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The Effectiveness of Housing Finance Policy Innovation for Low-Income Communities in Indonesia

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Keywords

Effectiveness, finance innovation, Indonesia, low-income communities.

Abstract

The limited access to fulfilment of housing needs, inadequate availability of finance, and unaffordable housing prices are essential factors used to determine the effectiveness of housing finance policies for Low-Income Communities (MBR). This study aims to determine how *SiKasep*, a Housing Subsidized KPR Information System Application effectively improves housing needs fulfilment, provides access to finance, and ensures affordable houses for low-income communities. The strategies used include leadership approaches and effective communication, government support, community knowledge, participation, and policy impact. This is a quantitative and qualitative research with data collected from 55 respondents through questionnaires. The findings indicate the importance of the community's knowledge factors, specifically on aspects of technology proficiency and economy for MBR, as an innovative approach to effective housing finance policy.

Introduction

In recent years, the successful fulfilment of accommodation needs for Low-Income Communities (MBR) has been influenced by innovative housing finance policies [1], [2]. Conversely, its lack of availability has led to slum settlements in various urban areas, a major global problem [3]. In the past few decades, several relevant innovations relating to housing finance policies have overcome accommodation problems. These include housing subsidies, mortgages, incentives for individual developers, closed bonds, collaboration with government and private financial institutions [4]–[7].

Several preliminary studies have been carried out on housing finance policy innovations from different viewpoints. The success of its scheme is largely determined by the developmental structure and framework of the housing system [8]. Similarly, referring to a broader perspective, it is supported by bureaucratic factors (internal), such as funding and government institutional structure, as well as environmental attributes (external), namely regional autonomy and interest group activities [9]. In the housing finance context, it is important to analyse 4 issues that have been ignored to some extent, such as market, rental, savings, and mobility [10].

According to Paavo Monkkonen [11] the housing policy innovation is relevant in tackling various accommodation challenges such as the rapid growth of urban areas, infrastructural needs, subsidies for low-income communities, and unstable regulations. Specifically, Steven Rowley et al. [12] stated that one of the effective innovations that need to be implemented by the community is a finance scheme that provides subsidies, although it is not always helpful and requires a high capital level [13]. However, various pieces of evidence have proven that housing subsidies implemented in Chile, Colombia, and South Africa tend to reduce accommodation problems [2]. It also has a significant impact on the market and increases the proportion of the population intending to purchase new houses [1].

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Interestingly, some other studies stated that adopting an innovative approach has proven to be effective in overcoming the challenges encountered by MBR in finding liveable housing in Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. This involves collaborating with the Swedish government agency for international development cooperation (SIDA), in terms of initiating housing development programs [4], finance partnerships with the private sector in South Africa [7], and the use of mortgages which have been able to increase accommodation access and affordability as well as promote rapid credit growth [6].

As in various other countries globally, Indonesia has also extensively implemented several mortgage loan policies since 1976 through housing finance subsidies. This involved collaborating with the State Savings Bank (BTN), appointed by the Suharto government as the financial institution for the public housing project. Moreover, from 2000 to 2010, the Government of Indonesia issued several policies, including a three-in-one loan scheme known as credit *Triguna*, which serves as the meeting point for housing supply and demand. To some extent, it has a fairly high selling price for MBR, subsidized KPR (homeownership loan) from liquidity funds of Bank Indonesia, and the Housing Loan Liquidity Facility (FLPP). From 2011 to 2017, the housing finance policies for Low-Income Communities (MBR) prioritized the following, One Million Houses Program (Program *Satu Juta Rumah*), Micro KPR (Homeownership Loan), and down payment assistance subsidy (SBUM). Finally, from 2018 to 2020, the Government of Indonesia launched the Savings-Based Housing Finance Assistance and Public Housing Savings (*Tapera*) programs.

This research discusses Indonesia's most recent housing finance policy, namely the *SiKasep* innovation, an acronym for *Sistem Informasi Kredit Kepemilikan Rumah Subsidi Perumahan* (the Housing Subsidized KPR Information System Application). It is presented as a response to the developed paradigm relating to digitizing public services and the industrial revolution era 4.0 challenges which have changed peoples' mindsets, way of life, and communication, as well as their diverse activities in various fields, including fulfilment of housing finance, needs for MBR.

The term *SiKasep* is derived from the Indonesian term *Sundanese* in the local language literacy dictionary, meaning good. This shows that this innovation is expected to embody housing finance policies and provide positive feedback for MBR to afford their desired houses.

The *SiKasep* innovation is an application that is used to determine the accurate distribution of FLPP in MBR [14]. It also aims to fulfil accommodation needs, increasing access to finance and affordable housing prices. Technically, people are able to search for subsidized housing anytime and anywhere simply by using an application on their android based smartphones, all that needs to be conducted is downloading it for free on the App Store and registering by filling in the individual's Identity Card (KTP), income, and a photo of oneself [15].

However, there are certain aspects of some earlier described evidence that have not received attention, namely the effectiveness of innovation in housing finance policies for MBR, specifically in terms of meeting accommodation needs and increasing access to finance and affordable housing prices. These all need to be analysed, including successes and failures, to disclose their impact on MBR.

According to Nicolle Gurran et al. [16], successful innovations, strategies, and affordable housing programs depend on strong political leadership and effective communication among all stakeholders. The government support is a key element that ensures housing policy innovations function according to planned goals. Mary-Rain Meara [17] stated that assuming the constituted authority is willing to collaborate with the entire community to determine the best approach to develop urban settlements, effective innovative and sustainable policies tend to be implemented. Oladotan Ayoade and Ahmed Vian [18] stated that knowledge of applied innovations is an important factor that triggers its success. This is expected to positively impact the government and policymakers in implementing these regulations. Aaron Rosa et al. [19] stated that the importance of community participation in the innovation process is to bridge their needs and that of policymakers to realize a positive impact.

This study discusses how *SiKasep* effectively improved housing needs, access to finance, and affordable housing prices for MBR by employing the following approaches, namely effective leadership skills, communication, and government support, as well as community knowledge, participation, and policy impact. The theoretical contribution is based on understanding the effectiveness of *SiKasep* with respect to 3 important questions. These fulfill accommodation needs, access to finance, and affordable housing prices for MBR. It also triggers ideas for future innovations. Practically, it is expected to assist the government in adopting appropriate and effective strategic steps related to housing finance policy innovations.

I. *SiKasep* Housing Finance Policy Innovation

The Government of Indonesia, through the Housing Financing Fund Management Centre (PPDPP) of the Ministry of Public Works and Housing, including FLPP for MBR, implemented service innovations based on information technology. This is known as *SiKasep,* which aimed at fulfilling accommodation needs, increasing access to finance, and affordable housing prices.

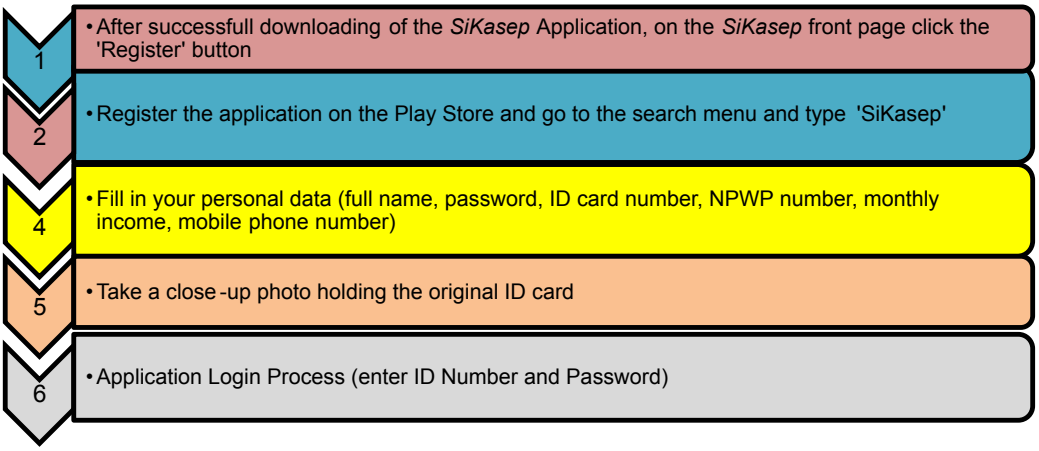


Fig. 1. *SiKasep* Application Registration flow [20].

SiKasep is an application on an Android smartphone, used by the general public to find subsidized housing whenever they desire. It is downloaded for free on the *App Store*, and registration involves filling in KTP, income earned, and a photo of the individual. The *SiKasep* application is nothing without the government's support of ensuring the accurate distribution of FLPP in MBR. It tends to be properly monitored according to community needs because, to some extent, certain accommodation challenges have been encountered, such as subsidized housing that does not meet the stipulated criteria. Conversely, it helps housing developers and providers to reduce operational costs and sales effectiveness.

SiKasep innovation was first launched in December 2019, and it was discovered that in the first 3 months, there was an increasing trend, whereas as of March 24, 2020, the number of registered debtors had reached 118 495. The main goal is to bridge the community developers by involving banks in carrying out their business processes in response to the demand and supply of houses, thereby providing benefits for all stakeholders. For the banks, the use of *SiKasep* innovation simplifies the verification process, while for housing developers or providers, it reduces operational costs and product sales effectiveness.

The registration flow and menu in the *SiKasep* innovation are shown in Figs. 1 and 2.

In the next stage, the application displays the initial menu, as shown in Fig. 2.

II. Methodology

This study employed a mixed-method approach, starting with a quantitatively analysed survey and qualitative interviews held with diverse community groups that use the *SiKasep* housing finance innovation facility. The selection of these procedures is considered appropriate because it is used to identify and obtain extensive evidence [21], specifically in the research context. It is also a triangulation process involving using different data sources to verify various pieces of evidence and build themes based on convergence validity [22].

III. Sampling Procedure

This study was carried out using 55 respondents, with data collected from 43 respondents, or 78 %, through questionnaire, while the remaining 12 respondents, or 22 %, were interviewed. Based on gender, there were 38 males and 17 females. The respondents were selected using the purposive sampling technique, one of the core elements of qualitative research. It is based on the strength of the sampling logic, which lies in selecting information-rich cases to thoroughly analyse [23].

All respondents are from MBR comprising 3 urban villages and sub-districts in Serang City, namely Kaligandu urban village, Serang sub-district, Tembong urban village, Cipocok sub-district, and Drangong urban village,

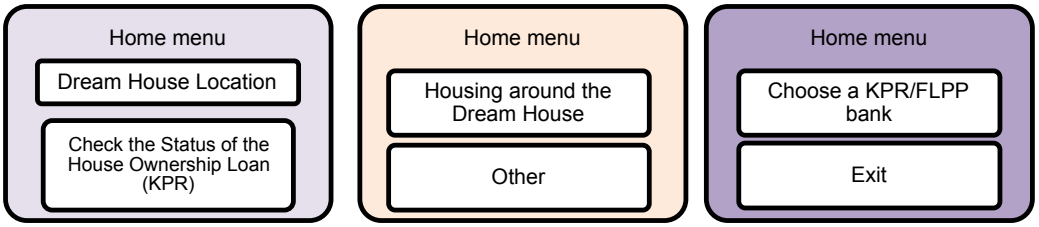


Fig. 2. Menu on *SiKasep* Application [20].

Taktakan sub-district. The selected locations are based on the typical case study [24], relating to many MBR residing in these areas.

The process of determining the samples started with acquiring information from the neighbourhood (Rukun Tetangga) or community leaders at the research location. Initially, a permit was obtained to carry out interviews and distribute questionnaires to several prospective respondents. They were contacted and asked to introduce themselves. In addition, questionnaires were distributed to 43 respondents, while semi-structured interviews were held with 12 of them. In order to maintain their confidentiality and privacy, the 2 data collection techniques were carried out in their respective homes. The initials of the men and women were used during the analysis and interpretation phases.

IV. Research Instruments

The research instrument used to measure the effectiveness of this housing finance policy innovation is a compilation of 18 questions. In the beginning, 3 question items were used to identify the level of education, profession, and housing conditions. The next 15 items contained statements about the effectiveness of these regulations based on the fulfilment of accommodation needs, increasing access to finance, and affordable housing prices. Effective leadership, communication, government support, knowledge, participation, and impact of policy innovations are associated factors. Each question was answered by selecting "strongly agree", "agree", "moderately agree", "disagree" or "strongly disagree".

Furthermore, the validity and reliability of the question items were measured. Validity depicts the extent to which an instrument is used to obtain the size of the item being measured. This is realized by correlating the scores obtained from each question item with the total one. Validity and reliability testing were carried out using SPSS Statistics 26 software for Windows, while decision-making was based on the calculated value (Corrected item-total Correlation) > *r* table of 0.3008 for df = 43 – 2 = 41, assuming it is = 0.05, then the item or question is valid and vice versa. Reliability measurement is carried out using Cronbach's Alpha within the range of <0.50 and <0.70. This indicates that the smaller the value, the more unreliable are the items. However, the standard alpha value is >0.60 (Moderate Value).

Based on Table I, it is evident that all questions have valid criteria because the *r* count value (Corrected item-total Correlation) is > *r* table 0.300. The reliability test was carried out on items that were declared valid. A variable is presumed to be reliable, assuming the answers to the questions are always consistent. In this study, the instrument reliability coefficient was 0.912. Therefore, it was declared reliable because it is greater than 0.6 (moderate value).

TABLE I

Validity Test Results [developed by the author]

Statement Item	Corrected Item-Total Correlation	r Table	Criteria
1	0.612	0.300	Valid
2	0.540	0.300	Valid
3	0.508	0.300	Valid
4	0.689	0.300	Valid
5	0.695	0.300	Valid
6	0.577	0.300	Valid
7	0.688	0.300	Valid
8	0.635	0.300	Valid
9	0.659	0.300	Valid
10	0.588	0.300	Valid
11	0.659	0.300	Valid
12	0.505	0.300	Valid
13	0.563	0.300	Valid
14	0.606	0.300	Valid
15	0.636	0.300	Valid

V. Results

The results showed that the respondents from MBR had various level of education starting from elementary, junior, and senior high schools, as shown in Table II and Fig. 3.

The results of this study show the various types of professions engaged in by respondents from MBR, the majority are self-employed and paid workers, as shown in Table III and Fig. 4.

Subsequently, the results of this study showed that the condition of houses in MBRs were categorized as liveable and unliveable based on the adequacy of a minimum living area of 7.2 m^2 per capita (sufficient living space), having access to proper drinking water, sanitation and durable housing, as shown in Table IV and Fig. 5.

TABLE II

MBR Education Level [developed by the author]

Level of Education	Total	Percentage
Did not finish	15	27.27 %
Graduated from Elementary School	9	16.36 %
Graduated from Junior High School	19	34.55 %
Graduated from Senior High School	12	21.82 %

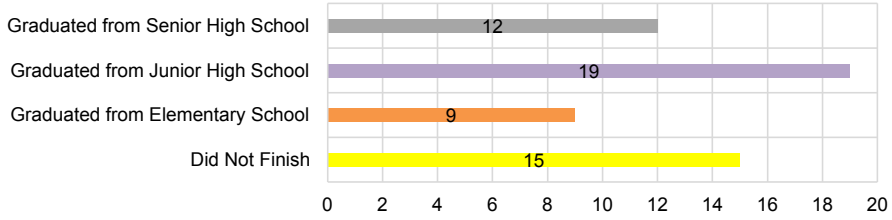


Fig. 3. MBR education level [Author's calculations].

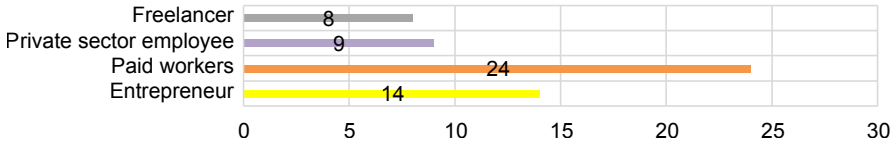


Fig. 4. Type of professions of members of Low-Income Communities (MBR) [Author's calculations].

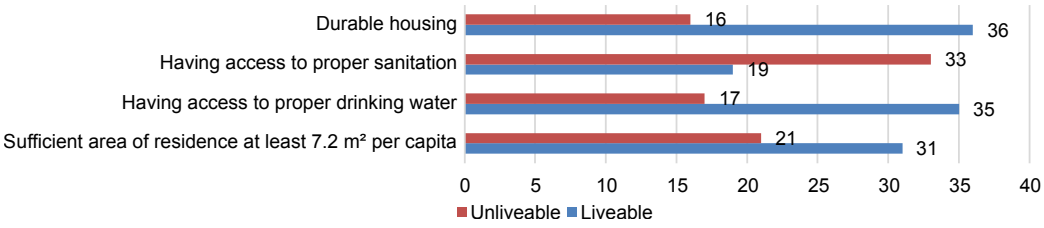


Fig. 5. MBR house conditions [Author's calculations].

TABLE III

Type of MBR Profession [developed by the author]

Type of Profession	Total	Percentage
Entrepreneur	14	25.45 %
Paid workers	24	43.63 %
Private sector employee	9	16.36 %
Freelancer	8	14.54 %
Total	55	100 %

TABLE IV

MBR House Condition [developed by the author]

House Condition	Total of Liveable Houses	Total of Unliveable Houses
Sufficient area of residence, at least 7.2 m² per capita	31	21
Having access to proper drinking water	35	17
Having access to proper sanitation	19	33
Durable housing	36	16

TABLE V

The Effectiveness of *SiKasep* Housing Finance Policy Innovation for MBR [developed by the author]

Approach	N	Mean	Standard Deviation
1. The government's leadership and effective communication in implementing *SiKasep* finance policies increases the fulfilment of housing needs in MBR	43	4.16	0.754
2. The government's leadership and effective communication improves access to finance	43	4.12	0.731
3. The government's leadership and effective communication can increase the prices of affordable houses in MBR	43	4.28	0.666
4. The government's support effectively triggered the fulfilment of housing needs in MBR	43	4.19	0.627
5. The government's support tends to effectively boost access to finance	43	4.16	0.688
6. The government's support effectively increases the prices of affordable houses in MBR	43	4.09	0.570
7. The public knowledge of *SiKasep* policy innovation triggers the fulfilment of housing needs in MBR	43	4.07	0.632
8. The public knowledge of *SiKasep* finance policy innovation increases access to finance	43	4.21	0.709
9. The public knowledge of the *SiKasep* finance policy increases affordable housing prices in MBR	43	4.09	0.610
10. The community's participation in *SiKasep* policy innovation increases the fulfilment of housing needs in MBR	43	4.21	0.638
11. The public participation in *SiKasep* finance policy innovation increases access to finance	43	4.09	0.610
12. The community's participation increases the price of affordable houses in MBR	43	4.21	0.600
13. The impact of *SiKasep* policy innovation increases the fulfilment of housing needs in MBR	43	4.26	0.693
14. The impact of *SiKasep* finance policy innovation increases access to financing	43	4.02	0.672
15. The impact of *SiKasep* finance policy innovation increases affordable house prices in MBR	43	4.05	0.653

Furthermore, the results of the interviews held with 12 informants concerning the MBR needs, such as increasing access to finance and affordable housing prices viewed from the aspect of effective leadership and communication, government support, community knowledge, participation, and policy impact approach are described in the following section.

A. Meeting the Housing Needs for Low-Income Communities (MBR)

Several respondents stated that effective leadership and communication related to the implementation of *SiKasep* finance policy to fulfil housing needs in MBR was quite good. One of the respondents, Respondent A, stated:

"We became aware of the SiKasep's financial innovation from the socialization activity, which turned out to be a good concept; the local government effectively communicated to the community through a persuasive approach. We hope that the registration of this innovation becomes helpful to low economic income earners" (Interview, Thursday, August 19, 2021, 10:00 am).

Similar to the aforementioned interview result, Respondent K stated that when *SiKasep* was socialized, certain information was effectively communicated across by the local government and the majority of the people responded positively. This is proven by the following interview excerpt:

"Socialization about SiKasep organized by the local government was quite clear. This positive innovation was adopted to help those from low-income areas; besides, it was also understood that the entire mechanisms and requirements are easy" (Interview, Thursday, August 19, 2021, 12:00 am).

In addition to the leadership and communication aspects, the success of housing finance policy innovations also requires effective government support to fulfil the accommodation needs of those in MBR. The following interview result shows that the local government support has been quite effective, as stated by Respondent C:

"The local government's efforts, including the adopted approaches and support, are highly appreciated, specifically by those in MBR who desperately need accommodation. However, the bank has failed to grant them approval because they are traders and usually find it difficult to fulfil the administrative requirements" (Interview, Thursday, August 19, 2021, 3:00 pm).

The following describes the interview results related to the public knowledge of *SiKasep* housing finance policy innovations; Respondent M said:

"We became aware of SiKasep's housing finance policy innovation from the local government's socialization activities, which were available on cell phones. The problem is that some of the people either lack the skills or do not have cell phones" (Interview, Saturday, August 21, 2021, 09:00 am).

Respondent F gave a similar answer reporting that although the *SiKasep* innovation is easy to use when you register, certain menus in the application features are not understandable. See the following interview excerpt:

"Yes, this is true, irrespective of the fact that its registration is easy and involves only a mobile phone application. However, some people do not understand certain features such as selfies, uploading ID cards, housing locations, and the request to directly selecting the desired bank, including checking the KPR application status" (Interview, Saturday, August 21, 2021, 11:00 am).

Community participation in *SiKasep* housing finance policy is expected to meet the accommodation needs. This is presumed to be true, assuming they actively registered through the application. Moreover, this enables MBR members to carry out their business processes by directly involving banks and developers as housing providers. The results of the interview held with several respondents are described further.

Respondent L stated that community participation was quite good because their responses to the *SiKasep* application were positive, specifically in terms of meeting housing needs for MBR, as deduced from the following interview excerpt:

"Due to the fact that it is easier for MBR to own a house, they became actively involved in the SiKasep application registration starting from the first step to the verification phase" (Interview, Monday, August 23, 2021, 10:00 am).

The impact of *SiKasep* innovation in terms of boosting the fulfilment of housing needs for MBR is important. To determine the impact of this policy, Respondent R was interviewed, and the following results were reported:

"SiKasep has quite a positive impact on MBR. Through this application, the members can find out exactly where the accommodation is located and the relevant details" (Interview, Monday, August 23, 2021, 2:.00 pm).

B. Access to Housing Finance in Low-Income Communities (MBR)

Several respondents stated that *SiKasep* innovation relating to housing finance policies has been able to trigger access to housing finance for those residing in MBR, although, certain obstacles were encountered, including the fact that some people do not have Tax Identification Number (NPWP), KTP, and Family Card (KK), which are part of the administrative document requirements that need to be uploaded during registration. Respondent S stated:

"Yes, they are grateful for the SiKasep innovation because it is no longer difficult to find the desired housing. The government and implementing banks have already followed up on their proposals" (Interview, Wednesday, August 25, 2021, 09:00 am).

However, a different opinion was expressed by Respondent K who stated that it was difficult to access *SiKasep* innovations if one does not possess the required documents such as NPWP, as quoted from the interview excerpt:

"It was difficult to access SiKasep innovation because of NPWP. The tax office did not issue this document. It is an obstacle because it prevents from accessing SiKasep's innovation" (Interview, Thursday, August 19, 2021, 10:45 am).

Subsequently, Respondents L and R were interviewed based on knowledge and community participation in *SiKasep* finance policy innovations in terms of increasing access to finance:

"SiKasep innovation is easy to use, it only involves using a cell phone and internet network. Although some people do not know how to use mobile phones, basically, this application does not require much knowledge" (Interview, Monday, August 23, 202110:45 am).

"Community participation is presumed to be quite good because of the socialization activities and effective information communicated to the members. Besides the fact that the need for liveable houses is quite high, the community is enthusiastic about the innovation" (Interview, Monday, August 23, 2021, 2:45 pm).

The impact of *SiKasep* innovation on housing finance policies tends to increase access to finance used to resolve the housing needs. Respondent B reported:

"Yes, SiKasep innovation is quite beneficial to them because presently, it is easier to find a house, unlike before when they had to contact a housing developer. They are able to directly search for houses using the SiKasep application" (Interview, Friday, August 27, 2021, 09:00 am).

C. Affordable House Prices for Low-Income Communities (MBR)

The following section discusses the results related to the dimension of increasing affordable housing prices for MBR. Respondent C stated that government support has been effective, and excerpts from the interview are described as follows:

"The government's socialization approach is quite good and easy to access when they log in; however, the prices of mortgaged houses are high, including the monthly instalments paid to the banks. Therefore, for those who earn low incomes, the prices of these houses are difficult to reach" (Interview, Thursday, August 19, 2021, 15:45 pm).

In line with the interview excerpt, Respondent M proposed an idea to the central and local governments concerning the affordability of these houses and their need to be adjusted to suit their income level. The following is an interview excerpt of a respondent.

"We suggested that the central and regional governments need to review the housing prices one more time because those seen on the SiKasep application are expensive even though they are installed monthly. On the other hand, our expenses are quite high, especially with respect to the daily needs and children's tuition" (Interview, Saturday, August 21, 2021, 09:45 am).

The result of the next interview held with Respondent Mn is related to the level of public knowledge about *SiKasep* finance policy innovation. It turned out that it has not been able to increase affordable house prices for Low-Income Communities, irrespective of the fact that mobile phone technology is used to access these applications.

"We are still having difficulties accessing SiKasep application innovations using mobile phones, especially for those who are more than 45 years old, because to a large extent, the cell phones are only used for communication" (Interview, Sunday, August 22, 2021, 11:40 am).

Respondent D stated:

"Our main obstacle is the technological savvy of using mobile phones, majority are unskilled. Therefore, we do not understand how to use the SiKasep application innovation" (Interview, Sunday, August 22, 2021, 13:00 pm).

Then, related to community participation and the impact of innovation on housing finance policies, the government is presumed to boost affordable housing prices. Respondent Sm stated:

"They are ready to participate in any innovation initiated by the government that can help them get a better life, especially the housing provision. In addition, there is a need to adjust the housing finance innovation and affordable prices for MBR" (Interview, Friday, August 27, 2021, 10:00 am).

In line with the earlier interview excerpt, Respondent C stated that they welcomed the *SiKasep* innovation to provide liveable housing, although its prices and subsidy need to be reviewed because some MBR is still unable to reach it. Besides, this is proven by the following statement:

"We gladly welcome SiKasep's innovation and hope that those residing in rented houses in poor conditions are exposed to better houses. However, the prices are still high, and they have not been able to afford them with low incomes" (Interview, Thursday, August 19, 2021, 15:30 pm).

VI. Discussion

Based on Table V, on average, the impact of *SiKasep's* innovation on the dimensions of effective leadership and communication is quite good. This is proven by the results of housing needs fulfilment for MBR (mean = 4.16, Standard Deviation = 0.754), access to finance (mean = 4.12, Standard Deviation = 0.731), and affordable housing prices (mean = 4.28, Standard Deviation = 0.666). Therefore, it was stated

that the government carried out effective leadership and communication through socialization activities and the provision of information. This is also supported by an online seminar on *SiKasep* housing finance policy involving the public, carried out through the zoom application and the You Tube channel.

The socialization of this innovation in respect to funding distribution associated with FLPP was carried out by collaborating with 37 implemented financial institutions consisting of 10 national ones and 27 Regional Development Banks (BPD) conventional and Sharia [20]. On the other hand, the increased number of *SiKasep* users is inseparable from the intensive socialization carried out by PPDPP of the Ministry of Public Works and Public Housing of Indonesia. Based on data acquired in March 2020, 25 socialization activities were carried out by PPDPP in collaboration with 37 FLPP KPR implemented banks, regional governments, and associations of developer companies from various areas.

Furthermore, the effective government support for *SiKasep* housing finance policy innovation shows that its average achievement was quite good and met the needs of MBR (mean = 4.19 and Standard Deviation = 0.627) and access to finance (mean = 4.16 and Standard Deviation = 0.688). This shows that *SiKasep* innovation regarding housing finance policies supported by the government received a positive response from MBR. The dimension of affordable housing prices in MBR shows that the average achievement is relatively low (mean = 4.09 and Standard Deviation = 0.570). This is mainly due to the inability of MBR to earn > IDR 4 million per month, and this makes it difficult for them to afford the housing prices and instalments in accordance with the government's criteria. Therefore, these prices need to be reformulated by setting MBR criteria based on districts or cities rather than provinces [25]. Members of MBR that earn IDR 7 million and IDR 4 million per month are entitled to a mortgage interest of 5 % for the instalment period, irrespective of their financial ability.

The public knowledge dimension concerning the innovation of housing finance policies, *SiKasep*, shows various achievements on average: fulfilment of needs has mean = 4.07 and Standard Deviation = 0.632, access to finance has mean = 4.21 and Standard Deviation = 0.709, and affordable house prices has mean = 4.09 and Standard Deviation = 0.610. The difference is that some MBR members are incapable of using digital technological mobile phones, thereby making it difficult to operate the *SiKasep* application. This causes lower average achievement results in terms of meeting the accommodation needs and affordable house prices below. Conversely, access to finance is quite good because some of them are able to use their cell phones to access the *SiKasep* innovation application. It was emphasized that the digital technological proficiency factor plays an important role in the success of *SiKasep* housing finance policy innovation.

The community participation in *SiKasep* housing finance policy innovations attained varying achievements on average. In terms of fulfilling the needs of low-income families it was mean = 4.21 and Standard Deviation = 0.638), access to finance had mean = 4.09 and Standard Deviation = 0.610, and affordable housing prices had mean = 4.21 and Standard Deviation = 0.600. This shows that on average, achievement relating to fulfilling their needs and affordable house prices is quite good because members of MBR are highly interested in residing in liveable houses. On the other hand, the average achievement of access to finance is low due to the lack of understanding relating to the use of technology and insufficient income. Although the average achievement of community participation in respect to the high interest for liveable housing is quite good, it is different in the aspect of access to finance.

The *SiKasep* housing finance policy's impact shows different results, in terms of fulfilling the needs of low-income families it is mean = 4.26 and Standard Deviation = 0.693), access to finance it is mean = 4.02 and Standard Deviation = 0.672, and affordable housing prices has mean = 4.05 and Standard Deviation = 0.653. This shows that the fulfilment of MBR's needs is quite good, while access to finance and affordable housing prices are low due to some members' poor technological skills and income (> IDR 4 million per month). MBR find it difficult to afford these prices and monthly instalments according to the criteria set by the government. Therefore, it is evident that the impact of *SiKasep* innovation on access to finance and affordable housing prices is still ineffective.

Based on the results acquired from the 15 statement items, it was described that the *SiKasep* housing finance policy innovation positively impacts the dimensions of effective leadership and communication. This is perceived from the government's intensive socialization, specifically through online seminars and collaboration with the 37 implemented banks consisting of 10 national ones and 27 BPD, both conventional and Sharia. Conversely, the public's knowledge of *SiKasep* innovation has been ineffective due to their low proficiency in using technology. This confirms that the digital skill factor supports the success of *SiKasep* housing finance policy innovation. The average achievement of community participation is quite good, specifically concerning the fact that they are highly interested in liveable accommodation, although there is a difference in access to finance, especially in the dimension of unaffordable house prices due to low income.

The data collection acquired through interviews is described in the following section. Based on the acquired results, the dimensions of MBR's housing needs fulfilment realized through effective leadership and communication approach proved that *SiKasep* has been running quite well. This is in line with [26] stating that there is a strong relationship between innovation and leadership factors. R. Dodge et al. [27] and J. Martin and A. Spano [28] emphasized

that effective leadership recognizes the relationship between obedience-oriented performance management and innovative ways to deal with strategic problems.

The efficiency of the socialization activities carried out by the local government in collaboration with the implemented banks, and housing developers is one of the keys to successful leadership and effective communication. G. Bertucci [29] stated that the exercises on information and knowledge about innovation are an important instrument realized through collaboration, resource utilization, and a common understanding of local communities' needs perceived as an important factor in overcoming housing challenges [30]. This is in line with A. Scupola and A. Zanfei [31], and E. Glor [32], that innovation runs when it is carried out through the appropriate communication processes and methods, specifically to convince the public about its benefits.

Although the socialization of *SiKasep* housing finance policy innovation has been effectively carried out, it turns out that there are still some obstacles encountered by those from MBR, especially in the operation of its application due to lack of knowledge and proficiency in using digital technology such as accessing certain features, including selfies, uploading ID cards, selecting the desired housing and bank locations and checking the KPR status. This shows that the innovation process in housing finance policies requires leadership to create and implement these ideas amid various debates, challenges, and obstacles in the organization. Similarly, a leader needs to be able to develop situations and conditions where employees can implement certain innovations [26], [27].

The innovation of finance policy has a significant influence on the housing market and increases buyers' proportion [1]. In accordance with the acquired results, *SiKasep* housing finance policy innovation based on the dimension of access to finance is generally quite effective. This is seen from the positive response and the community participation in accessing *SiKasep* innovation, although, on the other hand, certain obstacles are encountered because members of MBR do not have administrative documents such as NPWP and KTP that have to be uploaded. Participation as a communication approach aims to promote community involvement [19], and it is realized through joint learning from various actors and perspectives perceived as an effort to harmonize social and technological innovation [33].

The results based on the dimension of affordable houses are still a problem because the subsidized price offered by the government is high. This contradicts A. Gilbert [2] and E. Cerutti et al. [6] who say that housing subsidies have been able to reduce some of the problems, increase access and affordability, and promote rapid credit growth. This issue was discussed by L. Marais and J. Cloete [7], and N. Yusof et al. [5], writing that the factors responsible for the decline in the percentage of MBR to access mortgages are due to the global crisis and the tendency of an ineffective incentive scheme in promoting the implementation of the accommodation provision system. Therefore, in a broader perspective, housing finance and urban development policies need to be able to answer the question of how MBR are able to utilize funds integrated into these schemes (both formal and informal) [10]. It is important to encourage innovation based on substantive housing policies and not only limited to providing subsidies whereby the program has limited resource capacity [11], [34]. It was presumed that innovation in housing finance policies needs to pay attention to the income and the needs of the MBR. Problematic factors are concerned as an important instrument in dealing with the issue of affordable house prices dimension.

The low proficiency of the community in using mobile phones causes them to be unable to access the *SiKasep* application. On the other hand, it was discovered that 60 percent of users who access the *SiKasep* application are millennials, between the ages of 20 to 40 years [15], and of course, these individuals have different characteristics from members of MBR whose average age is above 40 years. Therefore, promoting a process approach and innovation typology [35] with various conveniences through local actor-network knowledge is needed to overcome the challenges of housing finance policy [11], [36], [37].

Conclusions

The impact of the *SiKasep* housing finance policy on the dimensions of fulfilling the needs of MBR, access to finance, and affordable housing prices has been effective, specifically in leadership, communication, government support, and community participation. This is supported by the socialization, cooperation, and the high interest in housing needs as well as the positive response and community participation in accessing *SiKasep* innovation irrespective of the fact that there are some problems in the aspect of public knowledge due to the low proficiency in using mobile phones to access the application. It was also determined that the ineffective impact of the enacted policies due to the low income in respect to affording the house prices according to the criteria set by the government were also encountered.

Therefore, it was concluded that the aspect of public knowledge, specifically the technological proficiency possessed by MBR, is an important factor that needs to be taken seriously by the government to implement digital-based housing finance policy innovations as the *SiKasep* application. The adjustment steps start with socialization activities focused on how to use a mobile phone to easily

access the application. This aims to achieve equitable access to housing finance, thereby enabling all MBR to have the opportunity to effectively benefit from *SiKasep*.

Low income is the next factor that needs to be considered because housing subsidy needs to be able to reduce certain problems and increase access. Therefore, incentives or subsidies effectively encourage implementation of the housing provision system. The steps involved in the enacted policy to adjust the finance scheme integrated into their income are efforts that need to be employed in overcoming this problem.

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