Testing the Best Development Planning Collaboration Model in Moderating the Acceleration of Regional Economic Development

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ABSTRACT

Regional economic development is the ability to generate additional income or improve welfare. The effectiveness of the Sumatra Provincial Government in implementing economic development. This research aims to examine a collaborative development planning model that can support economic development in North Sumatra Province. Structural Equation Model (SEM) was adopted as an analytical framework using a quantitative approach with a focus on cause-and-effect relationships and influences. The results show that only the Top-Down Planning Pattern has a direct impact on Regional Economic Development. Apart from that, the collaborative model of Dawes & Eglene, Djumara, and Ansell & Gash can increase regional economic development. Based on data analysis, the Collaborative model is proven to be effective compared to the direct influence of Bottom-Up and Top-Down planning. Meanwhile, Bottom-Up planning which is strengthened by the Djumara model was chosen as the most effective in increasing regional economic development. Among the three collaboration models, Djumara and Ansell & Gash have a positive impact on this variable. However, through indirect testing, Dawes & Eglene, Djumara, and Ansell & Gash can mediate or improve these variables. Based on the results, Bottom-Up planning through the Djumara model is most effective in increasing regional economic development. This model is recommended as a shortcut to effective development planning using Collaborative Culture, Leadership, Strategy, and Team Processes.
Keywords: ***Best Development , Planning Collaboration Model , Regional Development Planning, Economic Development***

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1. INTRODUCTION

Development planning is an ongoing process including the policy of decision-makers based on available resources, and implemented systematically as reported. In this context, regional development is carried out based on the principles of autonomy and national resource management, providing opportunities for enhancing democracy and community well-being. This variable constitutes an important aspect of development planning with a key policy of prioritizing attainment.[1]

To ensure consistent and directed regional development planning, legal regulations are established as the foundation and reference for the process. These regulations include Law Number 25 of 2004 on the National Development Planning System, Government Regulation Number 8 of 2008 on the Stages, Procedures for Formulating, Controlling, and Evaluating the Implementation of Regional Development Plans, supplemented by Minister of Home Affairs Regulation Number 54 of 2010 as the implementation of Government Regulation Number 8 of 2008. In addition, economic development is a crucial indicator in analyzing the results of development implemented by a country or region. This variable reflects the extent to which economic activities can generate additional income or well-being for the community in a specific period. There is effective development when the growth of a country or region continues to show improvement. [2], [3]

The economic growth of North Sumatra Province in 2019 was 5.22%, exceeding the national result recorded at 5.02%. Due to the impact of the Covid-19 pandemic in 2020, economic growth was reduced by -1.07%. This condition is slightly better than the national economic reduction of -2.07%. There is a significant difference between the economic and national growth from 2019 to 2021, with a value approaching 2.3% each year. Even though the rate of growth in 2021 was 3.81%, the process is considered low compared to the Province of Bangka Belitung Islands, which achieved 5.06%. [4]

The ability to implement national development planning determines different outcomes, particularly in the economic sector. Failure to conduct the process effectively results in a limited synchronization, primarily confined to the reporting of documents in the form of a Local Government Work Plan, without driving regional economic development. Meanwhile, these planning documents serve as evidence of conducting the processes and stages of development. The extent to which the processes effectively support and synchronize the implementation remains uncertain, obtaining substantial outputs and impacts on regional economic development. Specifically, a planning model is required, regarding the occurrence of synchronization and collaboration among development stakeholders.[5] The focus is on the analysis of the community as a stakeholder, simultaneously serving as the prime target for development. Therefore, a collaborative planning model can be identified to support the achievement of targets in North Sumatra Province as well as the regencies and cities. The resulting model is expected to contribute to the effectiveness of regional development, directly impacting the achievement of key performance indicators for local leaders in line with the national programs. A well-designed collaborative model is also essential to generate effective plans aimed at increasing economic development.[4]

2. RESEARCH METHODOLOGY

The method used in the research is Mixed Method Research (MMR) and this was applied when questions were to be examined in terms of outcomes and processes. In the explanatory design, quantitative data was collected before qualitative data, depending on the results. In addition, the populations used were the leaders, staff, and individuals directly part of development planning. These included the Head of the Regional Development Planning Agency at the provincial and regency/city levels, and the Planning and Development Section of North Sumatra Province. The total population was 187 individuals since the research analyzed the strategic management process. Therefore, the entire population was considered as the research sample and the sources consisted of primary and secondary data.

The model for regional development planning to increase economic growth can be assessed through key variables. These include Top-Down, Bottom-Up, and regional economic development, as well as three types of Collaborative Planning, namely Dawes and Aglene, Djumara, and Ansell & Gash. The six variables are measured across 34 dimensions and 143 indicators to provide a comprehensive overview. Causality and influence models were applied in this research. To test the proposed hypothesis, the analysis technique selected was SEM. The decision was based on the ability to identify the dimensions of a construct, as well as to measure the influence or level of relationship between the factors . Data analysis using Structural Equation Modeling (SEM) was carried out to thoroughly explain the relationship between variables in this study . In this study, Structural Equation Models were analyzed using Analysis of Moment Structures (AMOS) software.

3. RESEARCH RESULTS

1.1. SEM Test Results

Measurement Model Evaluation

Evaluation of the measurement model was carried out through *Confirmatory Factor Analysis* (CFA) to test the validity and reliability of the construct [6]. Additionally, the factor loading value of each indicator and AVE value were examined to test construct validity. An indicator was said to be valid when the value was greater than 0.5 and the reliability test was carried out by analyzing the Critical Ratio (CR) value. Meanwhile, a construct was reliable when the CR value was ≥ 0.7, and first-order CFA analysis showed that the validity and reliability criteria [7]

The *second order* CFA, the construct dimensions of *Bottom-Up, Top-Down,* and *Regional Economic Development* Planning had a *loading factor* (SLF) value greater than 0.50 (SLF > 0.50). Therefore, the selected construct dimensions had good validity in measuring the three constructs. The selected dimensions measuring the three constructs had reliability and variance extracted values greater than 0.70 (CR > 0.70) and 0.50 (VE > 0.50), respectively. In this context, the selected dimensions of the three constructs possessed good reliability in forming *Bottom-Up* Planning.

The *second order* CFA, the dimensions of Dawes & Eglene, Djumara, and Ansell & Gash Collaborative Planning construct had an SLF value greater than 0.50 (SLF > 0.50). Therefore, the dimensions possessed a good validity in measuring the three constructs. The dimensions for measuring Collaborative Planning construct Dawes & Eglene, Djumara and Ansell & Gash had *construct reliability* and *variance extracted* values greater than 0.70 (CR > 0.70) and 0.50 (VE > 0.50), respectively.[8]

SEM assumption test

a. The distribution of the observed variable is normal in a multivariate manner

The data used in research through SEM application should have a normal distribution. This normality can be seen through a comparison of the CR and *z score* value from the data obtained. The level of significance in the accuracy

of the results processed by SEM is around 99%, which is 0.1. The results obtained by z from the table are ± 2.58 and the data is normally distributed when CR value ranges from -2.58 to +2.58. In this research, CR skewness and kurtosis values for each indicator were between -2.58 and +2.58 since the data met the assumption of univariate normality. Meanwhile, the multivariate CR value obtained is 2,430, because the cr value is lower than 2.58, concluding that the data meets the assumption of multivariate normality.

b. Evaluation of multicollinearity and singularity

Indications of multicollinearity and singularity can be seen through the determinant value of the covariance matrix which is small, or close to zero. From the data processing, the determinant value of the sample covariance matrix is: *Determinant of sample covariance matrix* = .0000. The *determinant of sample covariance matrix* value is zero and this shows the existence of a singularity problem.

c. Assumed *Outliers*

The *outliers* test was carried out using the Mahalanobis Distance criterion at the p<0.001 level. The *Mahalanobis Distance* is evaluated using X^2 at degrees of freedom equal to the number of variable indicators. In this research, the number of indicators used is 135, and at a p-level of 0.001, the X^2 value is 191.52. Therefore, when the highest *Mahalanobis Distance* value is lower than 191.52, there are no outlier data. The highest value is 160.78 lower than the X^2 table, showing the absence of outliers.

Evaluation of structural models

The conceptual relationship between the analyzed variables is realized in SEM. The following figure is the initial SEM from testing results using the AMOS computer program. Meanwhile, Table 1 shows the goodness of fit assessment for model.

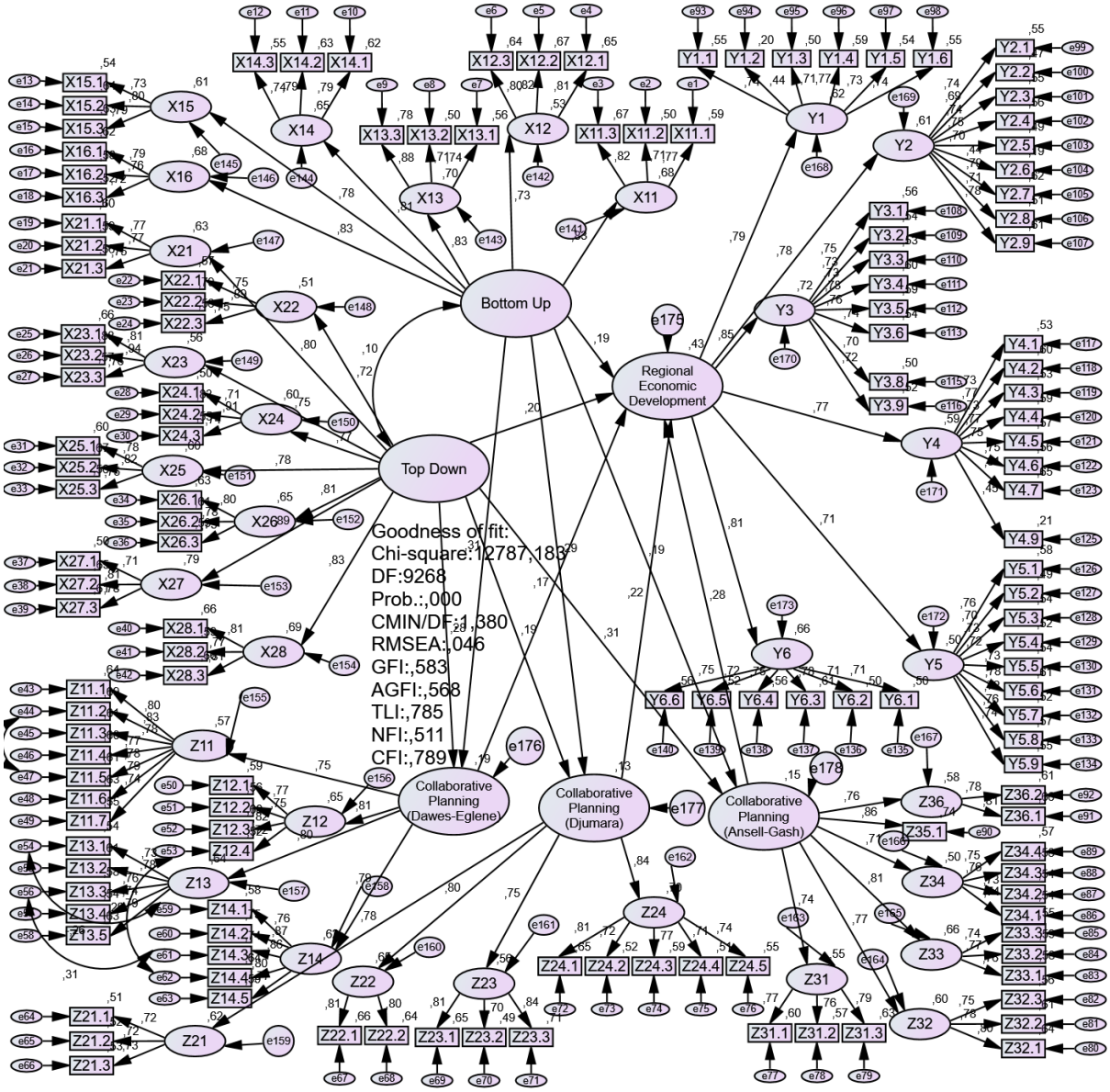

Figure 1. SEM Research output

Table 1. Size of Measurement Model Conformity

GOF Indicator	Expected Size	Estimated Results	Conclusion
Chi-Square	Smaller than 9494,085 (df=9269)	12793,680	Bad Fit
Significance Probability (p)	≥ 0,05	0,000	Bad Fit
RMSEA	≤ 0,08	0,046	Good Fit
GFI	≥ 0,90	0,583	Bad Fit
AGFI	≥ 0,90	0,568	Bad Fit
CMIN/DF	≤ 2,00	1,380	Good Fit
TLI	≥ 0,95	0,785	Bad Fit
CFI	≥ 0,94	0,789	Bad Fit

Note: Marginal Fit is a condition of the suitability of a measurement model below the *absolute* or *incremental fit* criteria, but can still be continued in further analysis due to the closeness to *good fit* criteria.

Based on Table 1, the eight suitability measures obtained have *good fit* measurement model indices, namely RMSEA and CMIN/DF. Meanwhile, the suitability included in the *bad fit* category includes Chi-Square, *Significance Probability* (p), GFI, AGFI, TLI, and CFI. To increase the bad fit criteria, the indicator is dropped and modified by connecting the error to the Modification Indices from the AMOS output.
Therefore, this research model is not fit but the AMOS *output* shows the recommendation of model for modification. The connection and removal of the suggested variables can reduce the chi-square and increase the probability value. However, variable modification can only be carried out when there is a strong theory from previous research. These facts and solutions were also used in Amos 21 and Amos 22 [9]. Modifications can only be made for indicator errors on all endogenous and exogenous variables. This approach was also carried out in research regarding the implementation of corporate resource planning using AMOS. The results of the modification of the output model obtained the following results:

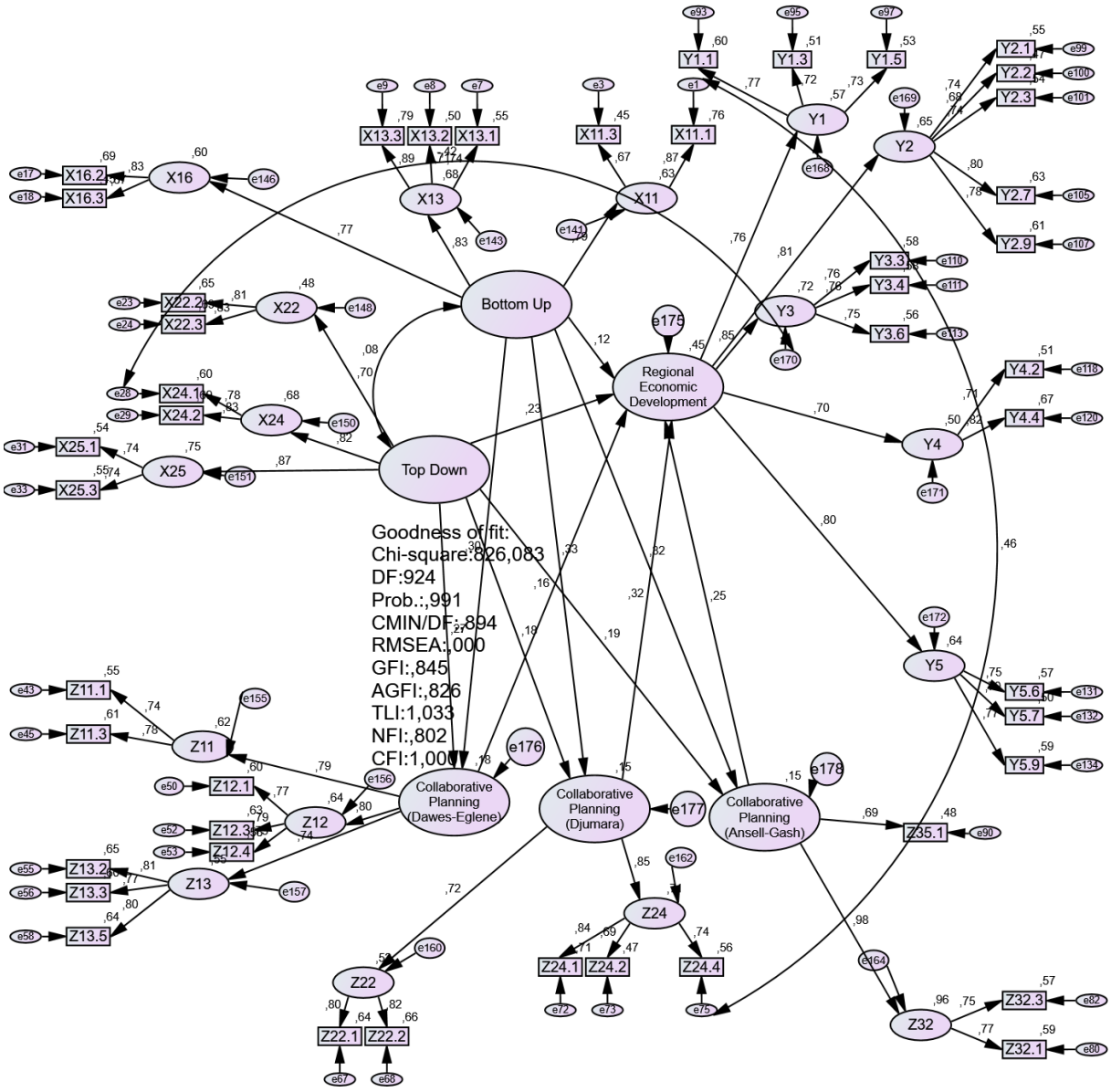

Figure 2. AMOS output research model (After indicator drop and modification)

The goodness of fit assessment for model is shown in Table 2 below:

Table 2. Measures of suitability of the full model measurement model (after drop and modification)

GOF Indicator	Expected Size	Estimated Results	Conclusion
Chi-Square	Smaller than 995,828 (df=924)	826,083	Good Fit
Significance Probability (p)	≥ 0,05	0,991	Good Fit
RMSEA	≤ 0,08	0,000	Good Fit
GFI	≥ 0,90	0,845	Marginal Fit
AGFI	≥ 0,90	0,826	Marginal Fit
CMIN/DF	≤ 2,00	0,894	Good Fit
TLI	≥ 0,95	1,033	Good Fit
CFI	≥ 0,94	1,008	Good Fit

Note: Marginal Fit is a condition of the suitability of a measurement model below the *absolute fit* or *incremental fit* criteria, but can still be continued in further analysis because it is close to the *good fit* criteria.

Based on Table 2 above, the eight obtained goodness-of-fit measures have indices showing a *good fit* for model. These measures include Chi-Square, *Significance Probability* (p), RMSEA, CMIN/DF, TLI, and CFI, as well as *marginal fit* indices GFI and AGFI. Marginal Fit represents a condition where the fit of the measurement model falls below the criteria for absolute and incremental fit measures. However, this can be pursued for further analysis when closely approaching the criteria for good fit measures.

1.2. Regression equation

The regression equation is created as a model for estimating the relationship between the variables and sub-variables used. The equation formed based on model is as follows:

Z1 = 0,295*X1 + 0,275*X2, Errorvar= 0,824, R-square = 0,176
Z2 = 0,330*X1 + 0,180*X2, Errorvar= 0,849, R-square = 0,151
Z3 = 0,318*X1 + 0,186*X2, Errorvar= 0,854, R-square = 0,146
Y = 0,117*X1 + 0,232*X2 + 0,164*Z1 + 0,319*Z2 + 0,248*Z3, Errorvar= 0,550, R-square = 0,450

The conclusions obtained based on the equation above include:

a. 1st Equation:

The R-square value obtained is 0.176, showing that the X1 and X2 have an influence of 17.6% on Z1. Meanwhile, the error var amounting to 0.824 reports that Z1 is influenced by other external factors, amounting to 82.4%.

b. 2nd Equation:

The R-square value obtained is 0.151, showing that X1 and X2 have an influence of 15.1% on Z2. According to the error var amounting to 0.849, Z2 is influenced by other external factors, amounting to 84.9%.

c. 3rd Equation:

The R-square value obtained is 0.146, showing that X1 and X2 have an influence of 14.6% on Z3. Meanwhile, the error var amounting to 0.854 reports that Z3 is influenced by other external factors, amounting to 85.4%.

4th Equation:

The R-square value obtained is 0.450, showing that X1, Z1, Z2, and Z3 have an influence of 45.0% on Y. According to the error var of 0.550 shows, Y is influenced by other external factors, amounting to 55.0%.

Partial hypothesis testing results

Based on model above, the relationship between the independent and dependent variables is explained in Table 3:

Table 3. Summary of partial hypothesis testing

Hypothesis				Standardized	S.E.	C.R.	P	Conclusion
H1	Z.1	<---	X.1	,295	,133	2,845	,004	Significant
H2	Z.2	<---	X.1	,330	,170	2,964	,003	Significant
H3	Z.3	<---	X.1	,318	,146	3,235	,001	Significant
H4	Z.1	<---	X.2	,275	,052	2,751	,006	Significant
H5	Z.2	<---	X.2	,180	,062	1,776	,076	Not Significant
H6	Z.3	<---	X.2	,186	,058	1,924	,054	Not Significant
H7	Y	<---	X.1	,117	,093	1,172	,241	Not Significant
H8	Y	<---	X.2	,232	,035	2,476	,013	Significant
H9	Y	<---	Z.1	,164	,070	1,699	,089	Not Significant
H10	Y	<---	Z.2	,319	,072	2,710	,007	Significant
H11	Y	<---	Z.3	,248	,061	2,563	,010	Significant

The general hypothesis used in this test is as follows:

Ho The independent variable does not have a significant effect on the dependent variable
Ha The independent variable has a significant effect on the dependent variable

The basis for decision-making for this test is as follows:

H_0 is rejected when P<0.05 at the α 5% level
H_0 is accepted when P>0.05 at the α 5 level

Based on Table 3 above, the hypotheses can be analyzed as follows:

a. Hypothesis 1: Bottom-Up Development Planning Pattern (X1) has a significant effect on Collaborative Planning (Dawes & Eglene/Z1).

Bottom-Up Development Planning Pattern (X1) has a CR value of 2.845 and a P-value of 0.004. This is because CR of 2.845 is greater than the t table of 1.96 and the p-value (0.004) is lower than 0.05. Therefore, H1 is accepted, showing that the X1 variable has a significant effect on Dawes & Eglene Collaborative Planning. Bottom-Up

development planning pattern has a significant influence on Collaborative Planning of Dawes and Aglene. Collaborative Planning is a process that includes various stakeholders working together in developing sustainable development plans.

This process comprises social learning, where stakeholders share knowledge and experience to achieve a common understanding of the problem and solution. The nature includes active participation from the community or related parties at the local level, and the approach allows various perspectives and specific needs of local communities to be accommodated in planning process. The inclusion of citizens, small groups, or organizations in developing development plans provides opportunities for open dialogue, exchange of ideas, as well as deeper identification of needs. Community participation in formulating a plan has also been carried out in various places, such as research on village-level development, formulation of energy policy in England and participation in making policies in the United States. [10], [11]

, strong Bottom-Up planning patterns enable the creation of inclusive, collaborative platforms in urban planning. In this process, there is an opportunity to contribute directly to determining development priorities, creating a sense of ownership of decisions, as well as feeling more included in implementing agreed plans. Therefore, active participation from the grassroots level builds a strong basis for collaborative development in considering common interests to plan the city's future more holistically.

b. Hypothesis 2: Bottom-Up Development Planning Pattern (X1) has a significant effect on Collaborative Planning (Djumara/Z2).

Bottom-Up Development Planning Pattern variable (X1) has a CR value of 2.964 and a P-value of 0.003 because the CR value (2.964) is greater than the t table (1.96) and the p-value (0.003) is lower than 0 .05. Therefore, H2 is accepted, showing that (X1) has a significant effect on Djumara Collaborative Planning. The results found that Bottom-Up Development Planning Pattern had a significant effect on Djumara Collaborative Planning. According to Zaini (2011), Bottom-Up planning comprises active participation from the community. By directly including the community in development plans, Bottom-Up planning creates opportunities for the community to contribute, discuss, and reach collective agreements. This is in line with the concept of Collaborative Planning according to Djumara, which focuses on the importance of communication, dialogue, and joint decision-making by various stakeholders. Therefore, community participation through Bottom-Up planning can create an environment supporting the formation of joint and collaborative decisions, as the hallmark of Collaborative Planning. The results show that Bottom-Up Development Planning Pattern has the potential to be a strong foundation for realizing effective and inclusive Collaborative Planning.

Collaborative Planning Theory according to Djumara is a process of joint decision-making by various stakeholders through communication and dialogue to obtain solutions. In the context of regional economic development, the variable has a significant impact due to the active participation of various stakeholders in planning process, including the community, government, and the private sector. Active participation is very important to reach a mutual agreement and obtain satisfaction with the process and results. Moreover, Collaborative Planning Patterns can also increase transparency, knowledge transfer, community empowerment, planning inclusiveness, integration between stakeholders, citizen participation in vision formulation, joint learning, the realization of a sense of belonging, and communication.

In the context of regional economic development, Collaborative Planning Patterns can improve the quality of policies and programs produced, as well as ensure that the interests of all stakeholders are properly accommodated. Moreover, the variable can increase community participation in the decision-making process and program implementation. Therefore, Collaborative Planning Pattern can be an effective strategy for achieving successful regional economic development under the theory proposed by Djumara.

c. Hypothesis 3: Bottom-Up Development Planning Pattern (X1) has a significant effect on Collaborative Planning (Ansell & Gash/Z3).

Bottom-Up Development Planning Pattern variable (X1) has a CR value of 3.235 and a P-value of 0.001 because the CR value (3.235) is greater than t table (1.96) and the p-value (0.001) is lower than 0 .05. Therefore, H2 is accepted, showing that Bottom-Up Development Planning Pattern (X1) has a significant effect on Ansell & Gash Collaborative Planning. The variable has a substantial impact on the concept of *collaborative governance* described by Ansell & Gash. According to, Bottom-Up planning focuses on active community participation, facilitating direct participation in planning process. In this paradigm, decisions from the government, community groups, non-governmental organizations, and other entities. The concept is in line with the essence of *collaborative governance* which focuses on cross-sector collaboration to face complex problems. By including various stakeholders in decision-making, Bottom-Up planning patterns create a solid foundation for more effective and inclusive collaboration. This is also carried out in formulating policies such as infrastructure development in Hong Kong, Collaborative Planning in the United States, and climate change policy development in the United States.

The strong connection between Bottom-Up planning patterns and *collaborative governance* lies in the shared philosophy of active participation and inclusiveness in decision-making. The inclusion of communities in development planning process creates openness, allows dialogue between the parties, and strengthens cross-sector collaboration. The active participation of the community in formulating development policies and strategies forms

a framework supporting a transparent and responsive decision-making process. Therefore, Bottom-Up planning patterns promote wider public participation and support the implementation of *collaborative governance* principles in urban governance.

d. Hypothesis 4: The Down Development Planning Pattern (X2) has a significant effect on Dawes & Eglene Collaborative Planning (Z1).

Top-Down Development Planning Pattern variable (X2) has a CR value of 2.751 and a P-value of 0.006 because the CR value (2.751) is greater than the t table (1.96) and the p-value (0.006) is lower than 0 .05. Therefore, H41 is accepted, showing that the X2 has a significant effect on Dawes & Eglene Collaborative Planning. Top-Down Development Planning Pattern had a significant effect on Dawes & Eglene Collaborative Planning. This can occur because the variable includes dividing tasks and responsibilities to leaders and institutions in planning process, which may lead to a lack of participation in the process. According to Innes dan Booher, (2015), Top-Down is a governance model carried out by "policy elites" before distributing planning proposals to the lower hierarchy. However, model has several advantages in the context of Collaborative Planning. The division of tasks and responsibilities among leaders and institutions can increase the efficiency and effectiveness of planning process. Moreover, the variable can manage the sustainability of projects and programs, as well as ensure that tasks are well managed in a short time. Even though Top-Down model has advantages, the case example of implementing the PLP-BK program in Kutoharjo Village, Kendal Regency shows that Collaborative Planning in practice is not optimal and requires further attention [14]. This is caused by several factors, such as lack of transparency, knowledge transfer, community empowerment, planning inclusiveness, integration between stakeholders, and citizen participation in vision formulation.[15]

e. Hypothesis 5: Top-Down Development Planning Pattern (X2) has a significant effect on Djumara Collaborative Planning (Z2).

Top-Down Development Planning Pattern variable (X2) has a CR value of 1.776 and a P-value of 0.076 because the CR value (1.776) is lower than the t table (1.96) and the p-value (0.076) is greater than 0.05. Therefore, H5 is rejected, showing that X2 has no significant effect on Djumara Collaborative Planning. These results are inversely proportional to the theory applied in Collaborative Planning by considering several important aspects such as communication, dialogue, and joint decision-making.

Djumara's theory focuses on the importance of communication in creating joint decisions. In the context of Collaborative Planning, effective communication plays an important role in transmitting information, discussing ideas, and creating appropriate solutions. By ensuring transparent and effective communication, the stakeholders can understand the differences in creating better joint decisions. Djumara's theory focuses on the importance of dialogue in creating joint decisions. In the context of Collaborative Planning, dialogue allows stakeholders to talk, listen, and understand differences. This creates a safe and inclusive environment, where stakeholders feel heard and loved while contributing to the decision-making process.

Djumara's theory shows the importance of collaborative decision-making among various stakeholders through communication and dialogue to obtain solutions. In the context of Collaborative Planning, joint decision-making enables stakeholders to be consistent with policies and programs. By applying the theory, planning practitioners can establish a more inclusive, transparent, and effective environment for diverse stakeholders in the decision-making process. This leads to development of a more sustainable regional economy and contributes to well-being. The importance of collaborative decision-making is also considered among various stakeholders through communication and dialogue to obtain solutions.The application of collaborative governance should include diverse stakeholders, such as the public sector, private sector, and civil society, in the decision-making process. By enhancing communication, dialogue, and collaboration among stakeholders, a more comprehensive and effective problem-solving approach can be achieved. This is consistent with the principles of consensus decision-making, which examines the aspects of an issue and considers various perspectives before reaching a decision. Furthermore, the theory supports the idea that collaborative governance can obtain more sustainable and attainable outcomes by promoting stakeholders to obtain common ground.

f. Hypothesis 6: Top-Down Development Planning Pattern (X2) has a significant effect on Ansell & Gash Collaborative Planning (Z3).

Top-Down Development Planning Pattern variable (X2) has a CR value of 1.924 and a P-value of 0.054 because the CR value (1.924) is lower than the t table (1.96) and the p-value (0.054) is greater than 0 .05. Therefore, H6 is rejected, showing that X2 has no significant effect on Ansell & Gash Collaborative Planning. The research results show that Top-Down development planning pattern does not have a significant influence on the concept of *collaborative governance* proposed by Ansell & Gash. This can be caused by the establishment of a centralized power structure in the decision-making process. According to Thompson (2016), Top-Down planning tends to depict authority concentrated in the government or authoritative entity, limiting the active participation of community groups and other related parties in planning process. The concentration of authority in government decreases cross-sector cooperation and broad participation as the main characteristics of *collaborative governance*. Top-Down pattern often limits the space for active and inclusive participation from the community or non-government actors in the decision-making process, which is the main cornerstone of *collaborative governance*.

These limitations prevent the formation of collaborative frameworks that promote information exchange, mutual learning, as well as understanding between different stakeholders. Even though Top-Down pattern is more efficient in decision-making, the realization of collaborative principles is decreased in planning process.

g. Hypothesis 7: Bottom-Up Development Planning Pattern (X1) has a significant effect on Regional Economic Development (Y).

Bottom-Up Development Planning Pattern variable (X1) has a CR value of 1.172 and a P-value of 0.241 because the CR value (1.172) is lower than the t table (1.96) and the p-value (0.241) is greater than 0 .05. Therefore, H7 is rejected, showing that X1 has no significant effect on Regional Economic Development (Y). The results show that the variable does not have a significant influence on regional economic development due to several factors. According to Semeraro et al., (2020), Bottom-Up model focuses on active community participation in planning. This model tends to prioritize social needs, the environment, or participatory policies without directly exploring or adopting macroeconomic strategies.

The lack of clear links or arrangements between Bottom-Up planning patterns and regional economic development policies can limit the impact on regional economic aspects. Bottom-Up process does not directly reach or have a special focus on macroeconomic growth strategies needed for regional development. This is an obstacle in translating aspirations into concrete and effective economic policies to promote regional economic development. This gap may be responsible for the lack of significant influence on regional economic development from Bottom-Up model in urban planning.

h. Hypothesis 8: Top-Down Development Planning Pattern (X2) has a significant effect on Regional Economic Development (Y).

Top-Down Development Planning Pattern variable (X2) has a CR value of 2.476 and a P-value of 0.013 because the CR value (2.476) is greater than the t table (1.96) and the p-value (0.013) is lower than 0 .05. Therefore, H8 is accepted, showing that X2 has a significant effect on Regional Economic Development (Y). Through this approach, the government can allocate resources strategically to promote key economic sectors in the region. With development guidelines and policies implemented from the central level, the implementation of infrastructure projects, training programs, and economic stimulus can be directed in a more targeted manner to support growth of sectors with great potential, such as agriculture, tourism, or the manufacturing industry.Top-Down planning can create a consistent regulatory framework and support investment. With clear regulations and support from the central government, investors tend to feel more confident in investing capital in North Sumatra. This can create a more stable and attractive business environment, which stimulates growth of the local economic sector. Moreover, the central government can provide incentives and facilities that make investment easier, such as tax exemptions or infrastructure support, increasing the attractiveness of the region for business actors. However, the implementation of Top-Down development planning is carried out considering local needs and aspirations. Effective communication between the central and regional governments, as well as community participation in planning process, can be the key to success in exploiting the positive potential of Top-Down planning.

i. Hypothesis 9: Dawes and Eugene Collaborative Planning (Z1) has a significant effect on Regional Economic Development (Y).

The Dawes & Eglene Collaborative Planning variable has a CR value of 1.699 and a P-value of 0.089 because the CR value (1.699) is lower than the t table (1.96) and the p-value (0.089) is greater than 0.05. Therefore, H9 is rejected, showing that the variable has no significant effect on Regional Economic Development (Y). The results show that Collaborative Planning Pattern proposed by Dawes and Aglene does not have a significant influence on regional economic development due to fundamental reasons.

The success of Collaborative Planning often depends on the work capacity of the parties. The implementation of planning plan can be affected when there is disagreement or a lack of motivation from these parties. Meanwhile, differences in interests and goals between the parties can also become serious obstacles. Collaboration in planning is difficult to achieve, reducing effectiveness in stimulating regional economic development when stakeholders have different or less coherent agendas. Collaborative approach focuses on the participation of various parties, including the community, private sector, and government in decision-making regarding regional development. This cross-sector collaboration creates space for the exchange of ideas, strategies, and resources to produce more comprehensive solutions oriented toward sustainable economic development. explained that Collaborative Planning Patterns embraced the diversity of perspectives and interests within an area. By facilitating open dialogue between various stakeholders, this approach allows a more holistic identification of economic problems as well as the formulation of solutions considering various aspects. Opportunities are created to implement more targeted and sustainable economic policies and projects through close collaboration between different sectors, contributing to better economic development in a region.

j. Hypothesis 10: Djumara Collaborative Planning (Z2) has a significant effect on Regional Economic Development (Y).

The Djumara Collaborative Planning variable has a CR value of 2.710 and a P-value of 0.007 because the CR value (2.710) is greater than the t table (1.96) and the p-value (0.007) is lower than 0.05. Therefore, H10 is accepted, showing that the variable has a significant influence on Regional Economic Development (Y). According

to Djumara, the importance of cooperation among diverse stakeholders is shown in formulating regional economic development policies and strategies when a significant influence is exerted on Regional Economic Development. Djumara (2008) dalam Armawadin et al., (2023) specified collaboration principles to include respect and integrity, ownership, and harmony, consensus, full responsibility and accountability, trust-based relationships, as well as recognition and growth.

Collaborative Planning promoted by Djumara enables the formation of an inclusive forum, where various parties can actively participate in identifying local economic potential, evaluating challenges, and formulating joint solutions. This produces a more comprehensive development strategy, integrating various aspects such as infrastructure, human resources, and economic policies supporting regional growth. Therefore, the significant effect on Regional Economic Development of Collaborative Planning concept lies in the capacity to build a framework supporting sustainable economic development.

k. Hypothesis 11: Ansell & Gash Collaborative Planning (Z3) has a significant effect on Regional Economic Development (Y).

The Ansell & Gash Collaborative Planning variable has a CR value of 2.563 and a P-value of 0.010. This is because the CR value (2.563) is greater than the t table (1.96) and the p-value (0.010) is lower than 0.05. Therefore, H11 is accepted, showing that Ansell & Gash Collaborative Planning has a significant effect on Regional Economic Development (Y). Based on the results, Ansell & Gash Collaborative Planning has a significant influence on variable Y. Collaborative Governance theory according to Ansell dan Gash (2018) was focused on the importance of including various stakeholders in the decision-making process to reach consensus and manage public programs or assets. In the context of regional economic development, the inclusion of various stakeholders through collaborative approach creates more effective policies and programs. Therefore, Collaborative Governance theory has a significant influence on variable Y. This is because collaborative approach to planning allows the participation of government, private sector, and society in the decision-making process. By the inclusion of various parties, collaboration can create more effective, transparent, and sustainable policies and programs. In this context, opportunities are created to build trust, strengthen commitment, and achieve mutual understanding [20]. This results in an environment that supports inclusive and sustainable regional economic development. Therefore, the significant influence of the variable on Regional Economic Development can occur by increasing the effectiveness of policies and programs, as well as creating a cooperative environment to support inclusive and sustainable regional economic development.

The Direct and Indirect Influence of Bottom-Up and Top-Down Development Planning Patterns on Regional Economic Development through Collaborative Planning

Based on model and the hypothesis testing results, the magnitude of the direct and indirect influence of Bottom-Up and Top-Down Development Planning Patterns on Regional Economic Development through Collaborative Planning is presented in Table 4:

Table 4. Magnitude of Direct and Indirect Influence on Regional Economic Development

Influence	Direct (D) Against Y	Indirect (I) Through (Z1)	Conclusion	Indirect (I) Through (Z2)	Conclusion	Indirect (I) Through (Z3)	Conclusion
Bottom-Up Development Planning Pattern --> Regional Economic Development	$(0{,}109)^2$x100 = 1,19%	0,377 x 0,120 x100 = 4,52%	I>D (Mediating)	0,504 x 0,195 x100 = 9,83%	I>D (Mediating)	0,472 x 0,157x100 = 7,41%	I>D (Mediating)
Top-Down Development Planning Pattern --> Regional Economic Development	$(0{,}088)^2$x100 = 0,77%	0,142 x 0,120 x100 = 1,70%	I>D (Mediating)	0,111 x 0,195 x100 = 2,16%	I>D (Mediating)	0,111 x 0,157x100 = 1,74%	I>D (Mediating)

Description Y = Regional Economic Development, Z1 = Collaborative Planning (Dawes & Eglene), Z2 = Collaborative Planning (Djumara), Z3 = Collaborative Planning (Ansell & Gash)

a. Direct and indirect influence of development planning patterns on regional economic development

- The direct influence of Bottom-Up Development Planning Pattern on Regional Economic Development is $(0,109)^2$ x 100% = 1,19%
- The indirect effect of Development Planning Patterns on Regional Economic Development through Collaborative Planning (Dawes & Eglene) is 0,377 x 0,120 x100 = 4,52%
- The indirect effect of Development Planning Patterns on Regional Economic Development through Collaborative Planning (Djumara) is 0,504 x 0,195 x100 = 9,83%
- The indirect effect of Development Planning Patterns on Regional Economic Development through Collaborative Planning (Ansell & Gash) is 0,472 x 0,157 x100 = 7,41%

The percentage results show that Bottom-Up Development Planning Pattern can improve Regional Economic Development directly and indirectly through Collaborative Planning Dawes & Eglene, Djumara, and Ansell & Gash, but the indirect influence is more dominant. Regarding the influence of Development Planning Patterns, Dawes & Eglene Collaborative Planning is a mediating variable. In this context, there is a hypothesis that Bottom-Up Development Planning Pattern has a positive influence on Regional Economic Development. However, this influence is not only direct but also through several mediating variables. According to Heremba et al., (2022), Bottom Up planning is a model where development policies and decisions are initiated from the community, group, or region. This allows active participation of the community in determining personal needs. The focus of the strategy is on active community participation in the decision-making process. In contrast, Down model focuses on decisions from the central government to regional level. Stated that development initiatives and decisions were taken from the lower level to formulate plans.

Bottom-Up planning is considered to promote broader, inclusive, and democratic participation in development planning process. By granting communities a voice, the model enables the participation of communities in decisions directly affecting the environment. This can increase the sense of ownership of development projects, reduce resistance to change, and strengthen commitment to the implementation of jointly formulated plans. Moreover, the diversity of needs and conditions that cannot be accommodated are considered. Model has also been applied in many government decision-making processes, such as the implementation of an electronic-based government system in West Sumatra, village development planning in South Minahasa Regency rural community development in Nigeria,agrotourism development in the United States [22] .

The theories of Collaborative Planning (proposed by Dawes & Eglene, Djumara, Ansell & Gash) serve as a mediator between Bottom-Up Development Planning Patterns and Regional Economic Development. In Dawes & Eglene, various stakeholders are actively participating in determining development priorities to achieve broader common goals to increase the efficiency and sustainability of development projects. The concept from Dawes & Eglene is collaborative aspect including broad participation from various parties. The focus is on developing structured dialogue mechanisms between local governments, communities, private sector, non-governmental organizations, and other community groups. This collaboration can create a framework, enabling the exchange of ideas, joint planning, and more inclusive decision-making.

Collaborative Planning concept according to Eglene dan Dawes (2006) is model focused on the importance of collaboration between various parties. This views planning as a joint effort including broad participation from various stakeholders, such as government, the private sector, and non-profit organizations. According to Dawes & Eglene, strong collaboration in planning allows the creation of a structured dialogue mechanism between relevant parties to facilitate the exchange of ideas, experiences, and knowledge.

Armawadin et al., (2023) explained that Djumara's Collaborative Planning theory focused on the importance of ongoing dialogue and interaction among local governments, the community, and the private sector in planning. Effective collaboration can create strong agreements, reduce conflicts, and expedite the implementation of development plans. Djumara's approach shows the active and sustained participation of local governments, the community, and the private sector in planning. This may include establishing continuous dialogue forums among various parties to formulate sustainable development plans. Additionally, collaborative planning shows the significance of active and sustained participation of various stakeholders in development planning process. This approach advocates that strong collaboration among local governments, the community, and the private sector is key to creating effective development plans. Ansell & Gash (2008) stated the importance of a strong participatory structure in planning. Active participation and cooperation between the government and the community create an environment supportive of economic growth at the local level. The concept may show the importance of a solid participatory structure in planning. This may include development of policies and planning processes enabling broad and well-planned community participation. According to Medho (2023), Ansell & Gash's concept views Collaborative Planning as a framework focusing on strong participation and structure in development planning process. Collaboration includes separate participation of local governments and the community, as well as joint efforts to develop a structure allowing equal and structured inclusion from various stakeholders. This concept shows the importance of designing mechanisms that promote and support active contributions from different interest groups in determining the direction and implementation of development plans. From the perspective of Ansell & Gash, Collaborative Planning requires strong and open agreements from various parties. This may include building an inclusive decision-making structure, considering the needs and preferences of all parties. The

concept focuses on the importance of listening to various perspectives and promoting open discussions to reach an acceptable consensus. In this context, collaboration is considered a way to make better and more comprehensive decisions.

The application of Bottom-Up Development Planning Pattern enables the creation of conditions supportive of Collaborative Planning. This effective collaboration facilitates the implementation of development policies and programs, leading to better regional economic development. Statistical analysis or conceptual models can be used to test the effects of the mediating variables on the relationship between Bottom-Up Planning and Regional Economic Development. The data analysis shows an indirect effect through Dawes & Eglene, Djumara, and Ansell & Gash Collaborative Planning by 8.19%, 4.71%, and 10.67%, respectively. Based on the results, the (Ansell & Gash) Collaborative Planning theory has the most significant effect compared to others.

b. The direct and indirect effects of Top-Down Development Planning Pattern on Regional Economic Development are as follows:
   - The direct effect of Top-Down Development Planning Pattern on Regional Economic Development is (0.088)2 x 100% = 0.77%.
   - The indirect effect of development Planning Pattern on Regional Economic Development through Dawes & Eglene Collaborative Planning is 0.142 x 0.120 x 100 = 1.70%.
   - The indirect effect of development Planning Pattern on Regional Economic Development through Djumara Collaborative Planning is 0.111 x 0.195 x 100 = 2.16%.
   - The indirect effect of development Planning Pattern on Regional Economic Development through Ansell & Gash Collaborative Planning is 0.111 x 0.157 x 100 = 1.74%.

The percentage results show that Top-Down Development Planning Pattern can enhance Regional Economic Development directly and indirectly through Dawes & Eglene, Djumara, and Ansell & Gash Collaborative Planning, but the indirect effect is more dominant. Therefore, Dawes & Eglene, Djumara, and Ansell & Gash Collaborative Planning serve as mediating variables.

Top-Down development planning pattern, as described refers to a strategy where major development decisions are made by the government or central authority and applied to the local or community level. The approach includes planning initiated, decided, and implemented by the central government or other authoritative entities, often without substantial participation from grassroots levels, such as the local community. In addition, development policies and plans are established based on strategic thinking and vision from the central government or power elites, applied to the community level. In this context, a clear and swift direction can be provided in policy implementation. Top-Downmodel can also lead to some issues, such as a lack of representation of needs or aspirations in development plans. The approach can create an inability for the community to feel ownership or be directly included in development process. Minimal community participation can lead to resistance or non-compliance with policies, as well as decrease the sustainability of implemented development programs. Lack of active participation from the grassroots can also result in a lack of innovation and suitable solutions to local-level problems. The relation to the Dawes & Eglene collaborative pattern in regional economic development poses challenges and opportunities in considering inclusive participation and collaboration in centrally initiated processes. Model often limits community participation in formulating development plans. Collaboration in the Dawes & Eglene offers mechanisms to overcome the barriers by strengthening structured dialogue between the central and local governments. Even though the major decisions originate from the central government, effective collaboration allows the community to provide input, ideas, and essential needs to design more relevant development plans.

The Djumara collaborative pattern focuses on the importance of efforts to promote dialogue and active community inclusion, addressing the frequently encountered lack of participation in top-down planning. The pattern emphasizes the need for active and sustained participation of local governments, the community, and the private sector in planning process. In this context, effective collaboration can open up space for greater local-level participation and dialogue. Additionally, model shows the importance of continuous dialogue forums among the parties in planning process.

CONCLUSION

In top-down pattern, these efforts can create a platform for the central government to exchange information, discuss existing issues, as well as formulate inclusive and responsive development plans based on identified needs.

The relation with Top-Down development planning pattern prioritizes transparency, the Ansell & Gash collaborative pattern is focused on the need for clear and open communication between the central government and the community to ensure the accuracy of the provided information. This facilitates the community's comprehension of decisions made from higher levels, potentially strengthening the commitment and participation in the implementation of development plans. In the framework of Ansell & Gash's collaboration, strong participation and open communication can create a supportive environment to achieve more comprehensive and

inclusive objectives in centrally initiated development planning. This reduces the gap between central policies and local needs as well as strengthens the implementation of development programs.

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