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THE INFLUENCE OF PLANNING AND INNOVATION ON COMMUNITY EMPOWERMENT MEDIATED DEVELOPMENT IN SAMOSIR

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ABSTRACT
This study focuses on the influence of regional planning and product innovation on regional development, with community empowerment as a mediating variable in Samosir Regency. This explanatory study aims to test and explain the relationship between the main variables. Data collection was conducted through a structured questionnaire administered to 250 respondents consisting of community members and MSME actors using purposive sampling. The data analysis technique used Structural Equation Modeling (SEM) through SmartPLS 4. The results revealed that product innovation is a more dominant driving factor in directly influencing regional development than regional planning, with a path coefficient value of 0.502 and T-statistics of 9.979 ($p < 0.05$). Meanwhile, regional planning has a smaller but still significant direct effect of 0.139 with T-statistics of 2.255. Another finding indicates that product innovation can influence regional development independently without requiring community empowerment mediation ($p > 0.05$). Conversely, regional planning requires community empowerment as a significant mediating bridge ($p = 0.043$) to achieve optimal impact on regional development. Thus, accelerating progress in Samosir is highly dependent on the integration of participatory infrastructure and the strengthening of local product creativity as strategic assets.

Keywords: regional planning; product innovation; regional development; community empowerment; economic acceleration

PENGARUH PERENCANAAN DAN INOVASI PRODUK TERHADAP PENGEMBANGAN WILAYAH YANG DIMEDIASI PEMBERDAYAAN MASYARAKAT DI KABUPATEN SAMOSIR

ABSTRAK
Penelitian ini berfokus pada pengaruh perencanaan wilayah dan inovasi produk terhadap pengembangan wilayah, dengan pemberdayaan masyarakat sebagai variabel mediasi di Kabupaten Samosir. Penelitian bersifat eksplanatori yang bertujuan untuk menguji dan menjelaskan hubungan antar variabel utama. Pengumpulan data dilakukan melalui kuesioner terstruktur terhadap 250 responden yang terdiri dari masyarakat dan pelaku UMKM dengan teknik purposive sampling. Teknik analisis data menggunakan Structural Equation Modeling (SEM) melalui SmartPLS 4. Hasil penelitian mengungkapkan bahwa inovasi produk merupakan faktor pendorong yang lebih dominan dalam memengaruhi pengembangan wilayah secara langsung dibandingkan perencanaan wilayah, dengan nilai koefisien jalur sebesar 0,502 dan T-statistics 9,979 ($p < 0,05$). Sementara itu, perencanaan wilayah memiliki pengaruh langsung yang lebih kecil namun tetap signifikan sebesar 0,139 dengan T-statistics 2,255. Temuan menarik lainnya menunjukkan bahwa inovasi produk mampu memengaruhi pengembangan wilayah secara independen tanpa memerlukan mediasi pemberdayaan masyarakat ($p > 0,05$). Sebaliknya, perencanaan wilayah memerlukan pemberdayaan masyarakat sebagai jembatan mediasi yang signifikan ($p = 0,043$) untuk mencapai dampak optimal pada pengembangan wilayah . Dengan demikian, akselerasi kemajuan Samosir sangat bergantung pada integrasi infrastruktur yang partisipatif dan penguatan kreativitas produk lokal sebagai aset strategis.

Kata Kunci: perencanaan wilayah; inovasi produk; pengembangan wilayah; pemberdayaan masyarakat; percepatan ekonomi

INTRODUCTION

This study focuses on the influence of regional planning and product innovation on regional development, with community empowerment as a mediating variable in Samosir Regency. Regional development can be achieved by grouping regions based on their sectoral strengths, and by grouping them based on the completeness of their infrastructure (Ekosafitri & Kurniawati, 2017). The results of the study show that infrastructure, irrigation infrastructure, health infrastructure, investment, labor, and Gini growth have a significant and positive effect on economic growth, and indicate that public sector investments such as roads, bridges, and other infrastructure facilities are important for economic growth in the region (Nairobi & Respitasari, 2021).

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Samosir Regency, located in the middle of Lake Toba, has enormous potential for tourism-based economic development and attracts global attention for its natural resources. This increasing potential is clearly evident from the tourist visit data, which has seen a significant increase over the past three years, as presented in the following table.

Table 1. List of Tourist Visits 2022-2024

Year	Domestic Tourists	International Tourists	Total Tourists
2022	857.939	2.953	860.892
2023	997.772	10.959	1.008.731
2024	1.761.427	15.705	1.777.132

Source: Samosir Regency Statistics Office

The urgency of this research is based on the paradoxical growth phenomenon in Samosir Regency that requires strategic management. According to official statistics, Samosir Regency experienced a significant surge in tourist visits, increasing from 860,892 in 2022 to 1,777,132 in 2024. However, this massive influx of international and domestic tourists has not been fully aligned with the acceleration of economic independence throughout the region. This has triggered an urgent problem of stagnation in traditional sectors despite extensive regional planning, while new economic growth points are emerging from independent community initiatives.

The surge in visits, reaching over 1.7 million tourists by 2024, confirms Samosir's status as a priority destination. However, the selection of Samosir as a research location was also based on a unique phenomenon: this rapid growth in tourist numbers has not been fully aligned with the acceleration of economic independence throughout the region. Despite extensive regional planning, there are indications of stagnation in some traditional sectors, while new growth hotspots are emerging, fueled by innovations in local products such as crafts and culinary specialties that can independently enhance the region's competitiveness.

Based on the phenomena that have been described in the background, the formulation of the problem and objectives in this study are: (1) How big is the direct influence of Regional Planning on Community Empowerment in Samosir Regency? (2) How big is the direct influence of Product Innovation on Community Empowerment in Samosir Regency? (3) How big is the direct influence of Regional Planning on Community Empowerment? (4) How big is the direct influence of Product Innovation on Community Empowerment? (5) How big is the direct influence of Community Empowerment on Regional Development? (6) How big is the indirect influence of Regional Planning on Regional Development in Samosir Regency? (7) How big is the indirect influence of Product Innovation on Regional Development in Samosir Regency?

Meanwhile, the objectives of this research are: (1) To identify the influence of regional planning on community empowerment in Samosir Regency. (2) To analyze the influence of product innovation on community empowerment in Samosir Regency. (3) To analyze the influence of community empowerment on regional development in Samosir Regency. (4) To analyze the influence of regional planning on regional development in Samosir Regency, which is mediated by community empowerment. (5) To analyze the influence of product innovation on regional development in Samosir Regency, which is mediated by community empowerment.

In integrated regional development, the planning process can be defined as an effort to maximize all resources available in a region or country for the purpose of improving the standard of living and welfare of its inhabitants (Mulalinda,et.al, 2021). This sector is considered to have a high level of effectiveness in creating jobs and income (Anup, 2016).

In regional development efforts, the most important issues of concern to economists and regional planners are the process of economic growth and equitable development. The difference between regional and national economic growth theories lies in the openness of the input-output process of goods, services, and people. Within a regional system, the flow of people, goods, and services is relatively open, while at the national level, it is more closed.

The regional planning indicators used in this research are: (1) Regional infrastructure, (2) Spatial planning and the environment, (3) Finance, (4) Regional development planning, (5) Personnel.

According to Almira & Susanto (2018), Innovation is a crucial factor in supporting the success of any company, including manufacturing service providers. Innovation leads to the introduction of new products. The type of new product is related to

the company's strategy. Furthermore, product innovation is any good, service, or idea perceived as new (Rasyid & Indah, 2018).

Product innovation is a source of company growth because these changes come from the results of the company's evaluation of the quality of its products so that it can continue to follow devel-

opments in consumer tastes and needs (Fauzi & Mandala, 2019). Product innovation can increase a product's added value and provide solutions to meet consumer needs for a single product or provide solutions to evaluate existing products. This innovation leads to continuous quality improvements, resulting in greater customer satisfaction and a reluctance to switch to other products or companies.

According to Maryana & Permatasari (2021), defining product innovation is a combination of one cycle with another that influences each other, so innovation is not an idea about innovative thinking, new creations are also not improvements to other markets, but innovation is a description of each of these processes.

Product Innovation Indicators in this study, according to Kotler Armstrong in Nugraha (2021), consist of three dimensions namely: (1) Product quality The ability of a product to perform its functions which include durability, reliability, and accuracy produced. (2) Competitive product variants Means to differentiate one product from another, or between the product owned and the competitor's product. (3) Product style and design Another way to add value for customers. Style only describes the appearance of a particular product, while design has a concept that is more than style.

According to Ekosafitri and Kurniawati (2017), regional development is a comprehensive and integrated program of all activities by taking into account existing resources and their contribution to the development of a region.

According to Sumarna (2022), Environmental development efforts will only be effective if they are systematically integrated into national and regional development strategies, combining ecological perspectives, environmentally friendly technological innovations, good governance, and ethical values and local wisdom. The implications of this research emphasize the need to strengthen cross-sectoral synergies, public participation, and the adoption of clean technology as key pillars in maintaining ecosystem sustainability while promoting inclusive economic growth.

The level of development of a region is essentially a function of the natural environment, population, and economic and social activities. The interaction between the natural environment, population, and economic and social activities will in turn influence the level of regional development (Putri et al., 2024).

Economic growth and population growth in a region have been shown to have a significant impact on the labor force participation rate in that region, indicating that indicators such as population growth and industrial value added are important factors in regional economic development (Alfarisy, 2025).

According to Budiman et al., (2025) etymologically, empowerment comes from the root word daya, which means strength or ability. Based on this definition, empowerment can be interpreted as a process of becoming empowered, or a process of acquiring strength/power/ability, and/or a process of transferring strength/power/ability from those who have it to those who lack it or are not yet empowered.

Conceptually, empowerment or empowerment comes from the word "power." Therefore, the primary idea of empowerment is closely related to the concept of power. Power is often associated with the ability to get others to do what you want, regardless of their desires or interests. Traditional social science emphasizes that power is closely related to influence and control. Power is part of social interaction it does not exist independently, but is always present and changes in relationships between individuals and social groups (Simanjuntak et al., 2019).

Empowerment is one of the strategies to promote the coastal communities' independence by improving entrepreneurial knowledge and skill (Panta & Thapa, 2017).

Community empowerment is an effort to provide opportunities and capabilities to the community to participate, negotiate, influence, and control community institutions responsibly for the betterment of life (Tresnawati, 2021). After we understand the definition of empowerment, we will then discuss the definition of community empowerment according to experts.

The Community Empowerment Indicators used in this study are indicators according to Erowati (2021) empowerment indicators, namely:

1. Welfare. This dimension is the level of societal well-being, measured by the sufficiency of basic needs such as clothing, shelter, food, income, education, and health.
2. Access. This dimension concerns equality in access to resources and the benefits they generate. Lack of access is a barrier to increased well-being. Inequality in this dimension is caused by unequal access to resources between those in higher and lower classes, those in power and those in domination, the center and the periphery. Resources can include time, energy, land, credit, information, skills, and so on.
3. Critical awareness. The disparities that exist in society are not a natural order that has existed

forever or simply God's will, but rather are structural and a result of institutionalized discrimination. Community empowerment at this level means community awareness that these disparities are social constructs that can and must be changed.

4. Participation. Empowerment at this level involves the community in various institutions within it. This means that the community participates in the decision-making process and thus ensures that their interests are not neglected.
5. Control. Empowerment in this context encompasses all levels of society.

In the context of regional development, community empowerment serves as a crucial mediation mechanism because development cannot run optimally through a top-down approach (formal planning) alone. Regional planning that is carried out without involving community empowerment tends to be less successful or experience stagnation because it often creates discrepancies between infrastructure policies and real needs and local capacities in the field. Without empowerment, communities will only become passive objects of development, so that the utilization of public facilities and economic scope will not reach their maximum potential.

Theoretically, empowerment increases the community's "critical awareness" and "access" to resources, which in turn strengthens the effectiveness of regional planning. Therefore, the mediating role of community empowerment is crucial in ensuring that every regional development plan can be internalized and managed independently by the local community to achieve sustainable growth. This underpins the hypothesis that regional planning requires the active involvement of the community as a bridge to have a significant impact on regional progress.

Based on the phenomena, problem formulation and theories described above, the conceptual framework that will be used in this research is depicted in the diagram below:

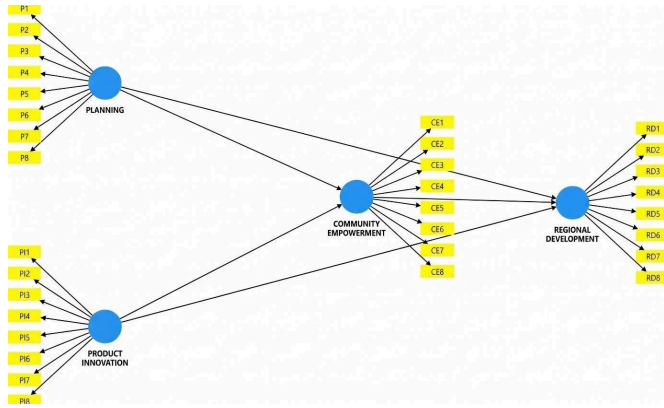

Figure 1. Conceptual Framework

Source: Primary Data

Based on the problem formulation and conceptual framework described above, the research hypothesis is: (1) Regional Planning has a significant and positive influence on Community Empowerment, (2) Product Innovation has a significant and positive influence on Community Empowerment, (3) Community Empowerment has a positive and significant influence on Regional Development, (4) Regional Planning has a positive and significant indirect influence on Regional Development, (5) Product Innovation has a positive and significant indirect influence on Regional Development.

METHODS

The research method used in this study is Structural Equation Modeling (SEM). SEM is a multivariate statistical analysis technique widely used to examine complex relationships among variables within a single research model. In this study, SEM is employed to test the proposed conceptual framework and to evaluate the relationships among the research variables simultaneously.

Structural Equation Modeling (SEM) can generally be used to analyze research models that have several independent (exogenous) and dependent (endogenous) variables, as well as moderating or intervening variables, so that this method is capable of handling complex variable relationships in a single research model (Hidayat & Wulandari, 2022).

In this study, SEM is employed to test the proposed conceptual framework and to evaluate the relationships among the research variables simultaneously. Through SEM analysis, the researcher can identify the strength and significance of the relationships between variables while also assessing the overall fit of the research model.

The population in this study comprised residents of Samosir Regency and MSMEs within the region. This study used purposive sampling to select respondents who met the criteria. The recommended minimum sample size for SEM analysis is 5 to 10 times the number of indicators (Hidayat & Wulandari, 2022). For example, if the total number of indicators is 30, the minimum sample size required is 150 to 300 respondents. The sample size for this study was 250 respondents.

Data collection was conducted through a structured questionnaire. This questionnaire included questions designed based on indicators for each variable: Regional Planning with the indicators used; Product Innovation regarding the development of unique products with added value, both in the tourism, agriculture, and crafts sectors; Regional Development with indicators of improving the quality of life of the community, economic growth, and community preservation; Community Empowerment with the process of increasing community capacity and participation.

The data analysis technique used in this study is Validity and Reliability Testing, including:

a. Convergent Validity: Using Average Variance Extracted (AVE) with a minimum value of 0.5
b. Composite Reliability: Using the Composite Reliability (CR) value with a threshold of 0.7.
c. Validity testing used Confirmatory Factor Analysis (CFA) to ensure that each indicator accurately measures the intended variable. Furthermore, reliability testing was conducted to ensure the consistency of respondents' responses, with a Cronbach's Alpha value > 0.7).
d. Structural Model Test: SEM tests the structural model and the influence between variables through the Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Chi-Square/df.
e. GFI and CFI > 0.90 indicate good model fit.
f. RMSEA < 0.08 is considered adequate for complex research models.

Methodologically, this study contributes to the development of science and technology in the field of regional analysis through the application of Structural Equation Modeling (SEM) that is able to map the dualism of functional paths in regional development. By utilizing the latest algorithm in SmartPLS 4, this study successfully identified the existence of an 'autonomous path' (independent path) in the product innovation sector that is statistically proven not to require empowerment mediation to provide economic impact. This methodological finding expands the literature on regional development modeling by offering a more adaptive model structure, where mediating variables are no longer considered an absolute requirement for all economic driving variables, but rather are specific depending on the characteristics of the input variables.

RESULTS AND DISCUSSION

Samosir Regency is located in the middle of Lake Toba and is known as one of the leading tourist destinations in North Sumatra Province. This region boasts enormous natural resources, including natural landscapes, unique Batak culture, and local agricultural products and crafts. However, development in this region is still hampered by limited infrastructure, varying levels of community education, and limited market access for small businesses. This region boasts rich natural resources, a strong Toba Batak culture, and high tourism potential. However, limited basic infrastructure, such as road access, inter-regional transportation, and the distribution of public services, remains a challenge. The main resources to create social values in tourism are natural, human, institutional, and political capital (Altinay et al., 2016).

The respondents in this study consisted of 250 people, consisting of the general public and MSMEs in Samosir Regency. Based on the questionnaire results, the majority of respondents were aged between 25 and 45 years old and had an educational background of 25 years. They are middle to upper class, and most of them have businesses in the tourism, agriculture, and local crafts sectors. They represent a productive society directly exposed to regional planning and product innovation.

Regional Planning in Samosir Regency

Respondents assessed that regional planning in Samosir remains uneven, particularly regarding spatial planning, basic infrastructure, and accessibility to tourist sites. The average perception score for regional planning indicators indicated a fairly good level, but there is still room for improvement, particularly in environmental planning and the provision of public facilities. Utilizing regional potential requires planning to reduce disparities between regions, especially in rural areas. Rural development must be accompanied by the development of growth centers as service and distribution hubs that are ori-

ented toward physical, social, economic, and infrastructure aspects to optimize existing potential (Septiawan et al., 2024). Planning in Samosir has so far focused more on physical aspects such as tourism development, but the social and economic aspects of the community have not been fully integrated.

Product Innovation in Samosir Regency

Local products are beginning to diversify in form, quality, and style, particularly craft and processed food products. Product innovation according to Fauzi and Mandala (2019), is a crucial element in adapting products to dynamic market needs and maintaining competitiveness. However, access to innovation and technology training remains unequal, necessitating an active government role in facilitating it.

Community Empowerment in Samosir Regency

Community empowerment was assessed positively, with various training programs and business mentoring provided by local governments and NGOs. However, some respondents felt their involvement in decision-making processes was still low. Indicators of participation and access to resources showed quite good results. According to Erowati (2021), indicators of empowerment include well-being, participation, and control over decisions that affect people's lives. Several community groups have been involved in village development planning meetings (musrenbangdes), but this involvement remains representative and not yet substantive.

Regional Development in Samosir Regency

Community empowerment was assessed positively, with various training programs and business mentoring provided by local governments and NGOs. However, some respondents felt their involvement in decision-making processes was still low. Indicators of participation and access to resources showed quite good results. Ecotourism is considered to have a positive effect on the natural environment while still considering long-term economic feasibility and social justice (McKinney, 2016).

Data Analysis

Data analysis was obtained from the results of data processing using SmartPLS 4 software. The output used to analyze the relationship between variables is Path Coefficient, Outer Loading, Average Variance Extracted (AVE), Composite Reliability (CR), and R-Square value.

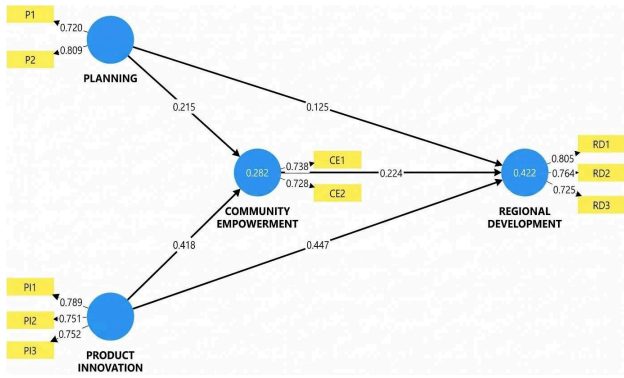

Figure 2. Smartpls

Source: Primary Data

Measurement Model Testing

Outer Loading Factor

The outer loading factor was used to evaluate the validity of the indicators in measuring their respective constructs. Indicators with loading values above 0.70 were considered valid and reliable for further analysis.

In SmartPLS analysis, one of the crucial steps in evaluating a measurement model is to examine the outer loading value of each indicator relative to the latent construct it measures. Outer loading indicates the extent of the contribution or strength of the relationship between an indicator (manifest variable) and the latent construct (unobserved variable) it represents. This value illustrates the extent to which an indicator is able to explain the intended construct.

A good outer loading value that meets convergent validity requirements is one above 0.70. This value indicates that the indicator consistently re-

flects the construct it measures. However, in practice, indicators with values between 0.50 and 0.70 can still be considered for retention if the construct continues to show an adequate Average Variance Extracted (AVE) value, namely above 0.50. Conversely, indicators with outer loading values below 0.50 are generally considered inadequate and should be eliminated from the model due to their very low contribution to the latent construct.

Based on the initial model constructed, an evaluation of the measurement model (outer model) was conducted to ensure the validity and reliability of each indicator. In the analysis process using SmartPLS 4, several indicators in the variables of Regional Planning, Product Innovation, and Community Empowerment were eliminated from the model because they had loading factor values below 0.50. This indicator elimination was carried out gradually (iteratively) to increase the Average Variance Extracted (AVE) value to meet the minimum threshold requirement of 0.50, so that the latent construct can explain more than 50% of the variance of its indicators.

Table 2. Outer Loading

	Product Innovation	Community Empowerment	Regional Development	Planning
P11	0.782			
P12	0.743			
P13	0.767			
CE1		0.710		
CE2		0.818		
RD1			0.805	
P1				1.000
P2				1.000
RD2			0.764	
RD3			0.724	

Source: Researcher's Primary Data

- Product Innovation (PI)

All indicators have values above 0.70, whic means each indicator consistently reflects the PI construct. This indicates that respondents understand and assess the product innovation dimensions uniformly based on the three statements.

- Community Empowerment (CE)

Both indicators are also valid. This means that the concept of community empowerment is quite clear in the minds of respondents, although as we will see later, the overall reliability remains low.

- Regional Development (RD)

All indicators contribute positively and significantly, illustrating that the regional development dimension is well represented by these three indicators.

- Regional Planning (P)

Both indicators are also valid, indicating that the concept of regional planning is quite clear in the minds of respondents.

Reliability and Validity Test

Reliability and validity tests were conducted to ensure that the research instruments. The instrument used is truly capable of measuring the intended construct consistently (reliably) and precisely (validly). In this study, reliability and validity tests were conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach using SmartPLS software. Validity in this context is divided into two: convergent validity and discriminant validity. Convergent validity tests are evaluated through two main indicators: the outer loading value and the Average Variance Extracted (AVE).

Table 3. Construct Reliability and Validity

	Average variance extracted (AVE)	Composite Realibility (rho_a)	Composite Realibility (rho_c)	Cronbach's Alpha
Product Innovation	0.584	0.648	0.808	0.645
Community Empowerment	0.586	0.304	0.738	0.297
Regional Development	0.586	0.652	0.809	0.647
Planning	1.000	1.000	1.000	1.000

Source: Researcher's Primary Data

- All constructs have an AVE value > 0.5, thus fulfilling the convergent validity requirements.
- PI and RD show good reliability (Cronbach > 0.6 and Composite Reliability > 0.7).
- The test results show that the Community Empowerment variable has a Cronbach's Alpha value of 0.297. While this value is below the conventional threshold of 0.60, the construct is retained with a clear limitation. The primary justification lies in the Composite Reliability (rho_c) value of 0.738, which exceeds the 0.70 minimum standard, and an AVE of 0.586, which meets the 0.50 requirement. It is important to clarify that this low Alpha is a mathematical consequence of having only two indicators and the broad variation in respondents' perceptions regarding welfare and access in Samosir. In PLS-SEM literature, Composite Reliability is recognized as a more robust and less biased measure of internal consistency than Cronbach's Alpha because it does not assume equal indicator weighting. Therefore, the construct remains statistically reliable for further hypothesis testing.

Based on the analysis results, the Product Innovation, Regional Development, and Regional Planning constructs showed a Cronbach's Alpha value above 0.60 and a Composite Reliability value above 0.70, indicating that these constructs have a good level of reliability. However, for the Community Empowerment construct, the Cronbach's Alpha value was recorded at 0.297, which is below the recommended minimum limit. This indicates that there is inconsistency between indicators within the construct. Nevertheless, the Composite Reliability value of 0.738 and AVE of 0.586 still indicate that this construct has sufficient consistency to be retained in the model, especially considering the number of indicators is only two.

Furthermore, the Regional Planning construct recorded a value of 1.000 for both reliability and Average Variance Extracted (AVE). This perfect score is a specific methodological outcome resulting from the iterative data reduction process. During the model refinement in SmartPLS 4, indicators with loading factors below 0.50 were eliminated to ensure the construct met the minimum AVE requirements. This condition led to the retention of indicators that perfectly represent the latent variance of the construct within this specific model. In PLS-SEM, such a value indicates that the remaining manifest variables fully explain the latent construct without measurement error in this particular modeling context.

R-Square Value

The R-Square (R^2) In PLS-SEM analysis, it is used to measure the ability of exogenous constructs (independent variables) to explain the variance of endogenous constructs (dependent variables). The higher the R^2 value, the greater the proportion of the dependent construct's variance that can be explained by the independent construct.

Based on the SmartPLS output results, the R-Square values for each endogenous construct are as follows:

Table 4. R-Square Value

	R-square	R-square adjusted
Community_ Empowerment	0.160	0.153
Regional_ Development	0.400	0.393

Source: Researcher's Primary Data

- Community Empowerment (CE)has an R-Square value of 0.160, meaning that 16% of the variance in Community Empowerment can be explained by Product Innovation and Regional Planning. This value is classified as weak, but still acceptable in the context of so-

cial research involving complex behavioral or perceptual factors.

- Regional Development (RD) has an R-Square value of 0.400, indicating that 40% of the variance in Regional Development can be explained by Product Innovation, Regional Planning, and Community Empowerment. This value is included in the sufficient/moderate category, indicating that the model used has sufficient predictive power in explaining regional development.

Hypothesis Testing of Direct and Indirect Effects

Hypothesis testing is conducted to determine whether there is a significant influence between one construct and another, either directly or indirectly. This analysis is conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) through the SmartPLS application.

Direct Effect Hypothesis Test

Direct influence refers to the direct relationship between one construct and another without involving intermediary variables. The test results indicate that all direct relationship paths between variables in the model are statistically significant, as indicated by a T-statistic value > 1.96 and a p-value < 0.05.

Hypothesis testing was carried out to find out whether there was a relationship in each hypothesis using the bootstrapping method After bootstrapping, hypothesis testing was carried out through a two-tailed test with a significance level of 5% (alpha = 0.05). Hypothesis acceptance parameter, which occurs if the t-value is greater than 1.96, and the p-value is less than 0.05 (Pratama & Hamid, 2023).

Table 5. Path Coefficient Results

	Original sample (O)	Sample Mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
PI →CE	0.265	0.272	0.066	4.012	0.000
PI → RD	0.502	0.508	0.50	9.979	0.000
CE →RD	0.141	0.143	0.062	2.263	0.024
P →CE	0.223	0.220	0.065	3.409	0.001
P →RD	0.139	0.137	0.062	2.255	0.024

Source: Researcher's Primary Data

These results indicate that both Product Innovation and Regional Planning have a direct, positive and significant impact on Community Empowerment and Regional Development. Furthermore, Community Empowerment has also been shown to have a direct impact on Regional Development, demonstrating the importance of the community's role in supporting regional development.

Indirect Effect Hypothesis Test (Mediation)

The indirect effect was analyzed to examine the mediating role of the Community Empowerment (CE) variable on the relationship between other constructs and Regional Development (RD). The results of the indirect effect test are presented as follows:

Table 5. Path Coefficient Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
PI →CE →RD	0.037	0.039	0.021	1.779	0.075
P →CE →RD	0.031	0.031	0.016	2.022	0.043

Source: Researcher's Primary Data

The results of the mediation test indicate that Community Empowerment does not significantly mediate the relationship between Product Innovation and Regional Development, as the p-value is > 0.05. This means that product innovation has a more direct influence on regional development without the need for an empowerment process.

Conversely, there is a significant indirect effect of Regional Planning on Regional Development through Community Empowerment. This indicates that a sound regional planning process will enhance community empowerment and ultimately contribute to overall regional development.

The Direct Influence of Regional Planning on Regional Development

Regional clusters have the potential to create a conducive environment that encourages businesses to develop. In addition, they promote regional growth and development. therefore, those regions provide trickle-down effects to the surrounding. strategies based on natural resource management and local economic development to strengthen the productive business environment and environmentally friendly industries that are interrelated (Fransiska & Setiawan, 2022).

The results of the mediation test indicate that Community Empowerment does not significantly mediate the relationship between Product Innovation and Regional Development, as the p-value is > 0.05. This means that product innovation has a more direct influence on regional development without the need for an empowerment process.

Conversely, there is a significant indirect effect of Regional Planning on Regional Development through Community Empowerment. This indicates that a sound regional planning process will enhance community empowerment and ultimately contribute to overall regional development.

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Regional clusters have the potential to create a conducive environment that encourages businesses to develop. In addition, they promote regional growth and development. therefore, those regions provide trickle-down effects to the surrounding. strategies based on natural resource management and local economic development to strengthen the productive business environment and environmentally friendly industries that are interrelated (Fransiska & Setiawan, 2022).

The results of the SEM analysis indicate that regional planning has a significant influence on regional development with a t value > 1.96 and p < 0.05. Theoretically, regional planning is an effort to maximize resources to improve the standard of living and welfare of the population. The implication in the field, the accuracy of spatial planning and infrastructure in Samosir Regency is the foundation for improving community welfare. However, development in Samosir still faces challenges in the form of limited basic infrastructure such as road access and uneven distribution of public services. If infrastructure development is not accompanied by integration of socio-economic aspects, the policy risks only touching the physical aspect without providing an inclusive impact. Therefore, effective planning must be comprehensive and consider various socio-economic aspects to be able to create an environment conducive to growth.

Product innovation was found to be a a dominant factor for regional development with a path coefficient value of 0.502 and a T-statistic of 9.979 (p < 0.05). This figure far exceeds the direct influence of regional planning (0.139). The field implication is that the uniqueness of local products such as differentiation in the Batak handicraft sector, specific culinary, and agricultural products becomes a more agile and instant economic driver in increasing local income. Independent product innovation can increase Samosir's competitiveness in the eyes of tourists without having to always rely on major government intervention. This confirms that business creativity at the grassroots level has the independent power to drive regional economic growth and create new jobs directly.

That spatial planning must be comprehensive and consider various socio-economic aspects. In the context of Samosir, the community considers that regional planning is not yet fully inclusive, but it has proven to have a positive impact on increasing community participation, especially when they are involved in village development programs. In other words, good regional planning has a dual function: it improves the physical aspects of the region and encourages the empowerment of the community to actively participate in development.

The Direct Influence of Product Innovation on Regional Development in Samosir Regency

Based on the results of the hypothesis test, it was found that Product Innovation is the most dominant factor in driving Regional Development in Samosir Regency with a path coefficient value of 0.502 and a T-statistic of 9.979. This a high figure

indicates that community creativity in differentiating local products, such as handicrafts and typical Batak cuisine, has a much greater direct economic impact compared to physical regional planning which only has a coefficient of 0.139. This indicates that in the field, the growth of new economic hotspots in Samosir is more triggered by independent innovation from MSMEs who are able to adapt to tourist tastes. Although Regional Planning has a smaller influence, its significance ($p = 0.024$) still proves that the provision of basic infrastructure remains an important foundation for the accessibility of tourist destinations. This finding emphasizes that the synergy between government policies (top-down) and community product creativity (bottom-up) is the main key in accelerating regional progress in Samosir.

Product innovation has a significant impact on regional development, particularly through increased income and the creation of new job opportunities. This is in line with the opinion Fauzi & Mandala (2019), that product innovation is an important element in maintaining the competitiveness of a region. However, the results of the study also found that product innovation has a more direct impact on regional development than through community empowerment mediation. This means that innovative products are strong enough to drive regional economic growth even without intensive empowerment interventions.

The Direct Impact of Community Empowerment on Regional Development in Samosir Regency

The analysis results show that community empowerment has a positive and significant influence on regional development in Samosir Regency, with a T-statistic of 2.263 and a p-value of 0.024. This finding demonstrates that the success of regional development is determined not only by physical factors but also by the capacity of the development subjects themselves. Community empowerment is a strategic effort to provide opportunities and capabilities for communities to participate, collaborate, and responsibly control local institutions to improve their quality of life. The implication on the ground is that empowered communities in Samosir have a better ability to manage local resource potential independently and sustainably.

Operationally, this direct impact is seen in increased economic independence through the mastery of entrepreneurial knowledge and technical skills. Communities that have achieved critical awareness understand that development inequality is not inevitable, but rather a social construct that can be changed through active involvement in the decision-making process. In Samosir Regency, this phenomenon is reflected in the community's willingness to adopt innovations in local products and their involvement in tourism activities, which ultimately drives regional economic growth. Therefore, strengthening the dimensions of welfare, access to resources, and community control are key pillars in creating a regional development that not only grows numerically, but is also inclusive and sustainable.

Community empowerment has proven to be a significant factor in improving regional development. The results of the analysis show that empowered communities have a better ability to manage local potential in a sustainable manner. Community empowerment, such as providing access to information, training, and skills, aims to enable communities to better manage local potential. Empowerment can also help communities raise awareness of the importance of involvement in development decision-making..

The results of this study are in line with Zuo et al., (2017), who states that "sustainable empowerment can foster independence in managing one's own resources." In the context of Samosir, the success of empowerment can be seen from the factors of increased community participation in small businesses, involvement in tourism activities, and the willingness to adopt innovations in local products.

The Indirect Influence of Regional Planning on Regional Development Through Community Empowerment Mediation in Samosir Regency

The mediation test results revealed a significant indirect effect between regional planning and regional development through community empowerment, with a T-statistic of 2.022 and a p-value of 0.043 ($p < 0.05$). This finding is crucial, indicating that regional planning in Samosir Regency cannot achieve its optimal impact alone but requires the active participation of the community as a mediating bridge. Theoretically, this supports the principle of a bottom-up approach, where the effectiveness of spatial planning and physical development policies depends heavily on the extent to which local communities are involved and empowered in the process. This supports the bottom-up approach principle in community empowerment theory (Sutrisno, 2017).

The implication in practice is that technical-bureaucratic regional planning, such as spatial planning and public infrastructure development in

Samosir, often faces obstacles when the community is positioned as a passive object. Community empowerment serves as a catalyst that transforms physical infrastructure into tangible economic added value by increasing the capacity and participation of local residents. For example, the development of tourism facilities planned by the government will be much more effective in driving regional progress if local communities possess the critical awareness and skills to manage these assets independently. Failure to integrate empowerment into planning schemes can lead to development stagnation, where the available facilities are unable to provide an inclusive welfare impact for all levels of Samosir society.

The Indirect Effect of Product Innovation on Regional Development Through Community Empowerment Mediation in Samosir Regency

Based on the results of the mediation test, it was found that community empowerment did not have a significant indirect effect on the relationship between product innovation and regional development, with a p-value of 0.075 (> 0.05) and a T-statistic of 1.779. This finding reveals a very interesting fact for regional development in Samosir Regency, where product innovation has such a dominant independent force that its impact on regional progress does not have to depend on the level of community empowerment. This indicates that innovative products produced by local business actors have very strong market competitiveness intrinsically.

The implications in the field indicate that the uniqueness, quality, and design of creative products such as Toba Batak handicrafts and local culinary products can attract tourists and directly increase regional income through market mechanisms. This product differentiation power is sufficient to drive economic growth without requiring a lengthy empowerment mediation process or intensive educational intervention. Although product innovation can directly empower communities through job creation, in the context of economic acceleration in Samosir, product innovation acts as a "fast track" that provides an immediate impact on regional development. These results confirm that policies focused on facilitating product creativity and market access will produce faster results than relying solely on conventional community empowerment schemes in the context of product innovation.

Theoretically, this study contributes to the development of strategic management and regional planning by proposing the concept of an 'economic fast-track' that challenges the conventional mediation paradigm. The finding that product innovation can influence regional development independently without the mediation of community empowerment indicates a shift in growth mechanisms in the creative economy era. This extends mediation theory by demonstrating that variables with high market maturity can have autonomous driving forces. Thus, this study contributes to science and technology by providing new empirical evidence that reconstructs the conceptual framework of the relationship between individual creativity (bottom-up) and regional policy structures (top-down) in the regional development literature.

CONCLUSION

These findings reveal a disparity in the functional pathways between product creativity and formal policy in Samosir. Specifically, the study confirms that the competitiveness of local creative products has an autonomous growth mechanism, where its economic impact on regional progress is no longer dependent on the effectiveness of community empowerment programs. This validates that innovation in the crafts and culinary sectors has reached market maturity, enabling direct contributions to regional income without the need for intermediary intervention. Therefore, the direction of future strategic policy must differentiate between strengthening the market ecosystem for self-sustaining product innovation and empowerment programs that are more focused on driving the region's physical planning, which remains passive.

On the other hand, this study confirms that physical development and spatial planning policies cannot stand alone as factors in regional transformation. While basic infrastructure planning remains the foundation of accessibility, its effectiveness in driving regional progress depends heavily on the adaptive capacity of local communities. This finding emphasizes that technical-bureaucratic government interventions will stagnate if not integrated with participation-enhancing schemes. Therefore, the function of regional planning in the Samosir context should be viewed as a complementary instrument, the success of which is determined by the extent to which the policy is able to activate the community's social capital to manage public assets sustainably.

As a critical note, this study acknowledges limitations in the internal consistency of community empowerment indicators, as reflected in reliability values that fall below conventional thresholds. This statistical phenomenon suggests that current mea-

surement instruments are not fully capable of capturing the complexity of the Samosir community's highly diverse perceptions of well-being and resource access. Therefore, the development of indicators that are more contextual and specific to local socio-cultural values is an urgent need for future research. Nevertheless, these findings provide a strong empirical foundation for regional development strategies based on local potential, while also opening up opportunities for exploring new variables such as the adoption of digital technology to strengthen development synergies.

Another contribution of science and technology from this research lies in the methodological aspects of psychometrics, particularly in the development of community empowerment measurement instruments in specific sociocultural areas. The finding of a low Cronbach's Alpha value (0.297) on the Community Empowerment variable indicates the limitations of the existing conventional measurement scale when applied to local communities in priority tourism areas such as Samosir. This opens up space for the advancement of science and technology through the development of new, more contextual indicators, which are able to capture the dimensions of 'welfare' and 'social control' from the perspective of local wisdom. Thus, this research serves as a trigger for future research to reconstruct development evaluation instruments that are more precise and have higher ecological validity in the context of the sociology of island regional development.

REFERENCES

Alfarisy, M. F. (2025). How Regional Economic Growth, Population, and Manufacturing Value-Added Contribute to Regional Labor Force Participation. *Journal of Economics Research and Social Sciences*, *9*(2), 154–164.

Almira, A., & Susanto, J. E. (2018). The Influence of Product Innovation and Product Quality on Maison Nob Purchasing Decisions. *Journal of Management and Business Start-Up*, *3*(2), 252–255.

Altinay, L., Sigala, M., & Waligo, V. (2016). Social Value Creation through Tourism Enterprise. *Tourism Management*, *54*, 404–417.

Anup, K. (2016). Ecotourism and Its Role in Sustainable Development of Nepal. In *Tourism - From Empirical Research Towards Practical Application*.

Budiman, A., Kusjuniati, & Agrosamdhyo, R. (2025). Pelaksanaan Pemberdayaan Ekonomi Program Zmart Dalam Meningkatkan Kesejahteraan UMK (Usaha Mikro Kecil) Di Baznas Provinsi Bali. *Jurnal Ilmu Pendidikan Dan Ekonomi*, *10*(1), 151–163.

Ekosafitri, H., & Kurniawati. (2017). Development of Central Java's Northern Coast Based on Local Infrastructure: Case Study of Jepara Regency. *Journal of Regional and Rural Development Planning*, *2*, 145–157.

Erowati, D. (2021). *Village Fund Policy for Community Empowerment and Village Development*. Scopindo Media Pustaka.

Fauzi, M. R., & Mandala, K. (2019). The Influence of Service Quality, Product Quality, and Product Innovation on Satisfaction to Increase Customer Loyalty. *E-Journal of Management*, *8*(11), 6741–6761.

Fransiska, B., & Setiawan, E. (2022). Strategy for Reducing Regional Economic Disparities in Gerbangkertosusila: A Cluster Regional Approach Based on Leading Sectors. *Jurnal Wilayah Dan Lingkungan*, *10*(3), 213–225.

Hidayat, R., & Wulandari, P. (2022). Pemodelan Persamaan Struktural (SEM) Dalam Penelitian: Tinjauan Literatur Naratif. *Jurnal Ilmu Sosial Indonesia*, *5*(6).

Maryana, S., & Permatasari, B. (2021). The Influence of Promotion and Product Innovation on Purchasing Decisions (Case Study of a New Indonesian Iced Tea Outlet in Bandar Lampung). *TECHNOBIZ Journal*, *4*(2), 62–69.

McKinney, T. (2016). Ecotourism. In *The International Encyclopedia of Primatology* (Vol. 1). John Wiley & Sons, Inc.

Mulalinda, S. N. D., Sumampow, I., & Kimbal, A. (2021). Perencanaan Terpadu Di Badan Perencanaan Pembangunan Daerah (BAPPEDA) Kabupaten Siau Tagulandang Biaro. *Jurnal Eksekutif*, *1*(2).

Nairobi, A., & Respitasari, R. (2021). Public Infrastructure and Economic Growth in the Local Region. *Jurnal Ekonomi Pembangunan*, *19*(2), 123–134.

Nugraha, A. (2021). Socialization of the Importance of Product Innovation in Coffee Filters and Product Innovation Training. *Pelita Ilmu Scientific Magazine*, *4*(1), 35–50.

Panta, S. K., & Thapa, B. (2017). Entrepreneurship and Women's Empowerment in Gateway Communities of Bardia National Park, Nepal. *Journal of Ecotourism*, *17*(1), 1–23.

Pratama, N. R., & Hamid, M. F. A. (2023). Marketing Strategy Design for Housing Property Company Using Structural

Equation Modeling and Strategic Management Approach. *European Journal of Science, Innovation and Technology*, *3*(4), 317–330.

Putri, F. A., Firdaus, & Burhanuddin, F. (2024). Analysis of Regional Development Based on Leading Sectors and Its Contribution to Economic Improvement in Bulukumba Regency. *Innovative: Journal of Social Science Research*, *4*(3), 10237–10249.

Rasyid, H. Al, & Indah, A. T. (2018). The Influence of Product Innovation and Price on Yamaha Motorcycle Purchasing Decisions in South Tangerang City. *Jurnal Perspektif*, *16*(1), 39–49.

Rantissi, Y A. (2024). 'Pemberdayaan Ekonomi Masyarakat Dengan Literasi Dan Pengelolaan Sumber Daya Lokal Di Desa Perkebunan Maryke', Jurnal Pengabdian Masyarakat Indonesia Sejahtera, 3(3)

Septiawan, Y., Hidayat, J. T., & Syahbandar, M. Y. (2024). Pengembangan Aspek Fisik, Sosial, Ekonomi, Dan Infrastruktur Sebagai Arahan Pertumbuhan Kawasan Perdesaan Cijeruk. *Jendela Kota: Jurnal Perencanaan Dan Pengembangan Wilayah Dan Kota*, *1*(1), 14–25.

Setyawan, A A, and others. (2025). 'Pemberdayaan Masyarakat Dalam Meningkatkan Kemandirian Ekonomi Lokal: Penelitian', Jurnal Pengabdian Masyarakat Dan Riset Pendidikan, 4(1), 1494–1503

Simanjuntak, A. P., Sumarti, T., & Kinseng, R. A. (2019). Social Interaction and The Practice of Power Among Small Fishers. *Jurnal Ilmu Sosial*, *18*(1), 35–61.

Sirait, P H, M A K Harahap, and A Sinurat. (2025). 'Analisis Pengaruh Perencanaan Wilayah Terhadap Pertumbuhan Ekonomi Lokal Di Kawasan Perbatasan', PESHUM: Jurnal Pendidikan, Sosial Dan Humaniora, 4(2), 1972–1980.

Sumarna, A. (2022). Environmentally Sustainable Regional Development Management. *Jurnal Economic Resources*, *5*(2), 456–464.

Sutrisno, E. (2017). *Human Resource Management*. Kencana.

Tresnawati, R. (2021). Pemberdayaan Masyarakat Menuju Kemandirian Masyarakat Dinas Sosial Kabupaten Cianjur. *Jurnal Inovasi Masyarakat*, *1*(3), 252–259.

Zuo, B., Gusoy, D., & Wall, G. (2017). Residents' Support for Red Tourism in China: The Moderating Effect of Central Government. *Annals of Tourism Research*, *6*(4), 51–63.