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The Role of Domestic Space in The Home Culinary Industry as Part of a Sustainable Environmental System

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ABSTRACT

Two years after the economic downturn caused by the COVID-19 pandemic, Indonesia has experienced economic recovery, particularly through home-based industries in suburban areas. This study explores how domestic space in home-based culinary industries transforms into a broader environmental system encompassing rural, suburban, and urban areas. This research focuses on home-based culinary businesses run by women in Siroto, Pudukpayung, Semarang, which have successfully transformed into a culinary village and post-pandemic economic hub. The study highlights the connection between domestic space, local production, and public space, where rural areas serve as food sources and urban areas as consumer markets. Using qualitative methods such as mapping, clustering, and observation, this study aims to provide architectural insights into home-based production. The findings serve as a reference for policymakers in designing spatial planning that supports sustainable rural-urban linkages. This research also emphasizes the importance of a multidisciplinary approach in housing and settlement architecture, integrating housing design, urban design, urban planning, and urban policy.

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1. INTRODUCTION

1.1. Research Background

The COVID-19 pandemic, which lasted for two years, brought significant changes to various aspects of life, including household dynamics. Restrictions on social and economic activities prompted individuals to seek innovative ways to generate income under these challenging conditions (Francesco, 2022). One of the most noticeable impacts has been the rise in household economic activity. As the smallest social unit, the family has had to adapt to the pandemic situation. The COVID-19 pandemic triggered various social changes, both within society and within the family itself. To address these challenges, strong family resilience is essential for adapting to the resulting social transformations. Many heads of households experienced layoffs, leading housewives to seek additional sources of income. Research by Yanto (2021) indicates that the income generated by housewives through side businesses significantly contributes to overall family income. In addition to earning money, housewives also manage time-intensive responsibilities such as household chores, child care, and education. Several studies have highlighted the crucial role mothers play in maintaining family health, particularly in shaping family habits and determining types and patterns of consumption (Goodwin et al., 2005).

This phenomenon gave rise to a new trend: the emergence of home businesses that flourished during the pandemic. With limited mobility and increasing needs, home-based enterprises became an attractive alternative for individuals striving to sustain their livelihoods. One such example is the concept of the home business in the form of a traditional snack or food production house (Konsep Usaha Rumah), which developed in the residential area of Kampung Siroto, RW VII Pudukpayung Village, Banyumanik District, Semarang City. These businesses involve the production of traditional foods conducted in domestic kitchens. In this context, the domestic environment is understood as the space where daily personal and household activities occur. Architectural research on such phenomena remains limited in Indonesia.

Therefore, research aimed at exploring the use and understanding of residential production spaces within the domestic environment—particularly those managed by housewives—is necessary. It is important to recognize that working women in developing countries are often marginalized; however, their situation can be improved through entrepreneurship (Massey, 1994).

This study observes how housewives, taking on the role traditionally held by the head of the household, act as entrepreneurs by running traditional food production businesses within domestic spaces in residential villages. In line with this, the study also explores the potential of these activities to expand the architectural understanding of spatial quality. It examines the relationship between residential and production activities, as well as the spatial transitions from private to public space, as a basis for understanding the quality of public space within domestic environments.

In addition, this study will examine the relationship within the production process chain on a broader spatial scale—specifically at the urban–rural regional level—based on three research locations: (1) residential production houses in Kampung Siroto, located in a suburban area; (2) the source of basic materials and raw food at Ungaran Market, situated in a rural area; and (3) marketing and consumer centers, including restaurants, cafeterias, and office canteens in Semarang City, representing an urban area.

As Pallasmaa (2024) explains, architectural experience is fundamentally multi-sensory and simultaneous, often perceived as a complex entity referred to as atmosphere, ambiance, or feeling. The quality of a space can be understood as the atmosphere perceived by its users,

which is not limited to physical architectural elements. Elements such as water, shadow, light, and other non-physical components contribute to this atmosphere (Zumthor, 2006). Thus, spatial quality extends beyond what is visible to how it is experienced and understood by users. The theory of domestic space in architecture emphasizes how living environments influence social interaction, identity, and occupant well-being. Domestic space encompasses both functional and emotional dimensions, creating a setting that supports daily activities. Its design considers privacy, comfort, and the connection between individuals and their environment. Moreover, domestic space reflects cultural values and shapes how individuals interact and develop a sense of belonging. Therefore, domestic space is not merely physical but also a site where experiences and social relationships are formed. Consequently, spatial quality should no longer be viewed as something universally defined or static. Instead, its ability to adapt to specific conditions is increasingly relevant in contemporary architectural discourse.

The role of housewives in stepping up to become breadwinners within the domestic environment represents an extraordinary initiative. What may have initially been a temporary measure taken in a difficult situation—out of necessity to support their families—has, in many cases, evolved into entrepreneurship. As is often observed, working women in developing countries are largely marginalized; however, their situations can be improved through entrepreneurial opportunities (Carranza, 2018).

Entrepreneurial orientation, which begins with entrepreneurial intention, along with the moderating and direct effects of demographic profiles, has strong potential to serve as a basis for developing a predictive model for prospective female entrepreneurs in rural and suburban areas.

1.2. Research Objectives

- To examine the relationship between spatial quality and atmosphere as the basis for the formation of production spaces within the domestic environment.
- To analyze the role of housewives as home-based entrepreneurs engaged in traditional culinary production activities.
- To investigate the traditional food production chain from upstream to downstream, spanning rural, suburban, and urban areas.

1.3. Problem Statement

There is a need to investigate the relationship between the quality and atmosphere of private–public space as a basis for the formation of production spaces within domestic dwellings, particularly those managed by housewives who sustain the traditional food production chain from upstream to downstream across rural, suburban, and urban areas.

1.4. Research Framework

The research framework explores the role of domestic space in the home-based culinary industry as part of a sustainable environmental system. Efficient spatial use can support environmentally friendly production by reducing waste and minimizing the carbon footprint. Key factors in this industry include spatial design, access to local raw materials, and awareness of sustainability principles.

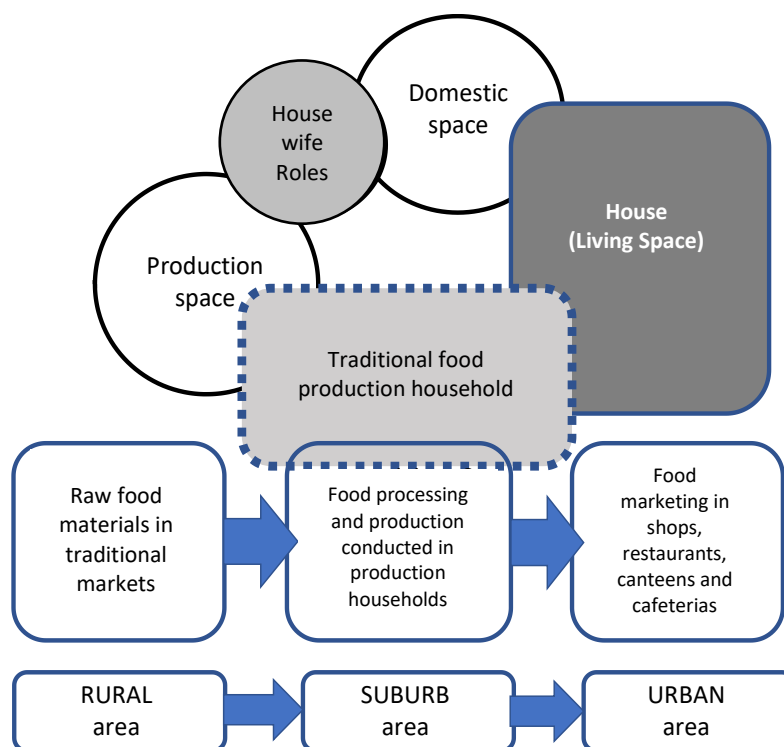


Figure 1. Research Framework Diagram
(Source: Author, 2024)

2. LITERATURE REVIEW

According to Smith (1971), the arrangement of space within a dwelling can reflect the function of each area for its occupants. Both function and space convey meaning—directly and indirectly, from the explicit to the implicit. This meaning is shaped by environmental elements that are fixed, semi-fixed, and non-fixed (Coolen & Ozaki, 2004; Rapoport, 2005). Architecture not only defines boundaries but also reflects interactions and access between occupants through non-fixed elements.

2.1. Social Change

According to Soekanto (2002), social change is a phenomenon that occurs within society on both micro and macro scales. The causes of social change include shifts in geographical conditions, material culture, population composition, ideology, and the diffusion of new discoveries within society. Social change can result from both internal and external factors, which emphasize cultural and structural aspects whose transformations impact social life (Damastuti, 2021). Sztömpka (2017) states that there are three key ideas that define social change: differences that occur over time, within the same social system conditions.

The process of social change in society involves three stages, namely:

- Invention: the stage where a new idea or concept is developed within society.
- Diffusion: the stage where the idea is transmitted through specific social relationship systems.
- Consequence: the stage where social change occurs as a result of the acceptance or rejection of the idea.

2.2. Domestic Space Theory

The theory of domestic space and its transformation into production space illustrates that domestic space is more than just a place to live. This concept is often explored by thinkers and researchers in the fields of architecture, sociology, and cultural studies.

The theory of territoriality, as discussed by Hall (1990) in *The Hidden Dimension*, explains that humans have a need for personal space and a specific way of using that space, referred to as "territoriality." This concept highlights how domestic space contributes to the development of a sense of ownership and identity for individuals or families within the home. Spatial territoriality can be observed through activities that engage with the available space while considering and clarifying boundaries of ownership—both physical and symbolic—each with distinct functions that give rise to specific spatial activities (Nuri et al., 2023).

Altman's Privacy Regulation Theory (1975), presented in his work *The Environment and Social Behavior*, explains that domestic space functions as a medium for regulating privacy. Privacy in this context does not merely refer to isolation, but to the ability to control social interactions with others. Within domestic space, mechanisms exist that enable residents to manage the degree of social engagement with other household members or guests.

In addition, Massey (1994) made a significant contribution to understanding how space can shape identity and social interaction. In the context of interior design and architecture, many architects and designers also emphasize how space influences individual well-being and experience. Lefebvre (1991), for example, extensively explored the production of space in a social context. One of his most frequently cited works is *The Production of Space* (1991). Although not a journal article, this book serves as a foundational text for understanding his perspective on how space is produced through social, economic, and political interactions.

2.3. Macro Spatial Theory

The theory of "Whole from Part" in urban design was popularized by Alexander (1977) in his book entitled *A Pattern Language: Towns, Buildings, Construction*, Oxford University Press. This theory explains the concept that emphasizes that cities or environments are built from small elements that are interconnected to form a unified whole. This theory is popular among architects and urban designers who believe that each small part (such as building blocks, streets, parks) must be designed in such a way that when combined, they create a harmonious and sustainable environment. The theory also explains the basic patterns in urban design that allow various elements of the city to work together in a "pattern language".

2.4. Theory on the Role of Women (or Housewives) as Agents of Change

The role of housewives is a dynamic concept, the ideal indicator is shaped by various factors such as socio-cultural background, political conditions, and prevailing social constructions within society (Baker, 2010).

According to Dwijayanti (1999) in Alfons et al. (2017), a housewife is a woman who dedicates her time and herself at home to caring for and guiding children based on societal norms. However, under certain circumstances, a housewife may be required to work due to economic needs, thereby assuming a dual role in her life. In addition to managing the household, she can also assert her identity by developing her skills and expertise (Alfons et al., 2017). This demonstrates that a housewife can become an agent of change in advancing the economy, particularly during periods of socio-economic uncertainty. Carranza (2018) highlights the role of women entrepreneurs in economic revitalization, especially when socio-economic conditions are unstable. Women are driven by both internal and external factors to run independent businesses, which ultimately benefit their families and communities.

Research shows that mothers play an important role in maintaining the economic stability of families to help them withstand changes in social stratification, as well as assisting family members in adapting to cultural shifts. In addition, mothers also act as agents of socialization by conveying information (Damastuti, 2021).

3. RESEARCH METHODS

This study will adopt Creswell's (2018) approach to explore daily activities within residential homes (dwellings) that form a combination of domestic space and production space in the context of traditional food processing (food production space). Data collection techniques will include observation, interviews, and visual documentation. Observations will be conducted to examine domestic dwellings and how activities unfold within them. In-depth interviews with space users will help investigate spatial quality. Dialogic interview methods will be employed to uncover the role of housewives as "conductors" of an "orchestra of family members and even neighbors" in managing the operational processes of traditional food production—from purchasing ingredients at traditional markets to preparing products for delivery to consumers. Visual documentation will be used to capture how the atmosphere is perceived by users during specific activities in certain spaces and times within the home. The collected data will then be constructed and analyzed to generate new insights into the concept of "domestic space - production space" within the context of dwelling. This study aims to produce outcomes in the form of spatial quality mappings based on daily activities, serving as indicators of contemporary dwelling characteristics.

4. RESULT AND DISCUSSIONS

After the COVID-19 pandemic, Kampung Siroto earned the nickname Kampung Tematik Jajanan Tradisional (Traditional Snack Thematic Village). Nearly all housewives in Kampung Siroto became traditional snack makers or producers. They carry out the entire snack-making process, from purchasing basic/raw ingredients at the traditional market in Pasar Ungaran (Rural Area), cooking them in their home kitchens in Kampung Siroto (Suburban Area), to selling them to consumers in restaurants, cafeterias, and office canteens in Semarang City (Urban Area).

The time schedule of these housewives is as follows:

- 17:00 – 20:00 WIB: Shopping for and preparing basic/raw ingredients in the afternoon and evening after resting.
- Approximately 02:00 – 04:00 WIB: Cooking begins in the early morning hours.
- 04:00 – 05:00 WIB: Packaging of the products.
- 05:00 – 08:00 WIB: Final stage—delivery of products to consumers, from dawn until mid-morning.



Figure 2. Spatial Analysis Map
(Source: Author, 2024)

4.1. Household Dynamics and Residential Places

The family structure in the Siroto Village community is generally a nuclear family, consisting of a father, mother, and children. This form is common in urban families. It is rare to find extended families—households that include other relatives—within this community. Interestingly, the prevalence of nuclear families in Siroto Village is also typical of rural areas.

In general, family types in Kampung Siroto can be categorized into two primary groups:

- a) Families in which housewives engage in the production of one to two types of traditional food, typically characterized by a smaller number of household members.
- b) Families in which housewives produce more than three types of traditional food, generally associated with larger household sizes.

For the purpose of this study, two representative households involved in traditional food production were selected:

1. The household of Mrs. Aini, consisting of a father, mother, and two adult children. This family produces pecel rice and is representative of the first category (Type A Family)
2. The household of Mrs. Ismiati, consisting of a father, mother, and four adult children. This family produces a variety of traditional snacks, including lemper, risoles, nogosari, pastel, and others, and represents the second category (Type B Family)

4.2. The Household of Mrs. Aini

Early in the morning, Mrs. Aini prepares traditional meals typically served for breakfast and lunch, which include pecel rice, pecel gendar, and gado-gado. Occasionally, when she has free time, she also makes traditional cakes such as klepon, onde-onde, and lemper. Mrs. Aini is highly skilled in blending flavors, resulting in snacks with a distinctive taste. Additionally, she frequently innovates by creating new variations, such as cakes with modern fillings.

The primary cooking activities take place in the wet kitchen, which serves as the production space. Packaging is carried out in the dining room and clean kitchen, which temporarily transition from living spaces into production areas. These spaces ultimately function as transitional zones where family members and household helpers interact.



Figure 3. Mrs. Aini's House Floor Plan
(Sumber: Author, 2024)

After all the snacks are prepared, around 05:00 a.m., Mrs. Aini markets her products at the local market. These products are then distributed by traders to restaurants, cafes, and office canteens in the city of Semarang, and are also sold at a stall next to her house. This activity not only provides income for Mrs. Aini but also strengthens the bonds within the traditional food artisan community in her village. Through her hard work and dedication, Mrs. Aini has succeeded in preserving local culinary traditions while offering a delightful taste experience to both rural and urban communities.



Figure 4. Front View of Mrs. Aini's House
Source: Author, 2024



Figure 5. Mrs. Aini's Kitchen Room
Source: Author, 2024

4.3. The Household of Mrs. Ismiyati

Mrs. Ismiyati operates a traditional snack business in the Puduk Payung area, which is known for its delicious local delicacies. What began as a cooking hobby has developed into a successful small enterprise. She offers a variety of snacks, including cakes, fried foods, and regional specialties. Each morning, Mrs. Ismiyati prepares fresh ingredients to ensure the quality of her products. Among the most popular items are klepon, onde-onde, and lumpia.

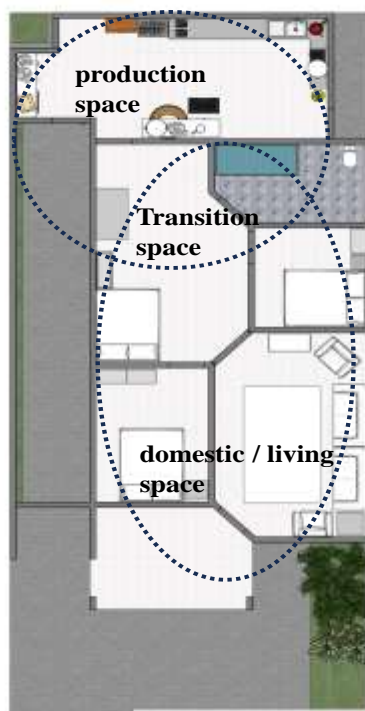


Figure 6. Mrs. Ismiyati's House Floor Plan
(Source: Author, 2024)

The main cooking activities are carried out in a large kitchen that serves as the primary production space. Packaging is conducted in the family room, which also functions as Mrs. Ismiyati's bedroom. These areas are referred to as transition spaces, as they have shifted from residential use to production purposes, where both family members and household assistants interact. In addition to direct sales at the nearest market, Mrs. Ismiyati also utilizes social media to promote her products, thereby expanding her market reach to the city of Semarang. Her customers include not only residents of Pudak Payung but also individuals from surrounding areas who are drawn to the unique flavors of her traditional snacks.



Figure 7. Mrs. Ismiyati's Pantry
Source: Author, 2024



Figure 8. Mrs. Ismiyati's Kitchen
Source: Author, 2024

4.4. Micro Spatial

A micro-spatial review of the conditions in both Mrs. Aini's and Mrs. Ismiyati's production houses reveals that domestic space—or residential living space—refers to areas within the home that are functionally used for the daily activities of the household or its members. These spaces typically include the living room, family room, bedroom, kitchen, and bathroom. Domestic areas are generally designed to fulfill the personal needs of residents, offering privacy, comfort, and functionality. In architectural and design discourse, domestic space is often seen as a reflection of the residents' social identity, culture, and lifestyle.

According to Edward T. Hall (1990), humans have an inherent need for personal space and particular ways of occupying it, a concept known as "territoriality." In the two observed homes, a shift in spatial function is evident: the family room and kitchen no longer serve solely as spaces for fostering identity and a sense of ownership among family members. Instead, these spaces have taken on productive roles within a domestic-industrial setting.

Based on these observations, household spaces in the two production houses can be classified into three categories: (a) Domestic/Residential Space, (b) Production Space, and (c) Transitional Space. Transitional space refers to areas that territorially belong to the domestic domain but serve dual functions, bridging private living activities and public production tasks. In such situations, household members appear to adapt to the evolving use of these spaces, shifting from "dwelling" to "production," often under the direction of the housewife. Transitional conditions are frequently observed in the family room, which inherently functions as a semi-private/semi-public space.

Altman (1975), in *The Environment and Social Behavior*, introduces the theory of privacy regulation, which explains that domestic space functions as a medium for managing privacy. In this context, privacy is not limited to isolation but also refers to the ability to control social interactions with others. Within the domestic sphere, mechanisms exist that allow residents to regulate their level of social engagement—both with other household members and with external guests. In such settings, the role of the housewife often emerges as that of a regulator or mediator, particularly in managing the transition of domestic space into production space. Simultaneously, housewives frequently take on the role of culinary

entrepreneurs, initiating business activities from the kitchen. This phenomenon became especially prevalent during critical periods such as the COVID-19 pandemic (Massey, 1994).

5. CONCLUSION

This research, which focused on the home-based culinary industry, revealed that housewives, as female entrepreneurs, have played a vital role in revitalizing and rapidly restoring the community's economy in the post-pandemic era. The study was conducted in the Kampung Tematik Jajanan Tradisional Siroto (Siroto traditional snacks thematic village), located in RW VII, Pudukpayung Village, Banyumanik District, Semarang City. This village is situated in a suburban area—a transitional zone between rural and urban settings—and has successfully developed into a culinary-themed tourist destination within the administrative boundaries of Semarang City, the capital of Central Java Province.

In macro-spatial terms, the structure and mechanism of these activities can be observed as follows: they originate from domestic spaces within housing (in villages and suburban areas) and extend into wider rural public spaces (as sources of food) and urban areas (as consumer market hubs). This spatial progression illustrates how home-based industries, rooted in domestic environments, have the potential to influence and expand into urban public spaces—an evolution that is closely related to spatial quality in architectural discourse. This phenomenon aligns with the "Whole from Part" theory in urban design, as popularized by Alexander (1977).

Based on the results of the study and discussion, several key conclusions can be drawn:

1. A new relationship between spatial quality and atmosphere in the domestic realm has been identified, stemming from the transformation and emergence of production spaces (such as business kitchens and family rooms) originally intended as living spaces (household kitchens and common areas) within the residence.
2. The role of housewives as controllers of production activities and regulators of the transition from family space (living areas) to production space within the home has been revealed. This shift also extends to public spaces outside the residence through consumer-oriented marketing activities.
3. The complete chain of traditional food production—from upstream to downstream—was identified: rural areas (sources of raw materials in traditional markets), suburban areas (residences transformed into production spaces), and urban areas (consumer markets for culinary products).
4. Significant changes and the expansion of networks and spatial influence across rural–suburban–urban areas were observed before and after the COVID-19 pandemic.
5. Structure and Mechanism of the Home-Based Culinary Industry:
 - Domestic Space: Residences in suburban villages serve as sites for production activities. Within these homes, transitional spaces emerge as living areas are repurposed into production spaces.
 - Rural Public Space: Traditional markets in rural areas function as key intermediaries, linking agricultural production zones with domestic food industries.
 - Urban Public Space: The urban consumer market is a crucial target for distribution. It must be continuously supported to encourage greater consumption of local and organic dishes made from natural rural ingredients.
 - Expansion into Public Space: The network of home-based food production expands from rural-sourced, natural ingredients into the public realm, contributing to enhanced urban life quality.

6. Urban Design Development Concept: "Whole from Part". The findings above can contribute to urban design and planning at multiple scales:
 - a. Micro Scale: Serve as a guide for architectural design that supports flexible housing capable of adapting to production activities within households.
 - b. Macro Scale: Provide input for spatial planning policy recommendations aimed at enhancing spatial quality through integrated and sustainable relationships between rural and urban public spaces, as well as between public and private residential spaces.

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