

# Spatial Analysis of Rural–Urban Linkages in Suburbs of Denpasar City

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**Abstract**— The debate about rural-urban linkages is crucial in regional development. Rural-urban linkages can be viewed from people's movement as well as the pattern of goods and services. The present study aims to elaborate this linkage in the suburbs of Denpasar City. Primary data had been collected from sample districts and villages of the region. The study revealed the disparities between the rural and urban areas in Denpasar City. As 80% of rural people visit the city daily, mainly for marketing their agricultural product; whereas, 67% of urban people went to the village once a month mostly for religious purposes. Ironically, the villagers also visited the city to fulfill their needs, even for primary needs. On the other hand, no city dwelling went to the village for shopping, because of all their needs already available where they live. Furthermore, adequate facilities in the city had a significant factor in rural underdevelopment.

**Keywords**—rural-urban linkages; suburbs; spatial disparities.

## I. INTRODUCTION

Rural-urban linkages can be defined as two-way movements of people, goods, capital, technology, and social transactions that are mutually supportive or exploitative [6]. Rural-urban linkages are the cause and effect of regional development, both in terms of socio-economic and cultural. Theoretically, the urban area functions as a service center for rural areas or the hinterland, offering outlets for rural products, public and commercial services, and employment opportunities whereas rural areas provide raw and processed materials, labor and demand for urban goods and services [1]. The nature and scope of rural-urban linkages can be viewed from geographical conditions and demographic characteristics to the availability of transportation infrastructure that connects rural and urban areas.

Rural-urban linkages can be seen from the existence of social, economic, cultural, and political relations that are maintained between individuals and groups in urban environments and rural areas. Rural-urban linkages can also refer to spatial and sectoral interactions that occur between rural and urban areas. Spatial interactions can include the flow of people, embers and services, information, and technology flows, and even waste streams can also be included. In addition to spatial interactions, sectoral flows also occur that involve the flow of agricultural products to urban areas, and industrial goods from urban manufacturing areas to rural

areas. In general, rural-urban linkages are often defined in terms of the nature and form of migration, production, consumption, finance and some investment relationships that occur in rural-urban relations. Exchange of money, goods, visits, including social activities and communication with relatives and friends can all be used as indicators in assessing rural-urban linkages. Therefore, the nature and form of these relationships are not homogeneous because they are affected by the various dynamics in these push and pull factors [11].

The influence of push and pull factors in rural-urban relations can vary from place to place. This is strongly influenced by the sector that develops in urban areas or rural environments. Indonesia, as a developing country, especially for low-income people, urban areas are excellent places to change their lives and livelihoods. Urban areas offer better jobs and income, more complete infrastructure, and even some rural communities consider that living in cities has a higher prestige, and indirectly increases their social standing. Not only do these factors represent the dynamics of life and rural-urban relations, but they can also be an integral part of the development of these two particular areas.

The symbiotic relationship of mutualism is the expected estuary of rural-urban linkages. However, according to the concept of the backwash effect, which prioritizes or develops an area first, it will sacrifice other regions. Urban areas which initially played a role as the motor of development in rural-urban linkages, increasingly turned into a suction machine for rural areas to move to urban areas [8], and at the same time, changed the expression of rural spatial to urbanized [10]. This condition shows the role of urban areas that control rural areas in terms of urban interests and benefits. The acceleration of urban development and the transition to urban society has led to a trend towards a concentration of economic growth benefits that are only centered on the city [5]. Even at the same time, there is an increase in the potential of urban communities in exploiting rural resources, especially villages that are hinterland of a city [9].

The focus of this paper is to provide a greater picture of rural-urban linkages in terms of spatial and structural interactions in the two regions. The emphasis is on how urban and rural areas interact and how the direction of these relationships for urban and rural development. There has been

many scientific discussion and research on the impact of rural-urban links on people's lives in both regions, and the transformation that took place in a regional context. However, not many studies have examined the linkages between rural and urban areas in terms of interaction and spatial structure. Therefore, this paper highlights the main drivers of rural-urban relations and recommends specific policies that can be used to achieve a balance in ties between rural and urban areas. Likewise, this paper aims to analyze spatial interactions in rural-urban linkages and the direction of interaction trends in these urban and rural areas.

## II. METHOD

This research was conducted in Denpasar City. This region was chosen as a research location with consideration of the concentration of urban development, which showed the imbalance of development with its hinterland area.

The design of this study used an analytic survey research design. The object of this research was the rural-urban relationship, while the research subjects are rural and urban areas on the outskirts of Denpasar. The approach used in this study was a qualitative approach. Qualitative used to describe and explain (describe and teach) the rural-urban linkage model in the periphery by describing and expressing (to describe and explore) the form of rural-urban linkages. The data were collected by careful observation, including a description in a detailed context accompanied by a record of the results of a comprehensive observation, as well as the effects of document analysis. In using this qualitative approach, the results of the study were interpretive descriptions that seek to explain and describe each object of research spatially.

Denpasar City, as a research location, has four districts, namely West Denpasar District, North Denpasar, East Denpasar, and South Denpasar District. This study was a census study, which examined all members of the population, so the results of the survey were the character of the population itself. The population in this study was all sub-districts (urban areas) which were directly adjacent to villages (rural areas) as a representation of rural-urban linkages. Based on this technique, the area would be used as a sample area.

Document recording was an activity to record supporting documents related to this research or known as institutional surveys. This data collection technique was used to obtain information about the population, GRDP, and geography in each region from the Statistics Office.

Data analysis in this study was carried out using qualitative descriptive analysis. The qualitative descriptive analysis begins by categorizing and classifying data as a whole based on a logical link between the index and the form of rural-urban linkages with a model of improving sustainable rural-urban linkages, then interpreted in the overall research context. This study tried to bring up the meaning of each data collected so that it was not only descriptive but touched the transcendent dimension. To achieve this, the mindset used was "divergent

creative," so that the subjectivity of meaning to the whole data can be eliminated.

## III. RESULT AND DISCUSSION

### A. *Linkages of the rural with the urban*

Direct and indirect agricultural activities were the main link between rural and urban areas. As we know that agriculture was the backbone of the rural economy, most people were involved in agricultural activities. The following description will be discussed the results and discussion of the types of farming equipment needed by rural communities, sources of agricultural raw materials, the main supply to the city, the frequency of visits to cities and the purpose of rural communities to travel to the city.

TABLE I. TYPES OF AGRICULTURAL EQUIPMENT

No	Village	Types of Agricultural Equipment					
		Modest		Own Heavy Equipment		Heavy Equipment Loans	
		N	%	N	%	N	%
1	Dalung	0	0	8	80	2	20
2	Kerobokan	0	0	9	90	1	10
3	Kerobokan Kelod	0	0	8	80	2	20
4	Seminyak	0	0	10	100	0	0
5	Sempidi	1	10	7	70	2	20
6	Sading	3	30	5	50	2	20
7	Darmasaba	3	30	6	60	1	10
8	Jagapati	4	40	4	40	2	20
9	Batubulan	3	30	5	50	2	20
10	Kuta	0	0	8	80	2	20
	Total	14	14	70	70	16	16

Table 1 shows that the 100 respondents, 70% own their heavy agricultural equipment, especially tractors that were dominated by people from Seminyak Village. In the second position, 16% of respondents had it from village cooperative loans. Only a few rural communities relied on simple farming tools to manage their agricultural land.

Table II shows that the majority of farming communities bought agricultural raw materials including fertilizers, seeds and pest-killing chemicals in markets in the city, which is 84% was dominated by people from Kerobokan Kelod, Sempidi, Sading, and Darmasaba Villages. The remaining 15% bought it in the small town market, and only 1% from Kerobokan Village bought it in the local market in the local village.

**TABLE II. SOURCE OF AGRICULTURAL RAW MATERIALS**

No	Village	Source of Agricultural Raw Materials					
		The market in the City		The market in the Town		Local Market	
		N	%	N	%	N	%
1	Dalung	8	80	2	20	0	0
2	Kerobokan	8	80	1	10	1	10
3	Kerobokan Kelod	10	100	0	0	0	0
4	Seminyak	6	60	4	40	0	0
5	Sempidi	10	100	0	0	0	0
6	Sading	10	100	0	0	0	0
7	Darmasaba	10	100	0	0	0	0
8	Jagapati	7	70	3	30	0	0
9	Batubulan	7	70	3	30	0	0
10	Kuta	8	80	2	20	0	0
	Total	84	84	15	15	1	1

**TABLE III. THE LARGEST SUPPLY OF AGRICULTURAL PRODUCTS SENT TO THE CITY**

No	Village	The Largest Supply of Agricultural Products Sent to the City					
		Rice		Vegetables		Fruits	
		N	%	N	%	N	%
1	Dalung	10	100	0	0	0	0
2	Kerobokan	6	60	4	40	0	0
3	Kerobokan Kelod	6	60	4	40	0	0
4	Seminyak	4	40	6	60	0	0
5	Sempidi	10	100	0	0	0	0
6	Sading	10	100	0	0	0	0
7	Darmasaba	5	50	4	40	1	10
8	Jagapati	6	60	3	30	1	10
9	Batubulan	7	70	1	10	2	20
10	Kuta	8	80	0	0	2	20
	Total	72	72	22	22	6	6

Table III shows that 72% sold agricultural produce in the form of rice to the city, mainly by people from Dalung, Sempidi, and Sading villages. In the second position, 22% of the villagers sold vegetables and 6% send fruit as the main product sold to the city.

Table IV shows that the majority of villagers, 80% of people visit the city once a day, which was dominated by people from Dalung Village. The longer one, which was done once a week by 20% of rural communities, and no frequency was longer than once a week.

**TABLE IV. FREQUENCY OF VISITS TO THE CITY**

No	Village	Frequency of Visits to the City					
		Daily		Weekly		Monthly	
		N	%	N	%	N	%
1	Dalung	10	100	0	0	0	0
2	Kerobokan	8	80	2	20	0	0
3	Kerobokan Kelod	8	80	2	20	0	0
4	Seminyak	6	60	4	40	0	0
5	Sempidi	9	90	1	10	0	0
6	Sading	9	90	1	10	0	0
7	Darmasaba	7	70	3	30	0	0
8	Jagapati	7	70	3	30	0	0
9	Batubulan	8	80	2	20	0	0
10	Kuta	8	80	2	20	0	0
	Total	80	80	20	20	0	0

Table V shows that the primary purpose of rural communities visiting the city is economic reasons, mainly to market their agricultural products and some to buy the necessities of life, which was 85% dominated by the people of Darmasaba and Jagapati villages. The rest, 8% of rural people, travel to the city for recreation purposes to places of entertainment centers and 7% of them go to the city for educational reasons, which was to take their children to high school.

**TABLE V. THE PURPOSE OF VISITS TO THE CITY**

No	Village	The Purpose of Visits to the City					
		Economics		Education		Recreation	
		N	%	N	%	N	%
1	Dalung	8	80	0	0	2	20
2	Kerobokan	8	80	0	0	2	20
3	Kerobokan Kelod	8	80	0	0	2	20
4	Seminyak	9	90	1	10	0	0
5	Sempidi	7	70	1	10	2	20
6	Sading	9	90	1	10	0	0
7	Darmasaba	10	100	0	0	0	0
8	Jagapati	10	100	0	0	0	0
9	Batubulan	8	80	2	20	0	0
10	Kuta	8	80	2	20	0	0
	Total	85	85	7	7	8	8

The agricultural sector needs well-functioning local and urban markets to drive growth, employment, and economic prosperity in rural areas. The relationship of the city with the sample villages had changed the attitude of the farmers and

also change the pattern of rural life. Interaction between rural and urban areas through the movement of farmers to cities was a factor that was seen to be able to change the lives and livelihoods of rural communities towards urban nature [4].

#### *B. Urban's link with the rural*

Cities are the main source of all services provided for their suburbs, especially villages that were directly adjacent to the city area. The following description will be shown the results and discussion about the types of industrial equipment owned by urban communities, the source of industrial raw materials, the main supply to the village, and the frequency of visits to villages and the purpose of urban populations to travel to the village.

**TABLE VI. TYPES OF INDUSTRIAL EQUIPMENT**

No	Sub-district	Types of Industrial Equipment					
		Modest		Own Heavy Equipment		Heavy Equipment Loans	
		N	%	N	%	N	%
1	Padangsambian Kaja	4	40	4	40	2	20
2	Padangsambian	5	50	5	50	0	0
3	Padangsambian Kelod	3	30	7	70	0	0
4	Pemecutan Kelod	4	40	5	50	1	10
5	Ubung Kaja	2	20	7	70	1	10
6	Peguyangan Kaja	4	40	5	50	1	10
7	Peguyangan Kangin	4	40	5	50	1	10
8	Penatih	6	60	4	40	0	0
9	Penatih Dangin Puri	5	50	4	40	1	10
10	Pemogan	8	80	2	20	0	0
	Total	45	45	48	48	7	7

Table VI shows that out of 100 respondents, 48% own heavy industrial equipment, especially primary industry heavy equipment such as convection equipment, which was dominated by people from Padangsambian Kelod and Ubung Kaja Sub-districts. In the second position, with a slightly lower percentage, ie, 45% of respondents used simple industrial tools, especially in the tertiary industry or the service industry which is engaged in laundry services and barbershop. The remaining 7% of them had heavy equipment for industrial equipment but were sourced from the proceeds of bank loans.

Table VII shows that the majority of urban communities bought industrial raw materials including cloth, fruit, vegetables and industrial machinery in markets in small cities, which is 50%, which was dominated by people from Penatih Dangin Puri Sub-districts. The remaining 36% bought it in the big city market, and only 16% of them bought it in the market that was the closest village.

**TABLE VII. SOURCE OF INDUSTRIAL RAW MATERIALS**

No	Sub-district	Source of Industrial Raw Materials					
		The market in the City		The market in the Town		The market in the Village	
		N	%	N	%	N	%
1	Padangsambian Kaja	8	80	2	20	0	0
2	Padangsambian	1	10	5	50	4	40
3	Padangsambian Kelod	2	20	6	60	2	20
4	Pemecutan Kelod	0	0	6	60	4	40
5	Ubung Kaja	8	80	2	20	0	0
6	Peguyangan Kaja	3	30	6	60	1	10
7	Peguyangan Kangin	5	50	5	50	0	0
8	Penatih	4	40	5	50	1	10
9	Penatih Dangin Puri	3	30	7	70	0	0
10	Pemogan	2	20	6	60	4	40
	Total	36	36	50	50	16	16

**TABLE VIII. THE LARGEST SUPPLY OF INDUSTRIAL PRODUCTS SENT TO THE VILLAGE**

No	Sub-district	The Largest Supply of Industrial Products Sent to the Village					
		Primary Industry		Secondary Industry		Tertiary Industry	
		N	%	N	%	N	%
1	Padangsambian Kaja	8	80	2	20	0	0
2	Padangsambian	7	70	3	30	0	0
3	Padangsambian Kelod	8	80	2	20	0	0
4	Pemecutan Kelod	10	100	0	0	0	0
5	Ubung Kaja	4	40	2	20	4	40
6	Peguyangan Kaja	3	30	2	20	5	50
7	Peguyangan Kangin	4	40	3	30	2	20
8	Penatih	6	60	3	30	1	10
9	Penatih Dangin Puri	6	60	3	30	1	10
10	Pemogan	7	70	0	0	3	30
	Total	63	63	20	20	16	16

Table VIII shows that of the 100 respondents, 63% sold their industrial output in the form of clothing and ready-to-drink food and beverages to the village, mainly by people from Pemecutan Kelod Sub-districts. In the second position, 20% of villagers sold secondary industrial products in the form of textiles, and 16% of them offer a variety of services, especially laundry services, tutoring, vehicle servicing and even barbershop to the village.

**TABLE IX. FREQUENCY OF VISITS TO THE VILLAGE**

No	Sub-district	Frequency of Visits to the Village					
		Daily		Weekly		Monthly	
		N	%	N	%	N	%
1	Padangsambian Kaja	0	0	2	20	8	80
2	Padangsambian	1	10	2	20	7	70
3	Padangsambian Kelod	0	0	3	30	7	70
4	Pemecutan Kelod	0	0	2	20	8	80
5	Ubung Kaja	2	20	1	10	7	70
6	Peguyangan Kaja	0	0	2	20	8	80
7	Peguyangan Kangin	1	10	2	20	7	70
8	Penatih	2	20	3	30	5	50
9	Penatih Dangin Puri	2	20	2	20	6	60
10	Pemogan	4	40	2	20	4	40
	Total	12	12	21	21	67	67

Table IX shows that the majority of urban people, ie, 67% of people visited the village once a month, which was dominated by people from the Padangsambian Kaja, Pemecutan Kelod, and Peguyangan Kaja Sub-districts. More often, it was done once a week by 21% of urban communities, and only 12% of city people traveled to the village once a day.

**TABLE X. THE PURPOSE OF VISITS TO THE VILLAGE**

No	Sub-district	The Purpose of Visits to the Village					
		Economics		Religious		Recreation	
		N	%	N	%	N	%
1	Padangsambian Kaja	0	0	10	100	0	0
2	Padangsambian	4	40	4	40	2	20
3	Padangsambian Kelod	2	20	6	60	2	20
4	Pemecutan Kelod	4	40	4	40	2	20
5	Ubung Kaja	0	0	5	50	5	50
6	Peguyangan Kaja	1	10	8	80	1	10
7	Peguyangan Kangin	0	0	10	100	0	0
8	Penatih	1	10	6	60	3	30
9	Penatih Dangin Puri	0	0	6	60	4	40
10	Pemogan	4	40	2	20	4	40
	Total	16	16	61	61	23	23

Table X shows that the main purpose of urban communities visiting villages was religious reasons, primarily for praying at the homes of their old families and partly for traditional ceremonies, which was 61% dominated by people from Padangsambian Kaja and Peguyangan Kangin Sub-districts. The rest, 23% of the urban population, traveled to the village for recreational purposes to natural attractions in the village and 16% of them went to the village for economic reasons, namely marketing their products and partly to buy industrial raw materials.

Sales and purchases shows a strong relationship between the city and the village. People from the sample area went to the village, especially only when they had to pray in the village of origin, the rest is to buy certain industrial raw materials and to sell their industrial products. One of the reasons why urban people rarely go to villages was the limited facilities available in the village. This condition was in line with research [7], which showed a positive relationship between infrastructure completeness and village development. However, the biggest challenge of developing rural infrastructure was preventing large-scale migration of people from rural to urban areas, which will directly reduce rural productive labor, especially in agriculture [3]. Spatially rural villages will be significantly influenced by the socio-economic conditions of the city so that the interaction of urban people who came to the village indirectly contributes to the process of urbanization in rural areas [2]. The development of villages towards urban nature was theoretically not a form of rural development, because this condition would eliminate the optimization of the natural potential of the village to become self-sufficient.

#### IV. CONCLUSION

To eliminate rural and urban imbalances and achieve faster equitable development in rural areas and urban areas, governments at the district and local levels must recognize the increasing importance of urban-rural relations and specific policies that make adequate investments in infrastructure, especially transportation, for improving rural conditions while increasing accessibility to markets in the village. Thus the movement of city dwellers to villages to buy necessities can be facilitated. In this case, there was a need for provisions to provide loans and agricultural subsidies to villagers and to support the promotion of rural products to cities. Markets in urban areas has been vital in rural-urban relations, so farmers has to sell their agricultural products in urban areas, including grocery shopping to meet their daily needs. While the urban community did not need to go far to the village to buy basic needs and kept shopping for secondary and tertiary needs in the city area. Thus, the imbalance of rural-urban linkages will deepen. Agricultural subsidies needed to be given to farmers in rural areas, including quality and competitive markets. This support can become an instrument in rural development, and strengthen the linkages between rural and urban areas. The construction of rural roads that directly connect rural and urban areas was recognized as having brought the flow of goods, services, residents, and information from villages to nearby cities. This phenomenon showed that villages that became suburban areas have the vulnerability to experience massive urbanization.

All villages must have their bargaining position by following the potential of the village they have, which would be an attractive factor for city people to go to the village. Conversely, it was necessary to limit essential commodity commodities sold in the city, so farmers in the village did not have to sell their products to the city, but city people who

needed it went to the village to buy it. similarly, when villagers had to buy their secondary and tertiary needs in cities, the absence of these structural boundaries became a significant obstacle in rural-urban relations, and would even lead to a setback in development, especially rural development.

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