homes. This data was obtained for 2015 and was published by the BPS in 2016 (PPDPP, 2010).

The data shows that the percentage of households that occupy their own homes has increased from 78% in 2010 to 82.63% in 2015. Thus, the Home Ownership Backlog figure, which was originally around 13.5 million households in 2010, has decreased to around 11.4 million households in 2015. The figure shows that in 2015 there were 11.4 million Indonesian households, both MBR and non-MBR, who inhabited homes they did not own. The conversion results show: The provinces with the lowest percentage of home ownership rates (under 70%) are DKI Jakarta (51.09%) and the Riau Islands (67.67%). Provinces with the largest number of backlogs of home ownership (above 1 million households) are West Java (i.e., 2.3 million households), DKI Jakarta (i.e., 1.3 million households), and North Sumatra (i.e., 1.03 million households). The provinces with the highest home ownership rate percentage (above 90%) are West Sulawesi (91.47%), Central Java (90.93%), East Java (90.46%), and Lampung (90.35%). The Province with the smallest number of backlogs of home ownership is West Sulawesi (i.e., 28 thousand households).

RESEARCH METHODS

This study follows the recommendations in Al-Homoud, Al-Oun, and Al-Hindawi (2009), Onatu (2010), Sukmarini (2019), Cheung and Wong (2019), and Wong, Deng, and Cheung (2018). Qualitative and quantitative methods are applied to primary and secondary data sources. A survey management model was developed, while integrated supply and demand analyst techniques were applied. The dimensions of the strategic planning of housing needs financing for needs-based MBR were taken into account. The indicators used in this study include those relating to housing needs and potential MBR, sources of bank funding, land availability, developer commitments, and local government support. Other matters related to the one million housing program for MBR were also analyzed. Data were obtained for 34 provinces in Indonesia.

The instrument supply is taken from the Regional Regulation data related to Regional Spatial Planning (RTRW), the availability of documents on the Housing and Settlement Development Plan (RP3KP), existing data and plans from the Provincial Development Association, as well as other documents related to the availability and allocation of residential land in the Province. Instrument demand, illustrated by the number of MBRs from each Province, is taken from the

Regional Planning and Development Agency (BAPPEDA) for each Province. It is matched with the data contained in the publication of the National Socio-Economic Survey (SUSENAS) and the National Labor Force Survey (SAKERNAS) from BPS. The indicators of both supply and demand are presented in Table 1.

Table 1. Variables and indicators of supply and demand instruments for MBR (Low Income People) housing needs

Housing Demand for MBR			
	Qualitative Validation through Surveys in 34 Regions		
Variables and Indicators	Prioritization of Needs	Funding Source Issues	Policy Needs in Ensuring Access to Financing
Total Population of MBR Revenue (Purchasing Power) House Prices Location Facilities Financing Scheme	House building specifications, technical determining housing construction priorities, prioritization indicators meet housing needs for the MBR	Potential sources of financing, constraints in finding sources of financing, technical selection of financing sources, and technical advocacy or marketing to find sources of financing	Issues of seeking funding and authority, lessons learned in fund raising, and policy requirements as a solution for seeking one million home program financing
Housing Supply for MBR			
	Qualitative Validation through Surveys in 34 Regions		
Variables and Indicators	Prioritization of Needs	Funding Source Issues	Policy Needs in Ensuring Access to Financing
Home Financing Banking Scheme for MBR Potential and Support for Housing Contractors Land Availability	House building specifications, technical determining housing construction priorities, prioritization indicators meet housing needs for the MBR	Potential sources of financing, constraints in finding sources of financing, technical selection of financing sources, and technical advocacy or marketing to find sources of financing	Issues of seeking funding and authority, lessons learned in fund raising, and policy requirements as a solution for seeking one million home program financing

Source: Author primary data

The qualitative data were obtained from a data collection process carried out through Focus Group Discussions (FGD) and interviews with relevant stakeholders (i.e., representatives from the Directorate General of Housing Finance, BAPPEDA, housing agencies, implementing banks, and Housing Associations at the provincial level). In the implementation of

the FGD and data mining, the first step that needs to be taken is the identification of key FGD informants and respondent housing supply-demand data for the MBR. The FGD technique was carried out to ensure the housing development program for the MBR was running in the area and to consult the results of the study (e.g., verifying the data collected).

To make it sure the instrument's appropriateness, an instrument trial was applied in one of the target provinces of the one million housing program for the MBR. Through the trial, the accuracy and suitability of the instruments prepared were measured. A statistical regression was performed on the MBR data to see what factors influence the number of MBRs when there is a change in policy. The MBR amount is the key of this study. It is a benchmark for the subsidized housing supply necessary to improve the quality of life of the community (Onatu, 2010).

Factors that influence MBR include: population (Ahmed, Iqbal, & Siddiqui, 2018), average income level (Walteros, Hoyos, Ardila, & Ballesteros, 2018; Hartono et al., 2020), number of people employed (Harris & Davis, 2010; Hartono et al., 2020), accessibility to credit from financial institutions (Warnock & Warnock, 2007), and the average number of family members.

Five types of technical data were used. Firstly was the population, which is the number of residents in a particular year based on the BPS publication books. Second is the average monthly income of employees using SUSENAS and SAKERNAS data. Third is the number of people working using SAKERNAS and SUSENAS data. Fourth is accessibility to consumer credit from the Bank Indonesia (BI). Fifth is the average number of family members using SUSENAS data. In conducting the regression analysis, the panel data method was used. The panel data method is a combination of cross-sectional data (one time point with different data) per Province. The time series data consists of several time points between 2013 and 2017 (5 years). Furthermore, this regression was performed with a double log model (ln-ln model) using random effects.

RESULTS AND DISCUSSION

Results were obtained from analyzing data from a survey of 34 Indonesian provinces. Supply and demand data were collected. All provinces had regional regulations on the RTRW. They had to ratify the local regulations (PERDA) between 2009 and 2019. There were 7 provinces with detailed information regarding the land demolition plans for settlements. This was accompanied by the criteria. These provinces include: the Province DI. Yogyakarta, Banten, Lampung, Aceh, South Kalimantan, Central Java and East Nusa Tenggara. In four provinces (i.e., North Maluku, Papua, West Papua, Central Sulawesi), the criteria is not explained in terms of the size of the area designated for settlement. There are also no standard criteria for the settlement areas in the RTRW document. In the other provinces, there is no mention of the area intended for the development of residential areas. The criteria and characteristics of the areas that can be used as residential areas for future provincial development are mentioned. A complete set of data about the provinces and the year of obtaining PERDA related to the RTRW of the settlements is presented in Table 2.

Overall, 7 provinces mentioned the size of the planned residential area. They also provided an explanation in the Banten Province RTRW. The explanation of the spatial pattern of the residential designation areas was approximately 249,840.27 hectares. The residential allotment area within the DIY RTRW is 87,187.06 hectares. In the Lampung Province RTRW, the planned residential area is 232183 hectares. This area also has access to community activity centers outside the region and has complete supporting infrastructure, facilities and utilities. In the Aceh Province RTRW, 2 types of residential areas are explained. This includes the urban settlement areas and the rural settlement areas.

Table 2. Indonesian Provinces that issue local regulations (PERDA) related to Regional Spatial Planning (RTRW)

Year	Province
2009	South Sulawesi and Bali
2010	Central Java, West Nusa Tenggara, West Java, and Lampung
2011	Gorontalo and East Nusa Tenggara
2012	DKI Jakarta, West Sumatra, Bengkulu, and East Java
2013	North Maluku, Papua, West Papua, Central Sulawesi, Jambi, Aceh, and Maluku
2014	North Sulawesi, Bangka Belitung, Southeast Sulawesi, West Kalimantan, and West Sulawesi
2015	Central Kalimantan and South Kalimantan
2016	East Kalimantan and South Sumatra
2017	Banten, North Kalimantan, North Sumatra, and Riau Islands
2018	D.I. Yogyakarta and Riau

Source: data.go.id

The urban settlement area includes the primary urban (PKN), secondary (PKW), tertiary (PKL), and quartier (PPK) areas, which covers an area of 58,489 hectares. The rural settlement area covers the entire rural area of 89,847 hectares. Within the South Kalimantan Province RTRW, there are plans to develop the residential designation areas of approximately 271,917 hectares. This land is spread across Banjarmasin City, Banjarbaru, Banjar Regency, Barito Kuala, Tapin, Hulu Sungai Selatan, Hulu Sungai Tengah, Hulu Sungai Utara, Tabalong, Balangan, Tanah Laut, Land of Spices, and Kotabaru. Within the Central Java Province RTRW, the need for a settlement area is estimated at 519,382 hectares. This land is directed towards rural and urban settlements. Within the NTT RTRW, the settlement area is around 40,155.28 hectares. The settlement allotment area is spread throughout the regency or city in the Province.

Of the 34 Provinces visited, 12 had RP3KP documents for 2013 to 2018. There were two provinces with RP3KP in the form of a PERDA draft (i.e., DKI Jakarta and Jambi). The other provinces had not compiled any RP3KP documents.

Some regions had just held a regional head election (PILKADA) less than one year ago. Thus, they did not renew the existing RTRW or the RP3KP documents. Hence, there are no details regarding the area of land designated for settlement. However, there are very detailed criteria and land characteristics for settlements (e.g., Riau Province). This is because there is a possibility of a regional expansion in the Province in the regency or city area, which is feared if the area of designation is determined and there is a detailed location.

The Provincial Coordinated Developers Association with the Center obtained the following results about the supply side of subsidized homes:

"... there are 9 provinces that do not have data on data on subsidized housing that have been built and will be built. These provinces are West Sulawesi, North Sumatra, South Sumatra, West Sumatra, North Kalimantan, North Sulawesi, North Maluku, West Papua and Central Sulawesi." #interview

Table 3. Number of MBR* who do not have a house in each Province

Province	2012	2013	2014	2015	2016	2017*
Aceh	266,810	309,627	301,876	296,580	330,779	344,231
North Sumatera	1,150,929	1,262,836	1,238,877	1,193,327	1,262,920	1,350,591
West Sumatera	442,259	473,625	490,472	459,450	472,240	486,082
Riau	567,974	554,933	588,964	565,948	582,175	605,256
Jambi	217,134	257,287	242,605	230,028	242,975	269,261
South Sumatra	464,167	544,220	520,363	508,705	539,470	583,582
Bengkulu	104,709	116,202	113,185	108,169	115,857	128,931
Lampung	345,524	402,455	357,750	375,095	422,783	518,270
Bangka Belitung Islands	91,758	93,804	102,675	95,066	94,372	83,769
Riau Islands	183,980	151,168	164,629	169,907	147,829	150,616
DKI Jakarta	1,090,865	769,250	1,038,117	927,475	776,834	812,946
West Java	3,246,125	3,532,956	3,611,790	3,454,593	3,554,438	3,959,875
Central Java	1,296,010	1,805,160	1,683,690	1,606,419	1,773,078	2,090,784
Di Yogyakarta	246,905	263,972	275,314	277,286	274,489	288,419
East Java	1,482,057	2,127,013	2,109,780	2,142,069	2,177,469	2,502,765
Banten	897,185	979,711	948,077	958,943	973,021	975,256
Bali	363,896	376,464	393,124	357,362	362,183	380,411
West Nusa Tenggara	201,909	248,761	249,624	238,249	265,972	299,806
East Nusa Tenggara	176,516	196,502	193,486	187,007	221,252	249,929
West Kalimantan	241,108	281,178	290,093	273,098	302,103	331,796
Central Kalimantan	179,588	214,329	221,078	209,314	224,194	215,674
South Kalimantan	318,112	342,387	353,944	335,353	334,879	340,931
East Kalimantan	360,680	311,975	360,248	334,461	314,281	315,174
North Kalimantan	-	-	-	-	-	-
North Sulawesi	185,125	196,192	202,347	182,539	190,966	200,815
Central Sulawesi	140,262	179,625	162,252	162,099	180,431	192,821
South Sulawesi	466,509	535,229	554,388	523,797	580,730	630,469
Southeast Sulawesi	116,568	143,076	128,672	144,014	158,450	172,491
Gorontalo	59,528	69,859	73,007	67,075	70,997	76,467
West Sulawesi	38,263	55,322	52,268	56,417	61,126	74,026
Maluku	84,888	104,559	103,387	102,251	106,212	112,405
North Maluku	55,107	75,133	67,243	73,629	78,396	84,766
West Papua	56,580	48,359	55,037	49,755	51,844	52,134
Papua	136,128	144,069	158,219	122,978	142,863	150,628

*Note: Data is not available for public disclosure beyond 2017 due to NDA with PUPPR; MBR: Low income people;
Source: SUSENAS and SAKERNAS data

Overall, 25 provinces had data on the number of subsidized houses that have been built and plans to be built in coordination with the provincial level government. Cumulative data was obtained. As many as 167,324 subsidized houses were built and as many as 233,121 subsidized housing units will be built. The largest number of subsidized houses that were already built was in the South Sulawesi Province (i.e., 32,880). The least were built in the Maluku Province (i.e., 500 houses). The largest planned number of subsidized houses to

be built will occur in the Bengkulu Province (i.e., 44,074 houses). The smallest number that will be built is in the Province of D.I. Yogyakarta (i.e., 796 houses).

"... there are at least two large Developers Associations found in each Province. However, there are also local developers who are employed by the provincial government to work on subsidized houses." #FGD

"... The availability of subsidized housing supply data is closely related to the coordination of the Province with existing developers. Other sources of information apart from the Developer Association can also be obtained from financial institutions that support subsidies in collaboration with FLPP. Usually developers who directly collaborate with financial institutions have a direct relationship or direct appointment from the provincial government without passing the Developer Association." #FGD

On the demand side, data on the per capita expenditures were collected. The number of MBR in each Province is presented in Table 3.The MBR data in Table 3 illustrates the number of MBRs who did not have a house. Even though the households in the MBR lived in rented houses, official houses (or dormitory), and family homes, they would still count as MBRs who did not have a house. The definition of a house is a a house in the name of the MBR. The results reveal that the largest number of MBRs are located in the provinces of West Java (around 3,9 millions people) and Central Java (around 2 milions people). This is very much related to the Regional Minimum Wage (UMR) for each region, which can differ greatly. The UMR data for 2017 shows that West Java and Central Java UMR are the lowest when compared to other provinces.

The definition of MBR is based on Ministerial Decrees; it has definitions and absolute criteria. Further adjustments should be made to the definition of MBR per Province following the provincial inflation rate and the provincial UMR level to obtain more accurate data. There has been growth in the number of MBRs. The growth level is quite high from year to year. The results also reveal an improvement in the economic conditions where people are classified as MBR. This is a result of good economic growth. Ansori (2009) said that the improvement in the economic conditions and economic growth led to an increase in the absolute living standards and the movement of people into the middle class.

Supply side data on the number of subsidized houses provided assistance to the analysis. This data was obtained from the

Public Service Agency (BLU)-FLPP in each Province. The data is presented in Table 4. Table 5 illustrates a very high backlog of subsidized houses. This may be the result of a population growth rate of 5% annually. This will continue to increase the backlog between demand and supply. Table 6 presents the results of the forecasting analysis using the growth rate method from Table 5.

The data reveals that the number of backlogs will continue to increase each year from 2020 to 2024, regardless of the continued increase in the subsidized housing supply. The increase in the supply of subsidized houses was encouraged, because one of the central government's programs provided subsidized housing. Each region is required to provide housing for the MBR. Based on the survey results, the contractor said:

"... demand for subsidized housing continues to increase, and sales of subsidized housing are more profitable than commercial housing. This makes some contractors choose to build subsidized housing compared to commercial housing." # interview

When viewed in more detail, it is observed that the rate of growth calculation shows that the rate of supply growth is far greater than the rate of growth in demand. This illustrates that a point of demand and supply has led to a convergent point towards the equilibrium point. To get to this equilibrium point, the level of convergence of demand and supply must accelerate. One way to do this is by building flats instead of houses. One flat development can

provide 50-100 homes for MBR (Sukmarini, 2019).

The ownership system should also be considered. A building rights title (HGB) system should be implemented. This is done with the assumption that the economic condition of non-residential MBRs will improve over time. In this way, this group can have houses in other places with a freehold title (SHM) status. Existing houses can be occupied by other non-house MBR households with status. In terms of building availability, when viewed in more detail from the supply side, this condition is not entirely due to the inability of the developer. Based on the field survey conducted, information was obtained that 50% of the number of non-house MBRs that needed houses, were those who did not meet the criteria for FLPP, because they were not bankable (fulfil all the requirements to get a bank loan or funding). This is an obstacle for developers creating a supply of non-residential MBR, because even though there are housing units available for non-residential MBR, they still cannot get FLPP, because they cannot obtain approval from the bank. To overcome this, Menon (2019) recommended that financial inclusion activities from related parties could be a first step so that non-home MBRs could become a decent class of the banking administration, especially for MBR groups originating from the informal sector.

Government policies might change. Hence, a statistical regression was performed to anticipate any factors that can affect the number of MBR. The variables used as proxies are as described in the methodology section. However, when conducting a data validation test, there are two factors that affect demand, but are not included in the regression model. These include: (1) accessibility to credit, because data from the BI for consumption credit on the BI website is only available until 2013 (when the research was conducted), and (2) the average amount per family member, because it is too homogeneous (4 people per household), so it will influence the regression calculations to get reliable results.

The results of the regression analysis using panel data methods per Province in 2013-2017 (5 years) with the double log model (ln-ln model), using the random effect is presented in Table 7. The regression results show that only the population that has a significant effect on the number of MBRs that do not have a house has a coefficient of 0.92. This means that if there is an increase in the population by 1 %, the number of MBRs without a house will also increase by 0.92%. Other factors (e.g., employment, wages/salaries) do not significantly influence the number of MBR. This means that the level of income and the number of people working does not affect the number of non-house MBRs. If a further analysis is carried out, this can be influenced by factors not included in the model (e.g., level of public taste, government policy). The results of this regression show that the population affects the number of MBR from year to year. This result further strengthens the reasons for implementing the housing policy or housing ownership scheme in the form of HGB to overcome the problem of land limitations. According to Wong (2004), The construction of flats can be a solution for land limitations.

CONCLUSION

The This study illustrates that high population growth is not proportional to the increase in the availability or supply of residential housing. This results in a large number of backlogs, accessibility and reach of services to housing and infrastructure facilities, which are inadequate. The area designated for housing in the provincial spatial plan does not consider how much land is available. This is due to significant scale differences in the district and municipal RTRW housing use area, especially on large islands in Indonesia (e.g., Sumatra, Kalimantan, Sulawesi, Papua). Therefore, it is necessary to prepare RP3KP to see the availability of housing land. The preparation of the existing RP3KP is very slow for some districts or cities. Data for residential housing in the district or city is limited. This

results in a database for Housing and Settlements that required updating. Population size is the only significant factor influencing the growth in demand for subsidized housing. Hence, alternative solutions must be sought to overcome population growth following this sequence. Recommendations include implementing a financing scheme in the form of HGB and building flats.

This study provides some literary contributions to the research on subsidized housing in Indonesia. This research also expands the concept of backlog calculations in subsidized houses. This finding will help researchers examine backlog calculations in subsidized housing in other regions, especially in determining the criteria for low-income people and the definition of home ownership for low-income people.

This research can be used as a framework for developing a PPDPP Business Strategic Plan in Indonesia for the period of 2020-2024. The following are some practical recommendations for stakeholders (e.g., Ministry of Public Works and Public Housing): (1) to deal with the lack of a budget in overcoming backlogs, ask for help from the private sector, especially in relation to providing decent housing and housing development; (2) in terms of accessibility, the government can facilitate MBR access to housing finance sources to obtain mortgages that are still limited; (3) the source of housing finance funds is still short-term and cannot cover long-term mortgages (maturity mismatch), so there is a need for the government to overcome land problems; (4) the government can transfer the function of unproductive land owned by SOEs to become MBR housing flats; (5) flats can be a solution to a limited land problem and the high price of individual houses; and (6) housing development can be supported by local governments to be more optimal, in terms of building construction permits, environmental impact analysis, and regional regulations that support developers. The recommendation is expected to overcome the backlog problem, so that the realization of the construction of one million houses can be increased.

This study has limitations in terms of the number of respondents that must be interviewed on the supply side (e.g., decision makers (local governments), lending institutions, developer associations). In addition, respondents have not received information from the MBR related to subsidized housing, so their perspectives were not obtained. Therefore, future research can focus on the demand side, especially by obtaining information from MBR parties who have already received FLPP facilities, are in the process of submitting, or have been rejected in the process of obtaining FLPP facilities. This will provide more information about the criteria necessary for this subsidized housing program. Substantially more research with qualitative methods in this area is needed to better understand whether or not home ownership is essential for MBR life. This is because a standard of living in terms of ownership differs from a standard of living in terms of eligibility.

Despite all the contributions and the findings this research has done, there are some limitation faced by this research such as the details of the data and the data update. As per the research was done, the data displayed was until 2017, which is 3 years ago. This limitation occurs due to the data availability and the Non-Disclosure Agreement (NDA) between the project owner and the researchers.

However, this condition should not be obstacles to consider the research's contribution to the academic field, especially to describe the real condition of supply and demand for subsidized housing program for the lower income people.

REFERENCES

Ahmed, A., Iqbal, N., & Siddiqui, R. (2018). Determinants of housing demand in urban areas of Pakistan: Evidence from the PSLM. *Pakistan Development Review*, *57*(1), 1–25. doi: 10.30541/v57i1pp.1-25

Al-Homoud, M., Al-Oun, S., & Al-Hindawi, A. M. (2009). The low-income housing market in

Jordan. *International Journal of Housing Markets and Analysis*, *2*(3), 233–252. doi: 10.1108/17538270910977536

Ansori, M. H. (2009). Consumerism and the emergence of a new middle class in globalizing Indonesia. *Explorations*, *9*, 87–97. doi: http://hdl.handle.net/10125/10713

Baiden, J. E. (2011). The 5 C's of credit in the lending industry. *SSRN Electronic Journal*, *June 26*. doi: 10.2139/ssrn.1872804

BPS. (2016). *Statistik perumahan dan pemukiman 2016 (Hasil Survei Sosial Ekonomi Nasional Modul Kesehatan Perumahan 2016)*. Retrieved from https://www.bps.go.id/publication/2017/12/08/b241f43d481835fb9f4004d5/statistik-perumahan-dan-permukiman-2016.html

Brody, R. G., & Frank, K. E. (1998). The sixth C of credit. *The Journal of Bank Cost and Management Accounting*, *11*(3), 45–56.

Cheung, K. S., & Wong, S. K. (2019). Entry and exit affordability of shared equity homeownership: An international comparison. *International Journal of Housing Markets and Analysis*, *ahead-of-p*(ahead-of-print). doi: 10.1108/IJHMA-06-2019-0059

Damayanti, R., & Utomo, C. (2014). Analisa biaya dan permintaan pada penetapan. *Jurnal Teknik Pomits*, *3*(1), 36–40.

Djemabut, C. B. (1986). *Perumahan dan Pemukiman*. Yogyakarta: Gajah Mada University Press.

Harris, T. R., & Davis, R. (2010). *Estimating Supply and Demand in Your Local Housing Market: A Housing Gap Analysis*. Nevada.

Hartono, D., Budiman, R. A., & Hastuti, S. H. (2020). Housing tenure choice of low-income households in Jabodetabek. *Economics Development Analysis Journal*, *9*(1), 76–86. doi: 10.15294/edaj.v9i1.37503

Kasmir. (2007). *Dasar-Dasar Perbankan*. Jakarta: PT Raja Grafindo Persada.

KemenPUPR. (2016). *Batasan Penghasilan Kelompok Sasaran KPR Bersubsidi, Batasan Harga Jual Rumah Sejahtera Tapak dan Satuan Rumah Sejahtera Susun, Serta Besaran Subsidi Bantuan Uang Muka Perumahan*.

Menon, P. (2019). Financial inclusion, banking the unbanked: Concepts, issues, and policies for India. *Journal of Public Affairs*, *19*(2), 1–5. doi: 10.1002/pa.1911

Olanrewaju, A. L., & Woon, T. C. (2017). An exploration of determinants of affordable housing choice. *International Journal of Housing Markets and Analysis*, *10*(5), 703–723. doi: 10.1108/IJHMA-11-2016-0074

Onatu, G. O. (2010). Mixed-income housing development strategy. *International Journal of Housing Markets and Analysis*, *3*(3), 203–215. doi: 10.1108/17538271011063870

Parashar, D. (2014). The government's role in private partnerships for urban poor housing in India. *International Journal of Housing Markets and Analysis*, *7*(4), 524–538. doi: 10.1108/IJHMA-08-2013-0049

Perpres (2015). P*eraturan Presiden Republik Indonesia Nomor 2 Tahun 2015 tentang Rencana Pembangunan Jangka Menengah Nasional (RPJMN) Tahun 2015-2019*.

PPDPP (2010). *Konsep Backlog*. Retrived from: https://ppdpp.id/konsep-backlog/

PPDPP (2018). *Laporan Kinerja Tahun 2018 BLU Pusat Pengelolaan Dana Pembiayaan Perumahan*. Retrived from: https://ppdpp.id/wp-content/uploads/2019/10/Lakip-PPDPP-2018.pdf

Schwartz, M., & Willson, E. (2006). Who can afford to live in a home?: A look at data from the 2006 American Community Survey. *American Community Survey*, (February), 1–13. Retrieved from https://www.census.gov/housing/census/publications/who-can-afford.pdf

Shams, S., Mahruf, M., Shohel, C., & Ahsan, A. (2014). Housing problems for middle and low income people in Bangladesh: Challenges of Dhaka Megacity. *Environment and Urbanization Asia*, *5*(1), 175–184. doi: 10.1177/0975425314521538

Sukmarini, H. (2019). Pembangunan wilayah yang berkeadilan pada sektor perumahan: Supply demand penyediaan perumahan bagi MBR (Masyarakat Berpenghasilan Rendah). *Proceedings of Seminar Nasional Teknologi Fakultas Teknik Universitas Krisnadwipayana*, (Juli), 453–459. Retrieved from https://jurnal.teknikunkris.ac.id/index.php/semnastek2019/article/view/304

Walteros, C. V., Hoyos, A. N., Ardila, A. D. A., & Ballesteros, A. S. P. (2018). Analysis of demand and supply in the Colombian housing market: Impacts and influences 2005-2016. *International Journal of Housing Markets and Analysis*, *11*(1), 149–172. doi: 10.1108/IJHMA-01-2017-0006

Warnock, V. C., & Warnock, F. E. (2007). Markets and housing finance. In *Working Paper* (No. 13081). Retrieved from http://www.nber.org/papers/w13081

Wong, K. M. G. (2004). Vertical cities as a solution for land scarcity: The tallest public housing development in Singapore. *Urban Design International*, *9*(1), 17–30. doi: 10.1057/palgrave.udi.9000108

Wong, S. K., Deng, K. K., & Cheung, K. S. (2018). Housing wealth effects for private and subsidized homeowners. *International Journal of Housing Markets and Analysis*, *11*(5), 771–787. doi: 10.1108/IJHMA-07-2017-0067

World Bank (2014) *Indonesia - Avoiding the trap : development policy review 2014 (English)*. Washington, DC : World Bank Group. Retrived from http://documents.worldbank.org/curated/en/936481468042895348/Indonesia-Avoiding-the-trap-development-policy-review-2014

Yuniati, V. (2013). *Inclusionary Housing in Indonesia: The Role of Balanced Residential Ratio 1:3:6 in Makassar* (Erasmus University Rotterdam). Retrieved from http://etd.repository.ugm.ac.id/home/detail_pencarian/66234

APPENDIX

Table 4. Number of subsidized houses that have been given assistance by BLU-FLPP in each Province

Provinces	2010	2011	2012	2013	2014	2015	2016	2017*
Aceh	2	25	69	107	156	278	437	23
Bali	54	424	187	144	103	45	87	63
Banten	673	12,072	6,752	11,034	8,191	7,691	5,472	1,595
Bengkulu	39	846	428	670	570	1,095	1,029	121
DI, Yogyakarta	25	365	192	347	196	73	84	13
DKI Jakarta	-	112	4	54	34	6	36	62
Gorontalo	39	494	335	459	255	302	231	18
Jambi	122	2,256	1,316	1,523	1,149	1,351	1,554	1,210
West Java	2,498	43,823	24,741	41,959	28,694	28,409	17,173	3,381
Central Java	508	7,324	3,268	5,639	3,953	4,033	2,290	364
East Java	1,039	9,692	4,615	6,988	4,050	3,647	2,699	646
West Kalimantan	198	2,136	1,685	3,364	3,149	2,420	2,388	1,620
South Kalimantan	634	5,019	4,701	6,776	5,367	5,085	3,199	680
Central Kalimantan	122	924	851	1,187	1,352	1,614	1,732	633
East Kalimantan	47	321	128	495	225	235	456	197
North Kalimantan	-	6	-	-	40	5	-	10
Bangka Belitung Islands	-	137	157	249	223	593	921	596
Riau Islands	121	2,976	1,678	2,730	1,731	1,529	845	302
Lampung	65	969	707	771	440	546	953	286
Maluku	2	11	31	11	-	-	-	-
North Maluku	3	32	43	52	64	26	46	-
West Nusa Tenggara	44	737	16	24	43	94	374	99
East Nusa Tenggara	-	497	196	270	155	135	285	368
Papua	12	413	155	460	436	622	1,089	933
West Papua	-	-	-	42	149	289	1,572	2,456
Riau	208	4,226	2,589	4,075	3,604	3,954	3,150	1,367
West Sulawesi	9	335	242	253	231	263	157	101
South Sulawesi	231	2,502	1,372	1,736	1,473	2,223	2,376	874
Central Sulawesi	69	648	423	692	502	616	475	240
Southeast Sulawesi	139	1,023	140	306	469	607	593	882
North Sulawesi	126	1,355	1,018	1,282	944	951	1,033	825
West Sumatera	62	1,194	586	680	595	938	720	239
South Sumatera	457	3,048	2,421	4,432	4,617	3,879	2,440	929
North Sumatera	411	3,650	3,739	3,903	2,897	2,935	2,573	2,630

*Note: Data is not available for public disclosure beyond 2017 due to NDA with PUPPR;
Source: SUSENAS and SAKERNAS data

Table 5. Comparison between demand and supply of the subsidized housing from 2012-2017

Comparison of Supply and Demand Results (Per Island)		2012	2013	2014	2015	2016	2017*
Sumatera	Demand	3,835,244	4,166,156	4,121,396	4,002,275	4,211,400	4,520,589
	Supply	13.69	19.14	15,982	17,098	14,622	7,703
Jawa	Demand	8,259,146	9,478,062	9,666,768	9,366,786	9,529,329	10,630,046
	Supply	39,572	66,021	45,118	43,859	27,754	6,061
Bali & Nusa Tenggara	Demand	742.32	821,726	836,234	782,618	849,407	930,146
	Supply	399	438	301	274	746	530
Kalimantan	Demand	1,099,488	1,149,870	1,225,364	1,152,226	1,175,457	1,203,576
	Supply	7,365	11,822	10,133	9,359	7,775	3.14
Sulawesi	Demand	1,006,256	1,179,302	1,172,934	1,135,942	1,242,699	1,347,089
	Supply	3.53	4.728	3.874	4,962	4,865	2.94
Maluku and Papua	Demand	332,703	372,121	383,886	348,613	379,315	399,933
	Supply	229	565	649	937	2,707	3,389

*Note: Data is not available for public disclosure beyond 2017 due to NDA with PUPPR
Source: Author's calculation

Table 6. Forecast from 2018 to 2024 regarding the comparison of supply and demand by applying the growth rate method

Comparison of Growth and Trend (Per Island)		2010	2011	2012	2013	2014	2015	2016	2017
Sumatera	Growth	1,487	19,327	13,690	19,140	15,982	17,098	14,622	7,703
	Trend	1,487	19,327	13,690	19,140	15,982	17,098	14,622	7,703
Java	Growth	4,743	73,388	39,572	66,021	45,118	43,859	27,754	6,061
	Trend	4,743	73,388	39,572	66,021	45,118	43,859	27,754	6,061
Bali and Nusa Tenggara	Growth	98	1,658	399	438	301	274	746	530
	Trend	98	1,658	399	438	301	274	746	530
Kalimantan	Growth	1,001	8,406	7,365	11,822	10,133	9,359	7,775	3,140
	Trend	1,001	8,406	7,365	11,822	10,133	9,359	7,775	3,140
Sulawesi	Growth	613	6,357	3,530	4,728	3,874	4,962	4,865	2,940
	Trend	613	6,357	3,530	4,728	3,874	4,962	4,865	2,940
Maluku and Papua	Growth	17	456	229	565	649	937	2,707	3,389
	Trend	17	456	229	565	649	937	2,707	3,389
Comparison of Growth and Trend (Per Island)		2018	2019*	2020*	2021*	2022*	2023*	2024*	
Sumatera	Growth	11,608	15,091	19,702	25,841	34,069	45,182	60,326	
	Trend	11,608	13,849	13,936	14,024	14,119	14,376	14,634	
Jawa	Growth	10,512	11,688	13,012	14,503	16,182	18,075	20,208	
	Trend	10,512	16,485	12,735	9,065	5,904	3,115	485	
Bali and Nusa Tenggara	Growth	1,115	1,332	1,632	2,046	2,616	3,401	4,482	
	Trend	1,115	660	663	676	699	722	746	
Kalimantan	Growth	4,533	5,683	7,184	9,149	11,729	15,124	19,603	
	Trend	4,533	6,789	6,733	6,678	6,623	6,567	6,512	
Sulawesi	Growth	4,559	6	7,944	10,589	5,519	19,236	26,249	
	Trend	4,559	4,751	4,891	5,032	5,172	5,327	5,496	
Maluku and Papua	Growth	2,092	3,358	5,379	8,648	4,325	22,581	36,672	
	Trend	2,092	3,585	4,109	4,633	5,157	5,682	6,206	

Source: Author's calculation

Table 7. Regression output of determined factors of Number of MBR in Indonesia 2013-2017

lnmbr	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
lnpop	.9222962	.170676	5.40	0.000	.5877774	1.256815
lnwork	.0959901	.1573531	0.61	0.542	- .2124164	. 4043966
lnwage	.018392	.0275492	0.67	0.504	-.0356034	.0723874
_cons	-3.170267	.6658168	-4.76	0.000	-4.475244	-1.86529
sigma_u	.21485341					
sigma_e	.07055431					
rho	.90266092	(fraction of variance due to u_i)				

Note:

Random-effects GLS regresssion — Number of obs = 165
Group variable: prov — Number of groups = 33

R-sq:
within = 0.1244
between = 0.9562
overall = 0.9527

Obs per group:
min = 5
avg = 5.0
max = 5

corr (u_i, X). = 0 (assumed) — Wald chi2 (3) = 928.75
(Std. Err. adjusted for 33 clusters in prov) — Prob > chi2 = 0.0000

Source: Author's calculation

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