Impact of Path Dependence on Affordable Housing Delivery in Developing Countries – A Case Study of Pakistan

Saima Rafique*, and Obaidullah Nadeem
Department of City and Regional Planning, University of Engineering and Technology, Lahore, Pakistan.
*Correspondence: saimarafique@uet.edu.pk

Citation | Rafique. S, Nadeem. O, "Impact of Path Dependence on Affordable Housing Delivery in Developing Countries – A Case Study of Pakistan", IJIST, Vol. 8 Issue. 3 pp 1066-1087, June 2026
Received | April 13, 2026 **Revised |** May 16, 2026 **Accepted |** May 23, 2026 **Published |** June 05, 2026.

Affordable housing is a pressing global concern, especially in developing nations like Pakistan, where multiple factors have significantly influenced the housing landscape. Path dependence theory helps unveil such factors and their impact. Pakistan faces challenges in initiating new affordable housing projects due to entrenched institutional and policy patterns, as observed through an in-depth examination of its Federal and Provincial Government housing programs and their delivery mechanism. Purposive sampling was used to collect primary data through a semi-structured questionnaire, distributed via email to practitioners and academics to statistically validate the effect of path dependence on affordable housing delivery. A total of 200 valid responses were received from participants across Punjab. The outer loadings for the majority of indicators exceeded the 0.70 threshold, and bootstrapping results confirmed that all structural paths were statistically significant at $p < 0.001$. The structural model results confirm that Government Practices significantly influence both Institutional Social Factors ($\beta=0.48$, $p < 0.01$) and End Product Attributes ($\beta=0.422$, $p < 0.05$). The model explains 52.1% ($R^2 = 0.521$) of the variance in End Product Attributes, supporting the hypothesis that path-dependent policy legacies shape contemporary housing delivery." Furthermore, the study provides empirical evidence using PLS-SEM. The results were verified through HTMT discriminant validity (all values < 0.85) and VIF statistics (all values < 5), ensuring a level of statistical rigor not commonly found in previous descriptive studies of the region. The study also highlights that local housing policies, better location planning, and understanding of the differences between cities are important for improving affordable housing delivery.

Keywords: Low-Income Housing, Path Dependence, Critical Juncture, Sustainable Governance, Social Constraints.

Introduction:

Affordable housing is a serious issue all around the world, predominantly in developing countries. According to the United Nations Organization's (UNO) housing directives, "human beings require a continuous supply of sufficient housing and accompanying facilities [1]. Affordable housing is considered a key factor influencing household decisions regarding housing and non-housing expenditures by households [2]. Across the world, housing policies appear to define "housing affordability as the link between household income and cost of housing, with no more than a particular stipulated percentage of income (ranging between 25 to 35 per cent) being spent on housing" [3].

A review of relevant literature revealed that there is no consensus on what represents affordable housing [4]. It differs from country to country, city to city, and socioeconomic group to socioeconomic group. Cities in developing nations exhibit a significantly lower level of affordability, with a 28 percent decrease in comparison to cities in developed nations. This assessment is established by considering the median affordability metric, which takes into account the ratio of median income to housing prices [5]. The evolution of affordable housing development highlights a clear distinction between developed and developing countries, indicating that they cannot adopt the same policies. The concept that history holds significance in the realm of housing is not a novel idea [6]. Housing carries strong social significance. Households are socially and emotionally attached to housing and neighborhood [7]. Eligibility criteria and social exclusion are influential factors in maintaining the stability of the residential system. These elements, stemming from both physical and sociological aspects, contribute to the housing market's inertia and can pose institutional hurdles when attempting to implement policy changes [8].

The Government of Pakistan has historically been proactive in developing urban policies, treating housing as a separate sector in all Five-Year Plans [9]. The Federal Planning Commission's Physical Planning and Housing (PP&H) section performs a major role in forming urban policies out of Five-Year Plans, which are based on guidance from the Planning Commission. The government serves as a leading receiver of foreign support and a financial supplier for the development works and power allocation to provincial and local governments. The primary role of the federal government has been limited to formulating policies, which often results in similar, ineffective outcomes [10]. Because of this, private actors assumed a larger role, as [11] argued that public sector agencies failed to provide adequate housing and instead encouraged the private sector to fulfill this responsibility. It led to speculation and costly housing serving the middle and high-income groups.

Low-income housing is typically self-constructed on government or encroached private land. Apart from occasional land grants and infrastructure funded by Member of the National Assembly/ Member of Parliament (MNA/MPA), there is minimal government involvement. Residents build incrementally, financing construction through savings committees, small contractor loans, and asset sales like women's jewellery. An estimated 40% of urban housing units, or 2,730,368 homes, were developed this way, with Karachi alone adding 1,172,025 units between the 1998 and 2017 censuses [12]. These housing units suffer from poor construction, inadequate electricity, ventilation, heat insulation, and sewage disposal. Legal land acquisition is also a major issue [12][13].

Over the past many years, Housing situation in Pakistan has been getting worse. Most of the National Housing Policies that were announced e.g., NHP 1982, NHP 1986 including the 1992 Housing Policy, were not legally authorized and put into action. The National Housing Policy of 2001 also failed to bring about appreciable changes in the housing market [14]. [15] Identified a multiplicity of institutions at federal, provincial, and local levels and suggest redefining their roles. [16] Identified Khuda Ki Basti-4 as a good practice example of

providing low-income housing by an NGO Saiban. The concept and development process of this project needs to be adopted by public sector agencies [16].

By 2050, Pakistan will be the fifth most populated country with its current growth rate [17]. The situation will get more chaotic in the future years if the government and the relevant agencies ignore this problem [14]. Pakistan is facing an acute shortage of housing to the tune of more than 10 million units with an additional demand of approximately 350,000 units per annum [18]. Uncontrolled population growth, rapid urbanization in metropolitan cities, inadequate supply of housing, and diminishing affordability of masses are exacerbating the situation.

The path taken in the past has a substantial impact on the present and future of housing policy and practices. Path dependence theory suggests that past decisions and events can shape current policies and outcomes [19]. In the context of affordable housing, path dependence theory can help explain why certain policies and practices persist over time, even if they are not the most effective or efficient solutions to the problem of housing affordability. Asian housing research typically lacks in-depth explanations for the factors that have influenced the region's housing policy development in a path-dependent manner.

In case of a developing country like Pakistan, development of housing policies at grass root level, location of neighborhoods with respect to accessibility of employment opportunities, education and health facilities and variations in affordability across cities are significant factors, the neglect of which can lead to the failure of affordable housing projects. It would thus be pertinent to determine possible contribution/relative weightage of each of these factors in providing sustainable yet affordable housing. In this regard Mulliner, Small bone [20] suggest that "considering a range of social and environmental criteria can greatly affect the calculation of an areas affordability, in comparison to focusing solely on financial attributes".

There is limited research on path dependence specifically in affordable housing provision in Pakistan. However, the development of affordable housing policies and programs has been heavily influenced by path dependence. This study is an attempt to unearth the factors that have caused hindrance in affordable housing delivery in Pakistan. This study fills a critical gap by shifting the focus from purely financial barriers to institutional path dependence. While previous Pakistani housing studies focus on "what" is missing (funds, land), this study explains "why" these issues persist through a path-dependency lens. This study addresses this gap by investigating the following research questions:

RQ1: How do the government practices impact the current institutional and social environment of housing delivery?

RQ2: To what extent does this institutional environment affect the actual attributes and quality of the final housing product?

To answer these questions, the study aims to achieve the following objectives: (i) to identify key historical policy drivers through factor analysis; and (ii) to empirically test the structural relationships between policy history and housing outcomes using PLS-SEM." The next section presents a brief review of literature on affordable housing delivery mechanisms in developing countries. The methodology adopted for this research is then explained. The penultimate section elaborates results and discussion followed by the conclusion.

Literature Review:

Path dependence theory advocates that decisions are affected by choices made in the past. This leads to limited processes that are hard to change [19]. Path dependency is defined as "the process where what transpired at an earlier point in time will affect the outcomes of a sequence of events occurring at a later point in time" [21]. The underlying concept is that if historical evolution chooses one path rather than another at a given time, the other viable alternate paths will be blocked or challenging to reach later. In the context of affordable

housing, path dependence means that the way in which affordable housing policies and programs have developed in the past has created a certain inertia that can make it difficult to introduce new policies and programs that deviate from the status quo.

Scholars who study path dependence view institutions as entities that "carry" or uphold historical legacies, maintaining established behavioral norms and cultural patterns across time. Path dependence is of institutional interest because of the possible 'inefficiency of history' that comes from institutional stickiness. Choices that are made in the housing regime, back in history, are called critical junctures [22][23]. Urban planning stakeholders commonly lack the confidence to use unconventional methods to create urban morphologies that are more sustainable. The absence of best practice exemplars and a lack of locally relevant evidence may discourage stakeholders from taking unconventional actions. The intricacy of decision-making procedures can be exacerbated by local planning and political circumstances, as well as institutional agendas. As a result, urban planning stakeholders look to history for guidance [24][25][26].

Path dependence theory helps to understand the rise in the development of slums and informal settlements with substandard housing and a lack of basic amenities in developing countries. These settlements are consequences of colonial land tenure systems and legal frameworks [27]. As in India, Rajiv Awas Yojana (RAY) program was designed to provide affordable housing to low-income households. The program targeted low-income households seeking to build or purchase homes. However, the projects could not be implemented as per the claims. Furthermore, the projects failed to provide the basic infrastructure and amenities of life [27]. A similar pattern can also be observed in Brazil. The land ownership and distribution system has made it difficult for the low-income class to find affordable housing through the formal sector, which leads to the growth of slums and informal settlements [13]. To respond to the issue, the Minha Casa Minha Vida (MCMV, My House, and My Life) program was initiated to ensure the provision of decent and affordable housing. However, the program faces serious challenges in securing reasonable land and access to basic amenities, as the program is known for building houses on the outskirts of cities [27][28]. [29] Found that people living in MCMV have fewer access to employment opportunities as compared to others with the same income class. In Nigeria, it has been found that for a successful project of affordable housing through a private-public partnership (PPP), the following six elements are critical: robust government control, financially feasible projects, a firm legal structure, well-organized procurement procedures, significant financial provision, and a competent private sector [30].

Path dependency theory depicts how past trends shaped the formal housing economy in Pakistan. According to this theory, past actions and established trends can limit future choices and hinder new initiatives. Path dependencies such as outdated housing regulations, eligibility requirements and limited financial resources make it difficult to implement new approaches and achieve meaningful change in the affordable housing market in Pakistan [9][10][17][31][32][33]. Federal and provincial housing policies and programs at different times in the history of Pakistan had been dependent on the manifesto of ruling party.

To demonstrate the persistence of path dependence in affordable housing delivery in Pakistan, it is essential to examine the federal and provincial housing policies and programs throughout different periods in the nation's history. Government housing initiatives in the 1950s and 1960s primarily included two components:

Housing for government workers was a priority throughout public housing construction sector.

People with middle- and higher-income benefited from the provision of serviced plots.

Squatter settlement destruction and the rehousing of their residents, either on the same site or elsewhere, were major priorities. The majority of those housing initiatives, like the

Korangi, Karachi, and Kot Lakhpat Township plan in Lahore, were out of the reach of the underprivileged. The new towns were a long way from the city centers. Their failure can be attributed to their location far from the heart of the city, a lack of investment, and inadequate infrastructure. Many displaced families returned to the same squatter colonies in Karachi [10][31][33]. At about the same time, in the mid-1960s, other strategies were attempted. A new plot-ownership policy was implemented in Karachi in 1965. The plan was for people to build their own houses on the serviced plots [10].

From 1971-77, the People's Party of Pakistan (PPP) headed by Zulfiqar Ali Bhutto is credited with being the first to actively promote community aid initiatives. His government established labor colonies and low-cost housing.

The following list summarizes the key components of the PPP governments' housing policy:

The housing policy was changed so that plots in site and services schemes would be given out. More small plots were made for people with middle and low incomes.

The Katchi abadi development projects were implemented in place of the policy of eradicating slums and squatter communities.

The Punjab Assembly approved the Punjab Land Acquisition Act of 1973. The new law gave public bodies in Punjab the authority to buy land from private owners for low-income homes at a set price of PKR 20,000 per acre.

In 1973, Awami Rehaishi Tahzeem, ART (Housing Organization of People) was founded in Lahore. The goal was to help the people living in squatter settlements make their lives better.

With the aid of the new Land Acquisition Act of 1973, the ART was able to negotiate a fair compensation package with the landowners of 26 officially recognized katchi abadis. Landowners were required to transfer land titles to inhabitants. The squatters were requested to pay ART the land cost and development fees. It is debatable to what degree the PPP government's programs were successful in providing low-income housing and regularizing and upgrading squatter communities [10][17].

The Katchi abadi (Squatter settlements) improvement initiative was a top emphasis during 1977-85. Squatters living in katchi abadis on government land with more than 100 homes were required to pay for all necessary upgrades when it was announced that they would be regularized in 1978. However, squatters on privately owned land were invited to begin talks with the land's legal owner, with the district administration serving as a mediator in the process. Local development bodies were given responsibility for implementing projects when federal funding for the katchi abadis regularization and enhancement program was cut. After the Land Acquisition Act of 1973 was abolished and replaced by the Land Acquisition Act of 1894 in Punjab province, the focus of the program shifted to one of cost-effectiveness. Under the new law, any land bought by a local government had to be paid for at the market rate [10].

In the fifth Five-Year Plan (1978-83), the housing sector was given the most attention. It was planned to give out 425,000 developed plots, with 75% going to people with low income, 20% to people with middle income, and 5% to people with high income. It was also intended that 1.33 million people residing in informal settlements (such as slums) would get better access to essential services. However, by the conclusion of the term, only 285,000 developed plots had been supplied and only 500,000 individuals had been given with the bare necessities.

The sixth Five Year Plan (1983-88) developed a five-point scheme and proposed that:

Low-income housing should be primarily the responsibility of the government.

In the public sector site and services projects, there should be the development of 500,000 small residential plots (between 60 and 150 square yards).

Low-income groups should be able to get building materials at fair prices.

Low-income families should be able to get loans to build homes.

House-building rules should be loosened so that poor people can build homes that meet their needs.

The federal Ministry of Housing and Works was tasked with developing a National Housing Policy in 1981. The draft report was presented to the government for final approval on January 18, 1982, however it was never legally approved [10].

To control and rehabilitate squatter communities, the government established katchi abadi directorates at the federal, provincial, and subsequently municipal levels. Lahore Development Authority (LDA) was given the task of carrying out the project under this arrangement. Some squatters' ART deposits were transferred to LDA. The Lahore Development Authority (LDA) identified 97 squatter communities, of which 85 were to be upgraded to their current site and the remaining 12 were to be relocated to resettlement zones. As set by the federal government, squatters paid Rs. 156 and Rs. 800 per marla (225 square feet) for land and development charges, respectively [10][34].

Junejo revoked General Zia's decision and said in March 1985 that katchi abadis on public property with at least 40 homes would be formally regularized. In addition, each of the 324 representatives in the National Assembly and each of the 506 representatives in the four Provincial Assemblies received five million and three million rupees, respectively, to use on infrastructure and housing projects in their districts [10]. In 1986, the government of Junejo decided to look at the National Housing Policy report made by the government of Zia. The Prime Minister sent the report back to the Federal Ministry of Housing and Works with some comments. The ministry was requested to update the report with the Prime Minister's Five Point Program in mind. The government received the updated report the same year, However, it was never legally authorized [10].

On August 13, 1987, a National Housing Authority was established in Pakistan to build affordable housing and carry out housing projects for 1.5 million people. It suggested 5 marla for urban and 7 marla plot size for low-income groups in rural areas. It was also responsible for preparing a collection of standard dwellings designs suited for various climatic areas. It was necessary to offer construction materials and approaches to maintain the house costs within the budget.

A trial initiative to provide 300,000 dwellings in 1987-88 was presented as a first step, however, only 35,000 were built. These plans looked like they were made in a bad way, with prices that were too high and not enough water, power, gas, etc. In the end, people had taken away the door and window frames and the bricks from the houses in case of Junejo's program [35]. Meanwhile, the seventh Five Year Plan (1988-96) was launched, and most of the aforementioned aims were included in the plan. General Zia disbanded the Junejo government in May 1988, and the implementation of Junejo's Five Year Programs was halted [10].

The government's encouragement of Cooperative Housing Societies in the 1980s and 1990s led to a boom in the number of site and service plots on the outskirts of cities. During their tenure, the Nawaz and Shahbaz Sharif governments also started Mera Ghar and Ashiana Housing. The previous years have seen Defence Housing Authority (DHA) and Bahria Town expand rapidly, much to the delight of their inhabitants. Due to the long commute to work and school, none of these housing developments saw significant population growth for more than twenty years.

Nawaz Sharif, the prime minister, declared the construction of 500,000 apartments for the poor in 2013. According to the Apna Ghar Scheme, the provinces had to give up the land for free, and in five years, the federal government needed to build 500,000 homes all throughout Pakistan. The plan was solely applicable to files [36].

Over the past many years, Pakistan's housing situation has been getting worse. Most of the policies that were announced e.g., NHP 1982, NHP 1986 including the 1992 Housing Policy, were neither legally authorized nor put into action. Pakistan's government developed

the National Housing Policy (NHP) in 2001 to indicate a list of important initiatives to tackle housing sector policies at institutional levels. The National Housing Policy (NHP) of 2001 is the only housing policy currently in effect [17]. The NHP's key recommendations included efficient resource allocation, light taxation, and subsidy as well as assistance for private developers and builders [37]. The focus of the government was on the basic needs of making the country a good place to live, as well as promoting and helping housing sector. The government's role was changed from being a provider to being a facilitator. The State Bank of Pakistan found that the Ministry of Housing, which was responsible, had not adequately implemented the National Housing Policy 2001 [17].

In Pakistan, a discussion of the federal government's housing policy framework reveals that no appropriate policy agenda has been embraced to focus on affordable housing issues; as a substitute, macro policy initiatives have been used to apply a surface level dressing to the problem. Those in the private sector emphasized the need for a proper housing policy and argued that citizens should have easy access to loans for housing, utilities, and infrastructure improvements in order to live a decent life [38].

There was an overall housing backlog of around 10 million housing units in Pakistan in 2019 [18]. The state government aimed to meet the target of 1million houses per annum: 400,000 per year for rural areas, 200,000 per year for social housing in Peri-Urban areas, and 400,000 per year for urban areas [18]. The housing strategy is supported by three pillars:

Increasing the availability of long-term loans for housing finance to improve access to mortgages.

Making available public land for immediate construction by developers

Housing developments are made easier by prompt approvals and the availability of utilities.

The NPHP is based on economic criteria just like the previous affordable housing programs in Pakistan (Table 1).

Table 1. Eligibility Criteria for Naya Pakistan Housing Finance

Income criteria	**Preferred monthly payment plan**
Less than 20,000	5000 – 10,000
20,000 – 40,000	10,001 - 15,000
40,001 – 60,000	15,001 – 20,000
60,001 – 80,000	Based on the people's preference/choice
Less than 100,000	

The Naya Pakistan Housing Project was established to provide affordable housing for the needy [18]. The Naya Pakistan Housing Project intended to accomplish two specific provisions: allocating public land for low-cost housing and promoting low-income housing financing [18][32]. Farrukh [32] argued that even though both provisions are said to have no negative effects on the housing market and will raise demand for homes, it is not apparent if they will actually provide housing for the most vulnerable members of society. The program sets ambitious targets based on income criteria, yet it lacks participation from the target group. As a result, it is challenging for low-income individuals to meet the criteria. Additionally, project delays due to political regime changes often occur, ultimately resulting in greater benefits for middle-income groups. In such circumstances, the policy to facilitate squatter settlers continues. Recently, the Sindh provincial cabinet has decided to amend the Sindh Katchi Abadis Act, extending the cut-off date for the regularisation of katchi abadis from June 30, 1997, to December 31, 2011. The amendment to the Sindh Katchi Abad Act, 1987, was approved to provide relief to the residents of these informal settlements. The extension addresses the urgent need to regularise katchi abadis established up until December 31, 2011 [38].

Most of the programs share similar policy factors and often end up benefiting middle- and higher-income groups except few. This demonstrates the persistence of path dependence in affordable housing delivery in Pakistan, where historical decisions and established patterns restrict future choices and limit the ability to undertake new initiatives. In the case of affordable housing provision, path dependencies such as past policies, eligibility criteria, and limited financial resources hinder the capacity to implement meaningful changes.

Material and Methods:

A comprehensive review of the literature was undertaken to explore the impact of path dependence on affordable housing delivery within developing countries. The study specifically focused on the affordable housing programs and delivery mechanisms in Pakistan, from historical practices to the current state, aiming to identify trends and patterns over time. Various sources of relevant literature, local reports and secondary data collected from practitioners in housing sector were analyzed to gain insights into how past decisions and policies have shaped the current affordable housing landscape in Pakistan. The literature review aimed to understand the role of historical developments in shaping present-day housing policies and to identify potential areas for improvement and innovation in affordable housing provision.

To examine the presence of path dependence statistically, a structured questionnaire was created, drawing from the study of Pakistan's affordable housing mechanism and insights gathered from a literature review. To ensure its reliability, a pilot survey was performed to assess the questionnaire's effectiveness and validity. Cronbach's Alpha was found 0.851, which demonstrated robust statistical significance. The questionnaire was distributed among practitioners in both the public and private housing sectors, as well as academia to get responses. Purposive sampling was used to obtain responses from field experts in the housing sector. Experts with a minimum of five years of experience were approached. The questionnaire was distributed using Google Forms, and additional outreach was conducted through telephone calls to encourage participation from relevant practitioners. Follow-up reminders were also sent via email to improve response rates. A total of 217 responses were received, out of which 200 were deemed valid and included in the final analysis for the study. The valid responses comprised 17% academics with over 8 years of experience, 20% public-sector professionals involved in current housing programs, and 63% private-sector experts with more than 5 years of industry experience. A sample of 200 is robust for PLS-SEM. According to the '10-times rule'[39], the sample should be ten times the maximum number of structural paths directed at a particular construct. In this study, the maximum is two paths, requiring a minimum of only 20-50 responses. Thus, n=200 provides high statistical power. Exploratory factor analysis (EFA) was conducted in SPSS to identify latent factors because the relationships among variables were not previously established. Three factors were chosen for further analysis, and a Structural Equation Model (SEM) was conducted using Smart PLS 4 (Table 3). SmartPLS 4 software was used to conduct SEM analysis. This software is particularly well-suited for Structural Equation Modeling (PLS-SEM), allowing researchers to assess the reliability and validity of latent constructs as well as the relationships between them [40][41] (Figure 1).

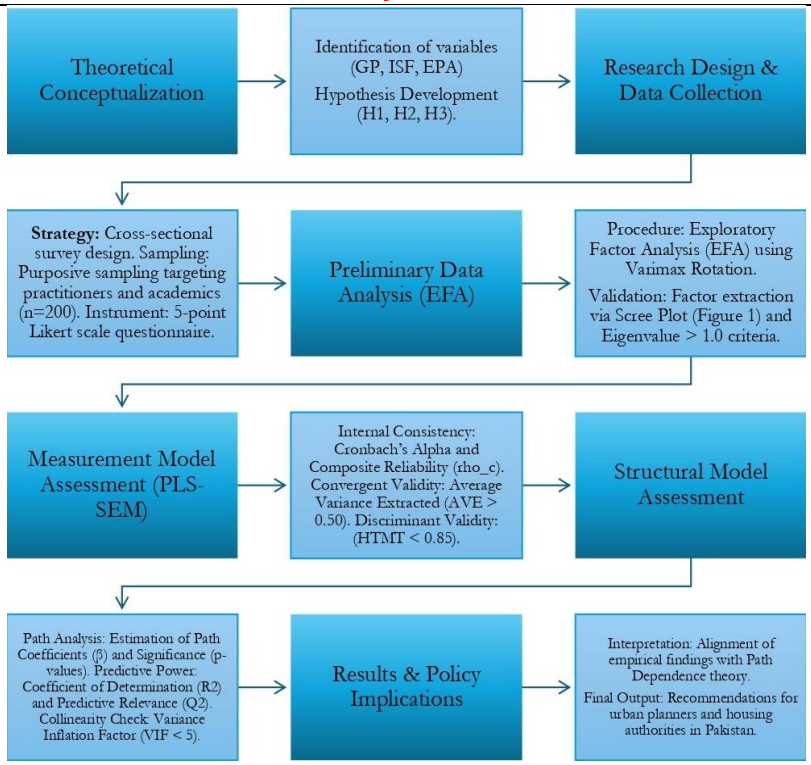

Figure 1. Methodological Flowchart of the research design and validation steps.

Operationalizing Path Dependence in Housing Delivery:

To move from an abstract theory to a measurable model, this study breaks the concept of "Path Dependence" into three distinct, observable phases within the Pakistani housing sector:

The Starting Point: Institutional Lock-in (Government Practices):

Path dependence begins with "critical junctures "specific historical moments where a policy direction is chosen [42]. Here, this is represented by Government Practices (GP). This construct captures how legacy decisions, such as the 2001 National Housing Policy and the volatility of political cycles, created a specific trajectory. These "Exogenous Drivers" effectively "lock in" the sector to a certain way of operating, making it difficult for future administrations to deviate from the established path.

Mechanism: Self-Reinforcing Behaviors (Institutional and Social Factors):

Once a path is set, it is maintained by "sticky" behaviors that make staying on the path easier than leaving it [43]. This study identifies these as Institutional and Social Factors (ISF). These are the daily realities on the ground such as the inconsistent enforcement of building regulations or a deeply rooted culture of low-rise development. These variables act as the reinforcing mechanism of the path, ensuring that administrative and social habits continue to align with historical precedents rather than modern needs.

The Result: Outcome Non-Ergodicity (End Product Attributes):

In a path- dependent system, the final result is often "non-ergodic," meaning the outcome is a direct consequence of the starting conditions rather than current market demands [44]. This is represented by End Product Attributes (EPA). By measuring the actual characteristics of delivered housing such as its sustainability and its accessibility for the poor. This allows us to statistically prove how the initial institutional lock-in dictates the success or failure of housing delivery today.

Based on the operationalization of path dependence theory within the context of Pakistan's housing sector, three core hypotheses are proposed to evaluate the structural relationships within the model:

Hypothesis 1 (H1): Historical government practices significantly and positively influence contemporary institutional and social factors in affordable housing delivery.
Hypothesis 2 (H2): Entrenched institutional and social factors significantly and positively influence the final end-product attributes of affordable housing.
Hypothesis 3 (H3): Historical government practices significantly and positively influence the final end-product attributes of affordable housing.

Results and Discussion:

KMO and Bartlett's test was run to check the sample appropriateness and suitability of data for factor analysis on SPSS. According to Goretzko, Pham [45] a high value of statistics from 0.5-1 signifies suitability of data for factor analysis and here in this case it is found 0.769 (Table 2).

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.769
Bartlett's Test of Sphericity	Approx. Chi-Square	229.858
	Df	91
	Sig.	.000

All the variables were checked against the amount of variance shared by each from the table of commonality and 7 variables were removed from the analysis as their values were less than 0.05. The factors having Eigen value more than 1 were selected for further study (figure 2). A total of 14 items are grouped into three factors which explain 62.6 percent of the total variance (Table 3).

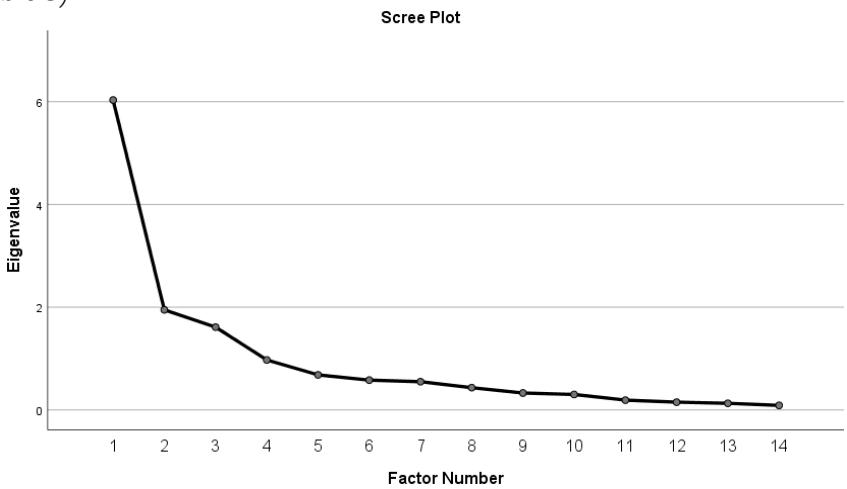

Figure 2. Scree Plot

Table 2. Rotated Factor Matrix

Variable names	Code	Items	Factor		
			1	2	3
Government Practices	GP1	National Housing Policy 2001 has presented multiple policy measures, however not operationalized in their true letter and spirit at federal and local level [14]	.817		
	GP2	The government consistently established idealistic benchmarks of affordable housing provision in the country, which are not met in true spirit. Derived from Alvi [10]	.755		

	GP3	In Pakistan, affordable housing projects are initiated as per the political agenda/will of ruling party. (Derived from Alvi [10]	.754		
	GP4	Majority of formal housing initiatives are out of the reach of the underprivileged [16]	.707		
	GP5	There is a need to explore the pattern of trade-offs low-income households made while making choices between housing and other needs. Derived from Shah, Mulliner [46]	.674		
	GP6	Inadequate access to land / sitting and construction of new affordable housing on the outskirts of town and cities due to inadequate land supply in cities [47].	.585		
	GP7	Most of the affordable housing projects suffered from policy discontinuation after the political transitions. Derived from Alvi [10]	.580		
End Product Attributes	EPA1	Affordable housing programs and policies are devised at federal level with no participation of low-income household. Derived from Alvi [10]		.778	
	EPA2	People with middle- and higher-income benefit from the provision of serviced plots primarily for low- income people [16]		.664	
	EPA3	Housing affordability and sustainability issues are not tackled together within the country [46]		.515	
	EPA4	For affordable housing delivery, social and cultural sustainability is much more important along with environmental sustainability [46]		.450	
Institutional and Social Factors	ISF1	Weak enforcement of land use and building regulations on property development [13]			.780
	ISF2	Variability in housing affordability among low-income households is unexplored. Derived from Shah, Mulliner [46]			.727
	ISF3	Low-rise housing development culture [48]			.640

Table 3. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
End Product Attributes	0.735	0.764	0.828	0.548
Govt Practices	0.893	0.929	0.916	0.614
Institutional Social Factors	0.769	0.978	0.848	0.654

Cronbach's alpha and composite reliability both go above 0.70, indicating strong internal consistency and reliability of the measurement items. Furthermore, since validity is

considered acceptable when above 0.50, the established validity reinforces the items' ability to evaluate the intended primary latent variables (Table 4) (Figure 3). Overall, these results confirm that the items converge to assess the latent constructs effectively, demonstrating the scale's consistency and robustness [40].

Table 4. R-square

End Product Attributes	0.521
Institutional Social Factors	0.25

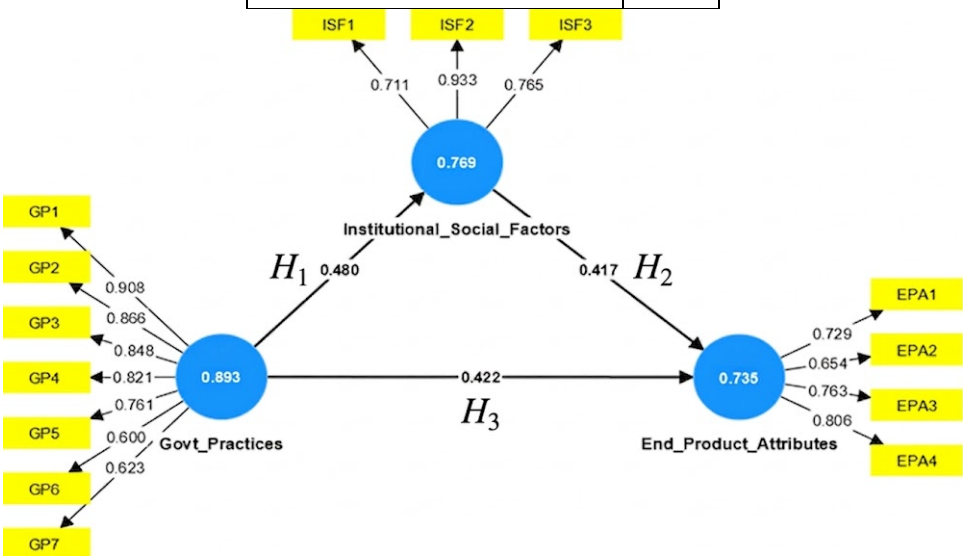

Figure 3. Graphic output of PLS-SEM

The R-square for EPA is above 0.5 which is moderate whereas for ISF it is 0.25 which is considered as weak [40]. [49] argued that R2 values for endogenous latent variables can be assessed as follows: 0.26 (strong association), 0.13 (moderate association), and 0.02 (weak association). The R-squared (R2) values in a regression model provide information on the proportion of variance in the dependent variable that is represented by the independent variables. The amount of variability in the dependent variable that can be explained by the independent variables is what defines how well the model fits the data.

The value of R-squared 0.521 means that around 52.1% of the variance in the End Product Attributes is described by Govt. Practices. The value of R-squared 0.25 signifies that around 25% of the variance in the dependent variable is described by the Institutional and Social Factors (Table 5). In social sciences, a low R-square is acceptable if the variable are statistically significant [50]. The 77% of the total variance in the End Product Attributes is explained by the independent variable in the model.

The structural model results provide a clear empirical answer to RQ1, demonstrating that historical Government Practices exert a strong and significant influence on the current Institutional and Social environment ($\beta = 0.48$, $p < 0.01$). This confirms the presence of 'path dependence,' where legacy policies—such as the non-operationalized 2001 National Housing Policy (GP1) have created an institutional lock-in characterized by weak regulation enforcement (ISF1) and a persistent low-rise development culture (ISF3). Furthermore, in response to RQ2, the study reveals that these institutional factors, combined with government practices, significantly dictate End Product Attributes ($\beta = 0.422$, $p < 0.05$). The model's ability to explain 52.1% ($R^2 = 0.521$) of the variance in housing outcomes suggests that the failure to deliver affordable units to the underprivileged (GP4) is not an isolated market failure. Rather, it is a structural consequence of a policy path that prioritizes middle- and higher-income serviced plots (EPA2) over inclusive, sustainable urban development (Figure 3).

Table 5. Collinearity Statistics (VIF)

EPA1	1.727
EPA2	1.537
EPA3	1.375
EPA4	1.392
GP1	3.652
GP2	2.807
GP3	2.964
GP4	2.33
GP5	1.933
GP6	1.469
GP7	1.659
ISF1	1.602
ISF2	1.616
ISF3	1.505

Table 7. Discriminant Validity- Heterotrait- Monotrait ratio (htmt)

	End Product Attributes	Govt Practices	Institutional Social Factors
End Product Attributes			
Govt Practices	0.684		
Institutional Social Factors	0.598	0.497	

Table 6. Model fit summary

	Saturated model	Estimated model
SRMR	0.134	0.134
d_ULS	1.873	1.873
d_G	0.808	0.808
Chi-square	114.33	114.33
NFI	0.597	0.597

To ensure the robustness of the structural model, we first examined the Variance Inflation Factor (VIF) to detect potential multicollinearity. As shown in Table 6, most VIF values remained well below the conservative threshold of 3. While the item GP1 exhibited a VIF of 3.652, it remains below the widely accepted maximum threshold of 5, indicating that multicollinearity does not compromise the structural estimations. Furthermore, discriminant validity was confirmed via the Heterotrait-Monotrait (HTMT) ratio (Table 7). All values remained below 0.85, proving that the constructs (Government Practices, Institutional Factors, and End Product Attributes) are statistically distinct [51]. Table 8 presents the model fit summary. The SRMR was found to be 0.134 and the NFI was 0.597. While these values deviate from the conservative thresholds (SRMR < 0.08; NFI > 0.90), it is important to note that absolute fit indices are often considered less critical in PLS-SEM compared to Covariance-Based SEM (CB-SEM), especially in exploratory studies involving complex social phenomena in developing nations [52]. Instead, the model's quality is primarily assessed through its predictive relevance. The results show an R2 of 0.521 for End Product Attributes, indicating a moderate-to-strong predictive power. This is further supported by a Q2 value greater than zero, which confirms the model's predictive relevance and its ability to accurately reconstruct the observed values within the path-dependency framework.

Table 7. Structural Model Path Coefficients and Hypotheses Testing

Path	Path Coefficient (β)	Stand Error	T-Statistics	P-value	Hypotheses Link	Decision
Govt. Practices ->Institutional Social Factors	0.480	0.051	9.412	0.000**	H1	Supported
Institutional Social Factors -> End Product Attributes	0.417	0.165	2.527	0.012*	H2	Supported
Govt. Practices -> End Product Attributes	0.422	0.198	2.131	0.033*	H3	Supported

** $p < 0.01$, * $p < 0.05$

The structural model and hypothesized relationships were evaluated using a bootstrapping procedure with 5,000 resamples to determine the statistical significance of the path coefficients. As summarized in Table 9 and visualized in the structural path diagram (figure 3), all three proposed hypotheses were empirically supported. The path corresponding to H1 revealed a strong, highly significant positive relationship between legacy Government Practices and contemporary Institutional Social Factors ($\beta = 0.480$, $t = 9.412$, $p < 0.001$), providing robust support for the institutional lock-in phase of path dependence. Similarly, H2, which evaluated the impact of institutional behaviors on End Product Attributes, was supported ($\beta = 0.417$, $t = 2.527$, $p = 0.012$), demonstrating how self-reinforcing administrative dynamics dictate final housing outcomes. Finally, the direct path from Government Practices to End Product Attributes (H3) was also statistically significant ($\beta = 0.422$, $t = 2.131$, $p = 0.033$), confirming that historical policy decisions leave a long-term, non-ergodic footprint on the delivery and accessibility of affordable housing.

Housing policy can be seen as the government's involvement in the housing market. Market mechanisms are the primary means of allocating housing, while government intervention serves as a way to address and correct issues within these mechanisms, establishing the necessary economic and institutional framework for them [53]. Path dependence analysis is comprised of three key components:

The critical juncture is a “point A” where one historic decision was taken over another (Figure 4).

The decision-making mechanisms at “point B", where the consequences of decision at “point A” become obvious, housing development is guided by deep-rooted institutional practices and approval systems, directly backing ISF variables (Figure 4).

The “point C” illustrate how an incident at “point A” proving how historical government interventions "locked in" certain outcomes and shaped low-income housing provision (Figure 4).

Figure 4 illustrates the framework for affordable housing provision in Pakistan. Housing policies are established and formulated at point B on political will based on the political agenda of the ruling party. Point B is a focus point where all the decisions are made. Point B is under the influence of point A, which is a critical juncture. Point A is the housing regime of a country which acts as a critical juncture. Future decisions and policies are made under the influence of past practices, where these policies and decisions are operationalized in all the institutions at all tiers. The figure also highlights a missing link at “point C” in devising housing policies and programs as a locked-in where the preferences and priorities of

households concerning the economic, social, cultural, and environmental factors of affordable housing delivery are not incorporated.

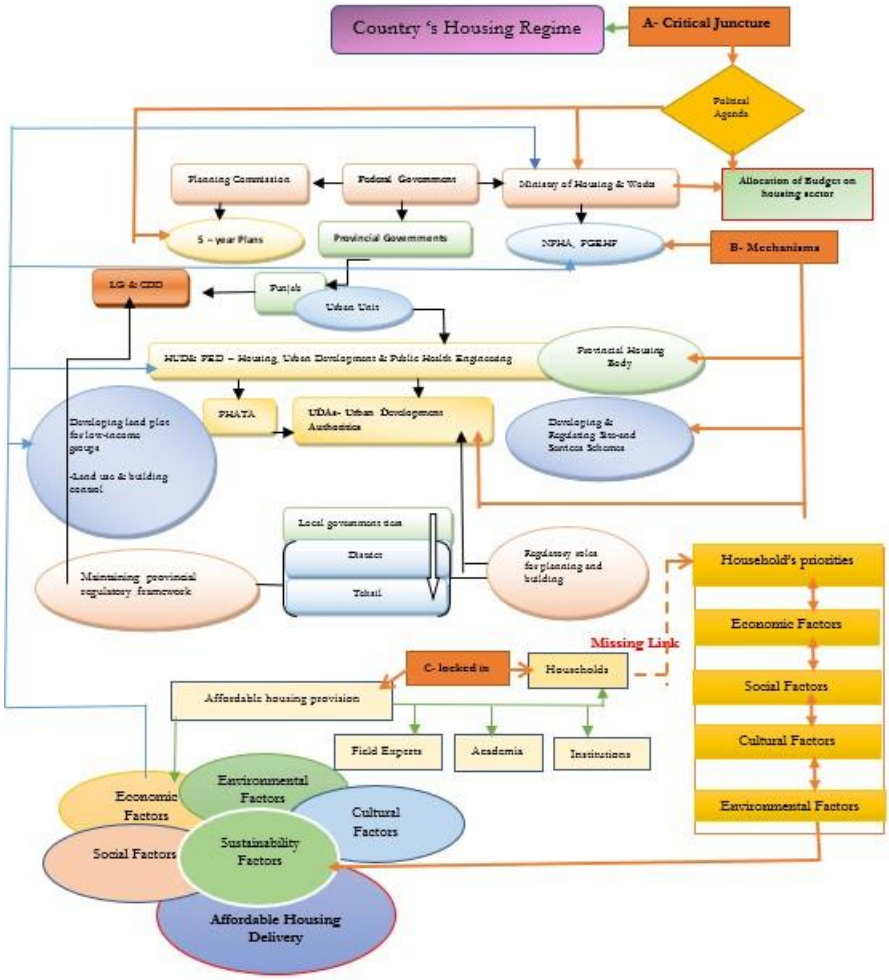

Figure 4. Path Dependence in Housing Sector of Pakistan
Source: Adopted from Malik, Roosli [15]

Housing is always a challenge for those who cannot afford it. The affordable housing policies and programs in Pakistan are being devised on political will, based on the agenda of ruling party. Most of the time, ambitious goals and targets were set, which could not be achieved or either remained a part of documentation only. Furthermore, as housing programs need time and in case of change in regime, the projects of proceeding government had never been taken over by the succeeding government [10][14].

Pakistan's National Housing Policy 2001 is nearly 26 years old and has never been implemented or updated since its inception [14]. The document presented multiple policy measures however not operationalized in their true letter and spirit at federal and local level. Furthermore, the policy is based on the 1998 census and statistics of 2001, and both have significantly changed by now. The country's current challenges, including environmental degradation and climate change in the region, are more diverse and adverse in character, necessitating the development of adaptive, inventive, and flexible policy measures to address the issue effectively.

Moreover, affordable housing programs are being devised under the influence of conventional approaches i.e. based on economics factors only while ignoring environmental, social and cultural factors (Figure 4). Because of this, the sustainability factors of affordable

housing are being compromised thus the ultimate goals cannot be achieved. For affordable housing programs, the state government collaborated with academia, field experts, financial institutions, private developers and had undertaken conventional approaches to respond to the alarming shortage of housing. However, in developing the affordable housing delivery mechanism, households (end-users) were not taken into the loop. Furthermore, the households living in metropolitan, intermediate, and small cities have varying affordability towards housing and subjective perceptions as well as the needs of sustainable affordable housing. The amount of loan they can get is far less than the market price of plots or houses. Moreover, only a relatively upper middle-income group was able to afford this loan under the terms and conditions of NPHP, 2019.

The most significant obstacle to offering housing for urban residents with limited means is the issue of affordability. They are unable to afford even the most fundamental housing units constructed by either public or private entities [32][11]. False priorities lead to financial constraints and the gap between the demand and supply of housing units is widening [54]. Most of the funds and other limited resources were spent on a number of housing policies. However, they had no effect on the country's massive scope of the problem. Due to the high cost of housing, homeowners sell their properties to investors and utilize the proceeds to meet other urgent requirements [55]. Entirety housing plans and programs that needed community involvement turned out to be costly and at odds with the residents' needs, interests, and desires. The urban poor require fast access to shelter. A ten-year lag is required for the building of affordable housing plans. Individuals living in urban poverty cannot afford to have their funds tied up for an extended duration. This time gap, however, benefits speculators who are able to increase their return on investment.

Effective implementation in true letter and spirit is much more important than just passing new laws and regulations. It necessitates adjustments to incentives, targeted subsidies, institutions, and behaviors. Since gaining independence in 1947, housing initiatives in the country have been characterized by a patchwork of short-term programs and impromptu decisions, often driven by political motivations (figure 1). To bring about meaningful changes in the affordable housing sector, the government must demonstrate unwavering determination and a resolute commitment to enforce relevant laws and policies.

To create low-cost housing, many affordable housing projects are situated on the city outskirts, compromising on essential amenities and infrastructure [56]. As a result, residents face challenges in accessing job opportunities, affordable education, healthcare facilities, and fulfilling their social and cultural needs. The daily commute and additional expenses make this seemingly affordable housing option financially burdensome in the long run. Low-rise housing development makes it impossible to offer low-income housing in city centers, where households can make trade-offs and prioritize their needs beyond just housing. Because of all these factors, most of low-income housing projects end up with the middle and high-middle income groups to get housing.

Path dependence theory is useful for model-supported problem solving and decision-making because it offers recommendations on how to modify policy by assisting in the understanding of barriers to change. Change is hard because governments and institutions are entrenched in their respective paths. Increasing understanding of path dependence and its effects is crucial for problem resolution, particularly in situations of high uncertainty. Such understanding may also result in an openness to new options and a critical assessment of current procedures in housing sector [57].

Conclusion:

Path dependence has a significant impact on housing sector of Pakistan. Being aware of possible path dependence and its causes is the first step toward change. It can help decision-makers comprehend how to lead housing transformation. This highlights how past decisions

impact the current and future methods of delivering housing, emphasizing the importance of considering historical patterns in urban planning for sustainable housing solutions. The 77% of the total variance in the End Product Attributes is explained by the government practices of providing affordable housing and institutional and social factors in the model. In Pakistan, private developers have a significant role in housing delivery, since 23% of variance is explained by other variables, mainly private developers. Private developers provide at least 20 percent of the total residential area for apartments or small plots for low-income groups as per the Punjab Private Housing Schemes Rules, 2022. These are eventually occupied by the middle- and high-income groups. Low-income individuals struggle to afford housing due to limited resources. They typically buy land on the city outskirts and build incrementally; however, such location only briefly meets affordability criteria. Commuting to work and essential services raise living costs, eroding affordability. Expensive private housing schemes limit options for low-income groups.

The results indicate a direct correlation between government practices and the broader affordable housing delivery in Pakistan, a connection that is shaped by both institutional and social influences. Additionally, this research emphasizes how institutional and social factors act as mediators, tempering the effects of government-led housing strategies on project implementation. This underscores the substantial role of path dependence in shaping affordable housing policies and programs, as governmental bodies and institutions persist in their established courses of action. As [58] revealed that, in comparison to previous development plans, the housing segment obtained the smallest percentage of the total development financial plan in the subsequent plans. There was also a shift in priority from the provision of affordable housing to the provision of infrastructure. According to [59] "governments' lack of political will and commitment" is the primary cause for public institutions' weak performance in the housing markets.

In order to secure enduring affordability in low-income housing programs, developing nations should adopt both long-term and short-term strategies, while introducing innovative steps at critical junctures. This research has carefully studied how past trends influenced the current situation in Pakistan and found out important factors to bring innovative changes including the variability in housing affordability among low-income households and subjectivity of target group while making choices. By attentively engaging with low-income households, urban planners can harness the trade-off dynamics between housing and other essential needs, leveraging them as assets in the creation of affordable housing delivery solutions. This research has delved into the fundamental elements that give rise to the phenomenon of path dependence within Pakistan's housing mechanism. This has been achieved by pinpointing obstacles that hinder the introduction of innovation in low-income housing policy and programs.

Furthermore, in the context of a developing nation such as Pakistan, the formulation of housing policies at the local level, strategic placement of residential communities to ensure easy access to employment opportunities, educational institutions, and healthcare services, as well as the analysis of affordability disparities between cities, all play pivotal roles. Neglecting these crucial factors could result in the unsuccessful execution of affordable housing projects.

Policy Implications:

The empirical validation of this path-dependent framework offers direct, actionable insights for changing how affordable housing is planned and delivered. Because the data shows a powerful link between government practices and current institutional environments (β= 0.480), simply launching new, short-term housing schemes under changing political regimes will not fix the underlying systemic failures. Instead, policymakers must focus on structural modification. For urban planners, shifting away from top-down methods is essential to addressing the framework's "Missing Link" (see Figure 4). Traditional planning in Pakistan has

historically relied on the arbitrary allocation of serviced plots at city outskirts, ignoring how low-income families actually prioritize and trade off housing costs against basic daily needs like healthcare, schooling, and commuting. Planners need to adopt community-led, bottom-up diagnostic tools during the earliest design phases. Finally, housing authorities must actively take down the path-dependent culture of low-density, low-rise urban sprawl, which chokes land supply and artificially drives up property prices. Practically, this means shifting toward high-density, vertically integrated, and mixed-use developments. At the same time, regulatory enforcement must be tightened on the ground to prevent the commercial encroachment or middle-income capture of land parcels explicitly set aside for vulnerable, low-income segments.

Future Research Directions:

There is a need to explore the variability in housing affordability among households living in large, intermediate, and small cities of Punjab. Further, it is still to be determined how low-income households make trade-offs among housing and non-housing need. In this regard, it would also be pertinent to determine possible contribution/relative weightage of each of the trade-off factors in providing sustainable yet affordable housing. This research proves the significance of these factors in providing affordable housing delivery which also ensures the social, cultural, and environmental sustainability of cities.

Acknowledgement:

This study is a component of my doctoral research titled "Assessing Affordable housing delivery of the Low-Income People in Punjab, Pakistan." Gratitude is extended to my supervisor and members of advisory committee for their invaluable guidance and to the experts who participated in interviews, sharing their valuable insights.

Author's Contribution:

Saima Rafique and Dr. Obaidullah Nadeem jointly contributed to the conceptualization, methodology, validation, investigation, and review/editing of the manuscript. Saima Rafique was responsible for formal analysis, data collection, and original draft preparation. Dr. Obaidullah Nadeem contributed to conceptualization, technical review/corrections and provided overall supervision and guidance throughout the research. All authors have read and approved the final manuscript.

Conflict of Interest: No potential conflict of interest was reported by the authors.

Funding: This research has no funding.

References:

[1] M. Helble, K. Ok Lee, and M. A. Gia Arbo, "How (Un)affordable is housing in developing Asia?," *Int. J. Urban Sci.*, vol. 25, no. S1, pp. 80–110, 2021, doi: 10.1080/12265934.2020.1810104.

[2] G. Galster and K. O. Lee, "Housing affordability: a framing, synthesis of research and policy, and future directions," *Int. J. Urban Sci.*, vol. 25, no. S1, pp. 7–58, 2021, doi: 10.1080/12265934.2020.1713864.

[3] Amy Soon; Consilz Tan, "An analysis on housing affordability in Malaysian housing markets and the home buyers' preference," *Int. J. Hous. Mark. Anal.*, vol. 13, no. 3, pp. 375–392, 2020, doi: https://doi.org/10.1108/IJHMA-01-2019-0009.

[4] "The Importance Of Affordable Housing In Terms Of Its Definition, Changing Image And Reframing In Society." Accessed: May 19, 2026. [Online]. Available: https://www.researchgate.net/publication/388940706_THE_IMPORTANCE_OF_AFFORDABLE_HOUSING_IN_TERMS_OF_ITS_DEFINITION_CHANGING_IMAGE_AND_REFRAMING_IN_SOCIETY

[5] K. Heylen, "Measuring housing affordability. A case study of Flanders on the link between objective and subjective indicators," *Hous. Stud.*, vol. 38, no. 4, pp. 552–568, 2023, doi: 10.1080/02673037.2021.1893280.

[6] M. Lux and P. Sunega, "Using path dependence theory to explain housing regime change: The traps of super-homeownership," *Crit. Hous. Anal.*, vol. 7, no. 1, pp. 25–35, 2020, doi: 10.13060/23362839.2020.7.1.501.

[7] A. S. Grønseth, K. Denizou, S. E. Glomdal, and S. Å. K. Johnsen, "Housing Qualities, Spaces and Dispositions for Low-Income Families: Effects on Experiences of Wellbeing, Home and Belonging.," *Stud. Health Technol. Inform.*, vol. 319, pp. 472–484, Nov. 2024, doi: 10.3233/SHTI240965.

[8] C. Murray and D. Clapham, "Housing policies in Argentina under President Macri (2015–2019): a divided nation perpetuating path dependency," *Int. J. Hous. Policy*, vol. 20, no. 4, pp. 491–512, Oct. 2020, doi: 10.1080/19491247.2020.1775929.

[9] "An assessment of Pakistan's urban policies 1947-1997 - PubMed." Accessed: May 11, 2026. [Online]. Available: https://pubmed.ncbi.nlm.nih.gov/12294610/

[10] I. Alvi, "The Informal Sector In Urban Economy : Low Income Housing in Lahore," 1997.

[11] "Role of Private Sector in Providing Affordable Housing in Lahore - ProQuest." Accessed: May 11, 2026. [Online]. Available: https://www.proquest.com/openview/76e0ded61bc94d9848c96e13b6e77025/1?pq-origsite=gscholar&cbl=2032486

[12] "Pakistan: the causes and repercussions of the housing crisis | IIED Publications Library." Accessed: May 11, 2026. [Online]. Available: https://www.iied.org/10864iied?gad_source=1&gad_campaignid=218994421&gbraid=0AAAADnD0aPleFEYG-_at5CRulopP0cP3&gclid=Cj0KCQjw_IXQBhCkARIsADqELbIYOz0Bik6mOQoJ_pWLghOLjIseatlWO3tL56ZvgA9uBh-mAmJgoDQaAhEqEALw_wcB

[13] S. Malik, R. Roosli, and F. Tariq, "Investigation of informal housing challenges and issues: experiences from slum and squatter of Lahore," *J. Hous. Built Environ.*, vol. 35, no. 1, pp. 143–170, Mar. 2020, doi: 10.1007/S10901-019-09669-9.

[14] "(PDF) Appraisal of National Housing Policy-A Case of Pakistan." Accessed: May 11, 2026. [Online]. Available: https://www.researchgate.net/publication/328912789_Appraisal_of_National_Housing_Policy-A_Case_of_Pakistan

[15] S. Malik, R. Roosli, F. Tariq, and N. Yusof, "Policy Framework and Institutional Arrangements: Case of Affordable Housing Delivery for Low-Income Groups in Punjab, Pakistan," *Hous. Policy Debate*, vol. 30, no. 2, pp. 243–268, Mar. 2020, doi: 10.1080/10511482.2019.1681018.

[16] "Access to Khuda Ki Basti Housing | PDF | Economies." Accessed: May 11, 2026. [Online]. Available: https://www.scribd.com/document/703128047/Access-of-Low-Income-People-to-Housing-KKB-Lahore

[17] Azra Jabeen, Huang Xi Sheng, "Housing Crises in Pakistan: Review of Population Growth and Deficiencies in Housing Laws and Policies," *Int. J. Sci. Basic Appl. Res.*, vol. 24, no. 3, 2015, [Online]. Available: https://www.gssrr.org/index.php/JournalOfBasicAndApplied/article/view/4632

[18] "Mera Pakistan Mera Ghar." Accessed: May 19, 2026. [Online]. Available: https://www.sbp.org.pk/MPMG/index.html

[19] Arnaldo Camuffo, Alfonso Gambardella, "A theory based analysis of path dependence," *Econ. Innov. New Technol.*, 2024, [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/10438599.2025.2584207

[20] Emma Mulliner, Kieran Smallbone, "An assessment of sustainable housing affordability using a multiple criteria decision making method," *Omega*, vol. 41, no. 2, pp. 270–279, 2013, [Online]. Available:

https://www.sciencedirect.com/science/article/abs/pii/S0305048312000928
[21] B. Bo and H. Ruonavaara, "Introduction to the Special Issue: Path Dependence in Housing," *Housing, Theory Soc.*, vol. 27, no. 3, pp. 193–203, 2010, doi: 10.1080/14036090903326411.
[22] "Path-Dependence - an overview | ScienceDirect Topics." Accessed: May 11, 2026. [Online]. Available: https://www.sciencedirect.com/topics/social-sciences/path-dependence
[23] Jean-Philippe Vergne, Rodolphe Durand, "The Missing Link Between the Theory and Empirics of Path Dependence: Conceptual Clarification, Testability Issue, and Methodological Implications," *J. Manag. Stud.*, 2010, [Online]. Available: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1467-6486.2009.00913.x
[24] Y. C. Heo, "The Development of Housing Policy in Singapore and the Sources of Path Dependence," *Housing, Theory Soc.*, vol. 31, no. 4, pp. 429–446, Oct. 2014, doi: 10.1080/14036096.2014.915882.
[25] P. Malpass, "Path Dependence and the Measurement of Change in Housing Policy," *Housing, Theory Soc.*, vol. 28, no. 4, pp. 305–319, Dec. 2011, doi: 10.1080/14036096.2011.554852.
[26] Mirjam Schindler, Rita Dionisio, "A framework to assess impacts of path dependence on urban planning outcomes, induced through the use of decision-support tools," *Cities*, vol. 115, p. 103256, 2021, [Online]. Available: https://www.sciencedirect.com/science/article/abs/pii/S0264275121001566
[27] U. Sengupta, "State-led housing development in Brazil and India: a machinery for enabling strategy?," *Int. J. Hous. Policy*, vol. 19, no. 4, pp. 509–535, Oct. 2019, doi: 10.1080/19491247.2018.1510076.
[28] K. M. Stiphany and P. M. Ward, "Autogestão in an era of mass social housing: the case of Brazil's Minha Casa Minha Vida-Entidades Programme," *Int. J. Hous. Policy*, vol. 19, no. 3, pp. 311–336, 2019, doi: 10.1080/19491247.2018.1540739.
[29] Camila Cardoso Leite, Mariana Giannotti, "Social housing and accessibility in Brazil's unequal cities," *Habitat Int.*, vol. 127, 2022, [Online]. Available: https://www.sciencedirect.com/science/article/abs/pii/S0197397522001254
[30] Yahaya Ahmed, "The Affordable Housing in Nigeria using Critical Success Factors of Public Private Partnership," *Asia Proc. Soc. Sci.*, vol. 4, no. 1, pp. 74–77, 2019, doi: 10.31580/apss.v4i1.593.
[31] "Sovereignty, Governmentality and Development in Ayub's Pakistan: the Case of Korangi Township on JSTOR." Accessed: May 11, 2026. [Online]. Available: https://www.jstor.org/stable/25835670
[32] Musirah Farrukh, "The Naya Pakistan Housing Policy: An Economic Analysis," *Policy Perspect.*, vol. 28, 2021, [Online]. Available: https://journal.policy-perspectives.org/articles/volume_28/10_4079_pp_v28i0_3.html
[33] "Radical Resistance Or Active Agency - The Case Of Korangi Town." Accessed: May 11, 2026. [Online]. Available: https://www.researchgate.net/publication/365368425_RADICAL_RESISTANCE_OR_ACTIVE_AGENCY_-_THE_CASE_OF_KORANGI_TOWN
[34] "Urban development in the Third World : internal dynamics of Lahore, Pakistan : Qadeer, Mohammad A. : Free Download, Borrow, and Streaming : Internet Archive." Accessed: May 11, 2026. [Online]. Available: https://archive.org/details/urbandevelopment0000qade
[35] "Aashiana Housing Project (AHP) – CPPG." Accessed: May 11, 2026. [Online]. Available: https://cppg.fccollege.edu.pk/publications/aashiana-housing-project-ahp/
[36] N. Javed, R. Hasan, and N. N. Qureshi, "Developing a National Urban Policy: A

Case Study of Pakistan: From Messy and Hidden Urbanisation to Smart and Green Cities," *Dev. Natl. Urban Policies Ways Forw. to Green Smart Cities*, pp. 121–146, Jan. 2020, doi: 10.1007/978-981-15-3738-7_5.

[37] "ABAD International Expo on housing to kick off on Friday - Profit by Pakistan Today." Accessed: May 11, 2026. [Online]. Available: https://profit.pakistantoday.com.pk/2018/05/03/abad-international-expo-on-housing-to-kick-off-on-friday/

[38] "Cabinet decides to regularise Sindh's katchi abadis formed from 1997 to 2011 - Pakistan - DAWN.COM." Accessed: May 11, 2026. [Online]. Available: https://www.dawn.com/news/1685156

[39] Joe F. Hair, Christian M. Ringle, "PLS-SEM: Indeed a Silver Bullet," *J. Mark. Theory Pract.*, vol. 19, no. 2, 2011, [Online]. Available: https://www.tandfonline.com/doi/abs/10.2753/MTP1069-6679190202

[40] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *Eur. Bus. Rev.*, vol. 31, no. 1, pp. 2–24, Jan. 2019, doi: 10.1108/EBR-11-2018-0203/FULL/XML.

[41] "(PDF) Relationship of big data analytics capability and product innovation performance using smartPLS 3.2.6: Hierarchical component modelling in PLS-SEM." Accessed: May 11, 2026. [Online]. Available: https://www.researchgate.net/publication/323704613_Relationship_of_big_data_analytics_capability_and_product_innovation_performance_using_smartPLS_326_Hierarchical_component_modelling_in_PLS-SEM

[42] A. Sorensen, "Urbanization and developmental pathways: Critical junctures of urban transition," *Handb. Megacities Megacity-Regions*, pp. 47–64, Jan. 2020, doi: 10.4337/9781788972703.00009.

[43] M. Manville and P. Monkkonen, "Unwanted Housing: Localism and Politics of Housing Development," *Planning, Pract. Res.*, vol. 44, no. 2, pp. 685–700, Jun. 2024, doi: 10.1177/0739456X21997903.

[44] Anita Vitriana, Sara Özogul, "The historical development of public housing in Indonesia: a path dependence analysis," *Int. J. Hous. Policy*, vol. 26, no. 1, 2026, [Online]. Available: https://www.tandfonline.com/doi/full/10.1080/19491247.2025.2482233

[45] D. Goretzko, T. T. H. Pham, and M. Bühner, "Exploratory factor analysis: Current use, methodological developments and recommendations for good practice," *Curr. Psychol. 2019 407*, vol. 40, no. 7, pp. 3510–3521, May 2019, doi: 10.1007/S12144-019-00300-2.

[46] "Critical Success Factors For Affordable Housing: Evidence From Lower-Middle Income And High-Income Economies." Accessed: May 19, 2026. [Online]. Available: https://www.researchgate.net/publication/362020789_CRITICAL_SUCCESS_FACTORS_FOR_AFFORDABLE_HOUSING_EVIDENCE_FROM_LOWER-MIDDLE_INCOME_AND_HIGH-INCOME_ECONOMIES

[47] "Regulating Private Housing Schemes In Punjab, Pakistan: Practical Implications And Remedies - ProQuest." Accessed: May 19, 2026. [Online]. Available: https://www.proquest.com/openview/743b91cbb995946fa672ca464645888f/1?pq-origsite=gscholar&cbl=1616340

[48] Sana Malik, "Exploring resource-wise stakeholder engagements for low-income housing development in urban Punjab, Pakistan," *J. Urban Manag.*, vol. 13, no. 2, pp. 201–216, 2024, doi: https://doi.org/10.1016/j.jum.2024.01.002.

[49] Arielle S. Selya, Jennifer S. Rose, "A Practical Guide to Calculating Cohen's f2, a Measure of Local Effect Size, from PROC MIXED," *Front. Psychol.*, vol. 3, 2012, doi:

https://doi.org/10.3389/fpsyg.2012.00111.
[50] P. K. Ozili, "The Acceptable R-Square in Empirical Modelling for Social Science Research," *SSRN Electron. J.*, Jun. 2022, doi: 10.2139/SSRN.4128165.
[51] "(PDF) Discriminant validity assessment in PLS-SEM: A comprehensive composite-based approach." Accessed: May 19, 2026. [Online]. Available: https://www.researchgate.net/publication/356961783_Discriminant_validity_assessment_in_PLS-SEM_A_comprehensive_composite-based_approach
[52] J. F. Hair, G. T. M. Hult, C. M. Ringle, M. Sarstedt, N. P. Danks, and S. Ray, "Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R," 2021, doi: 10.1007/978-3-030-80519-7.
[53] B. Bengtsson, "Housing as a social right: Implications for welfare state theory," *Scan. Polit. Stud.*, vol. 24, no. 4, pp. 255–275, Dec. 2001, doi: 10.1111/1467-9477.00056;PAGE:STRING:ARTICLE/CHAPTER.
[54] Ayaz Ahmed, "Housing Demand In Urban Areas of Pakistan," *Dep. Econ. PAKISTAN Inst. Dev. Econ. Islam.*, 2015, [Online]. Available: https://file.pide.org.pk/pdf/thesis/phd-economics-2000-ayazahmad--housing-demands-in-urban-areas-of-pakistan.pdf
[55] "Affordable housing – Pakistan Banks Association." Accessed: May 19, 2026. [Online]. Available: https://pakistanbanks.org.pk/service/affordable-housing/
[56] ASAD JALAL SINDHU, "Development Of Affordable Housing Framework For Low-Income Households In Pakistan," 2019, [Online]. Available: https://www.acash.org.pk/storage/topics/documents/Pakistan-Final-Draft_with-Appendices_Submitted_PDF_08-Nov-2019_compressed.pdf
[57] Raimo P. Hämäläinen, Tuomas J. Lahtinen, "Path dependence in Operational Research—How the modeling process can influence the results," *Oper. Res. Perspect.*, vol. 3, pp. 14–20, 2016, doi: https://doi.org/10.1016/j.orp.2016.03.001.
[58] "National Housing Policy 2025," *Gov. Pakistan Minist. Hous. Work.*, 2025, [Online]. Available: https://mohw.gov.pk/SiteImage/Misc/files/NATIONAL HOUSING POLICY 2025.pdf
[59] "Chukwujekwu, I.E. 'Facilitating low cost housing scheme: Which way forward in housing today'. *Journal of the Association of Housing Corporation of Nigeria*, 1(10): 0331-9598.2006." Accessed: May 19, 2026. [Online]. Available: https://www.sciepub.com/reference/126718