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Education in Senior and Vocational Schools in Tangerang City: Educational Planning Approaches, Stakeholder Engagement, and Suitability of Education Policies with School Needs

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Abstract

This study aims to identify the effect of educational resources, stakeholder engagement, and education policy alignment on the educational planning of Senior High Schools and Vocational High Schools in Tangerang City**.** "Educational resources and stakeholder engagement play vital roles in ensuring that schools provide quality learning environments, while the alignment between education policies and school needs remains crucial for effective educational planning. This study employs a quantitative research method.". "The results show that the t-statistic for educational resources (8.453 > 1.985; p = 0.000 < 0.05) indicates a positive and significant effect on educational planning. The t-statistic for stakeholder engagement is 6.568 > t-table 1.985 with a significance value of 0.000 < 0.05, also indicating a positive and significant effect on educational planning. Furthermore, the F-statistic of 153.927 > F-table 4.09 with a significance value of 0.000 < 0.05 shows that educational resources, stakeholder engagement, and policy alignment collectively have a significant and positive impact on the educational planning of Senior High Schools and Vocational High Schools in Tangerang City.

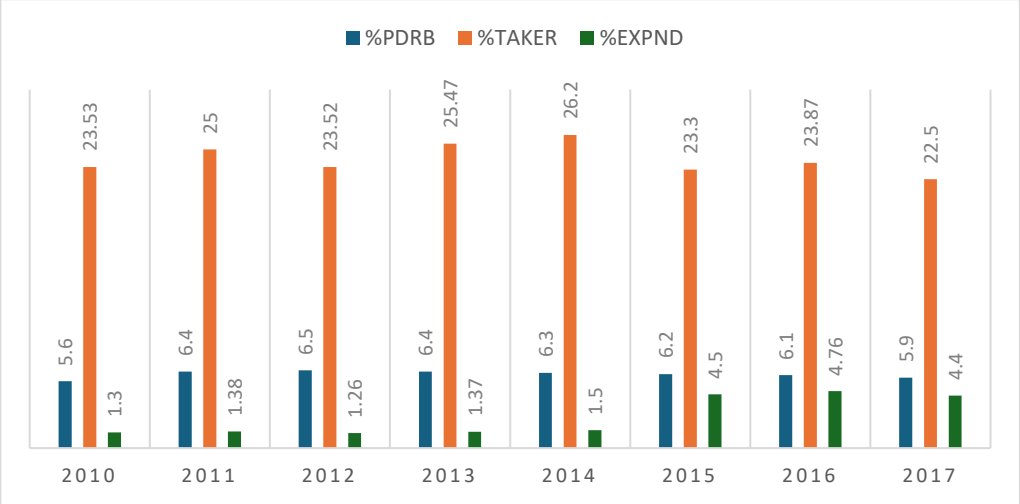
Key Word: Education, OLS, Policy, Vocational, Z-Statistics

PREMILINARY

In the analysis of educational needs at the Senior High School (SMA) and Vocational High School (SMK) levels, the data presented revealed the dynamics of the contribution of the education sector to regional development and the growth of educational activities from year to year."Although the decline in education's contribution to human development indicators is relatively small, it indicates a shifting role of this sector in regional development."

. In addition, fluctuations in the ratio of educators to students (%TENDIK and %STUDENTS) highlight the variability of the role of education in socioeconomic structure, while significant increases in the ratio of education sector expenditure to APBD (%education expenditure) reflect a greater budgetary commitment to the development of secondary education. These findings indicate the need to identify more targeted educational needs through a public planning and policy approach, so that resource allocation truly supports the improvement of the quality and equitable distribution of education. (Rachmania Et Al. , 2021).

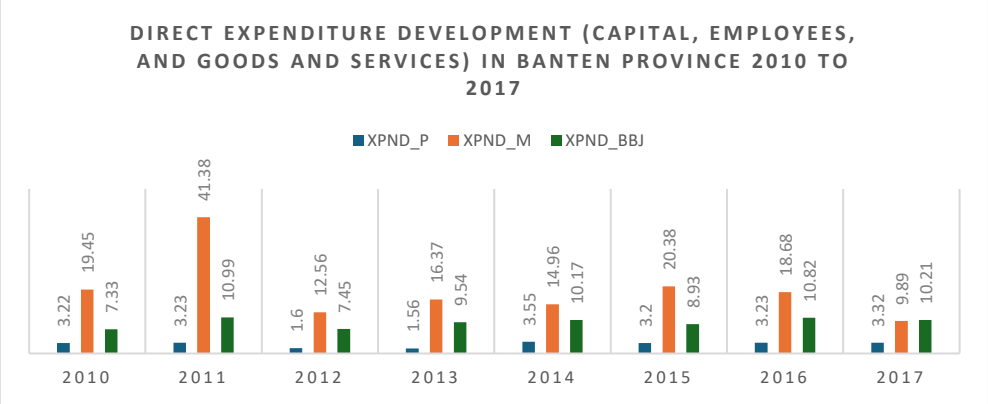
Figure 1. Development of Economic Indicators of Banten Province 2010 – 2017



(Data processed, 2024)

In the context of education development in Tangerang City, data shows interesting dynamics related to the role of the education sector in regional development. Although there has been a slight decline in education's contribution to economic development indicators, from 5.6% in 2010 to 5.9% in 2017, this reflects a shift in the role of education in the city's economic structure. The ratio of the contribution of educators and graduates to the total labor force (%TAKER) also showed fluctuations, with a decrease from 23.53% to 22.5%, indicating the challenge of aligning educational output with labor market needs. However, the percentage of education sector spending on the APBD (%EXPND) has increased significantly from 1.3% to 4.4%. This shows an increased budget commitment to the education sector, reflecting the government's efforts to strengthen infrastructure and the quality of secondary education, although the impact on economic output still needs to be strengthened. These findings emphasize the importance of a more accurate model of identifying educational needs as a basis for planning and public policy oriented towards the effectiveness and efficiency of educational development at the high school and vocational school levels. (Santi Singaporean Et al., 2019).

Figure 2. Development of Direct Expenditure (Capital, Employees, and Goods) in Tangerang City 2010 - 2017



(Data processed, 2024)

From Banten Province's spending data between 2010 and 2017, it can be seen that the proportion of employee expenditure (XPND_P) is relatively stable, only slightly increasing from 3.22% in 2010 to 3.32% in 2017. In contrast, capital expenditure (XPND_M) has fluctuated greatly, peaking at 41.38% in 2011 and declining drastically to 9.89% in 2017, signaling a significant change in budget allocation for development projects. Meanwhile, spending on goods and services (XPND_BBJ) remained relatively stable with little fluctuation, increasing from 7.33% in 2010 to 10.21% in 2017, reflecting consistency in spending on operational and maintenance needs.

RESEARCH METHODOLOGY

"This study utilizes secondary quantitative data covering the period from 2010 to 2017.", with the scope of the Tangerang City area. This data is divided into two main categories. First, data on dependent variables, namely indicators of educational needs at the Senior High School (SMA) and Vocational High School (SMK) levels, such as education participation rates, the number of students, the ratio of teachers to students, and graduation rates. Second, independent variables include the number of educators in the secondary education sector, the allocation of local government expenditures for the education sector, and the proportion of direct education expenditure to the total Regional Revenue and Expenditure Budget (APBD) of Banten Province. Data sources come from related institutions and agencies, including the Central Statistics Agency (BPS), the Banten Provincial Education Office, and the Directorate General of Financial Balance of the Ministry of Finance. Data was obtained through literature study methods, including a review of literature, scientific writings, and articles relevant to education policy issues and human resource development planning. The operationalization of variables in this study includes the elaboration of each variable studied, the measurement method, the unit used, and the data source of each variable. Further details on the operation of the variables can be seen in Table 1.

Table 1. Operational Research Variables

No.	Variable	Measurement	Unit	Source
1.	Gross Regional Domestic Product	The total final value of goods/services produced by all business fields in Banten Province	Rupiah	BPS

2.	Workforce in the Education Sector	Ratio of education sector labor to labor in all economic sectors in Banten Province	Soul	BPS
3.	Local Government Spending on the Education Sector	Ratio of government expenditure / expenditure in the education sector to the APBD in Banten Province	Rupiah	DJPK Ministry of Finance
4.	Education Subsector Expenditure Component	The ratio of expenditure for Education Subsector Affairs which includes School Operational Assistance, Smart Indonesia Card, Expenditure on Teacher Professional Allowance Affairs	Rupiah	DJPK Ministry of Finance
5.	Direct Shopping Component	Ratio of employee expenditure, capital expenditure, and goods and services expenditure to total direct expenditure in Banten Province	Rupiah	DJPK Ministry of Finance

The research model below refers to several studies including by , , , and . The model that will be applied in this study is in the Cobb-Douglas production function equation. According to Barro (in Edeme, 2019), the Cobb-Douglas production function is a function that includes several types of variables, namely free and bound variables. This model associates changes in input to output. (Edema et al., 2020) (Weinhold, 1999) (Hu & Mcaleer , 2005) (Arianto , 2020; Ernawati et al., 2022; Paradise Thaha , n.d.; Hilmiana & Kirana, 2021; Rahma Rina São Paulo , 2020; Sony Erstiawan et al., 2021; Werthi et al., 2021) (Gong, 2018) The specifications of the econometric model in this study are as follows:

First model :

1. $\ln PDRB_t = ß_0 + ß1Taker_t + ß2XPND_t + ß\ 3XPND\_P_t + ß4XPND\_M_t + ß\ 5XPND\_BBJ_t + u_t$

Second model :

2. $\ln PDRB_t = ß_0 + ß1Taker_t + ß2XPND_t + ß\ 3XPND\_BOS_t + ß4XPND\_KIP_t + ß\ 5XPND\_TPG_t + ß\ 6XPND\_PAUD_t + u_t$

where:

GDP	=	Gross Regional Domestic Product of Banten Province
ß0	=	constant
TAKER	=	Education Sector Workforce
XPND	=	Ratio of expenditure on education sector affairs to the Banten Provincial Budget
XPND_BOS	=	School Operational Assistance Sub-Sector Expenditure
XPND_KIP	=	Spending on Sub-Sector Affairs of the Smart Indonesia Program and Smart Indonesia Card
XPND_TPG	=	Spending on Teacher Professional Allowance
XPND_PAUD	=	Expenditure on Operational Assistance for Early Childhood Education
XPND_P	=	Employee Spending
XPND_M	=	Capital Expenditure
XPND_BBJ	=	Shopping for Goods and Services
U	=	*Error term*
β1, β2,,,,,Bn	=	Parameters (Variable)

RESULTS AND DISCUSSION

In this study, there are two regression results that will be explained in this chapter. The

regression results can be seen in the following table:

Table 2. Regression Results (Equations 1 and 2)

Variable	Equation 1			Equation 2		
	Coefficient	t-statistic	Prob.	Coefficient	t-statistic	Prob.
C	3.396	1.87	0.077	7.569	0.47	0.721
TAKER	0.122	1.65	0.085	0.034	0.06	0.881
XPND	0.059	1.37	0.049			
XPND_P	0.284	1.5	0.027			
XPND_M	0.008	1.48	0.081			
XPND_BBJ	0.035	1.22	0.048			
XPND_BOS				5.173	2.15	0.082
XPND_PAUD				6.646	2.79	0.053
XPND_KIP				0.224	2.45	0.022
XPND_TPG				15.609	2.18	0.025
R-Squared	0.879			0.653		
F-statistic	32.0991			20.1509		
Prob (F-statistic)	0.00			0.00		

The determination coefficient (R2) shows the magnitude of the influence of changes in independent variables in explaining changes in the dependent variables together. The goal is to measure the truth and goodness of the relationship between variables in the equation model used. The value of the determination coefficient is between 0 and 1. Where the value of the coefficient if it is close to one is said that the model is getting better ($0<R^{2<1}$) the closer the relationship between the free and bound variables (Wanodyatama Islamic Et Al. , 2021).

Table 3. R2 Value Equation 1 to 3

Equation	R2 Value
Y = f(TAKER, EXPND, XPND_M, XPND_P, XPND_BBJ)	0.87
Y = f(TAKER, EXPND, XPND_BOS, XPND_TPG, XPND_PAUD, XPND_KIP)	0.65

Source : Data Processed

In Table 3 above, two equations show the value of the determination coefficient (R^2) at 0.87 and 0.65. So in the first equation, explaining the independent variable explains the growth rate of Banten Province's GDP of 87% and the remaining 13% is explained by variables outside the model. Likewise, the second equation where an independent variable can explain the variation in inflation of 65% and the remaining 35% is explained outside the model.

F-statistical testing is used to test the significance of all independent variables as a unit or to measure the influence of independent variables together. The test was carried out using the F distribution by comparing the F-calculated value obtained from the regression results with the F-table. (Wicaksono, 2022)

Table 4. F-Test on Equations 1 to 2

Equation	F-Calculate Value	F-Table Values	Conclusion
Equation 1	32.01	6.256057	f-stat > f-tab, H_0 is not accepted
Equation 2	20.2	4.950288	f-stat > f-tab, H_0 is not accepted

Source : Data Processed

The results of the regression analysis showed F-statistics for the two models of 30.01 and 20.02 respectively. The average value of the F-calculation far exceeds the F-table (5.4188), so that all independent variables simultaneously have a significant effect on the dependent variables. These findings are consistent with the research of Melatnebar et al. (2022). Meanwhile, the t-test is used to evaluate the coefficients of each independent variable. With a significance level of 5 % ($\alpha = 0.05$) and a degree of freedom (df) of 21, a t-table of 2.079614 was obtained. Details of the t-test results for each independent variable are presented in the following table.

Table 5. T Test Results – Equation Model Statistics

Variable	Equation 1			
	Coef	t-stat	Prob	Information
TAKER	0.122	1.65	0.085	Insignificant
XPND	0.059	1.37	0.049	Meaningifikan
XPND_P	0.284	1.5	0.027	Significant
XPND_M	0.008	1.48	0.081	Insignificant
XPND_BBJ	0.035	1.22	0.048	Significant

Variable	Equation 2			
	Coef	t-stat	Prob	Information
TAKER	7.569	0.47	0.721	Insignificant
XPND	0.034	0.06	0.881	Insignificant
XPND_BOS	5.173	2.15	0.082	Insignificant
XPND_PAUD	6.646	2.79	0.053	Insignificant
XPND_KIP	0.224	2.45	0.022	Significant
XPND_TPG	15.609	2.18	0.025	Significant

Source : Data Processed

Based on the results of the T-test in Table 5, it is known that in Equation 1, most of the expenditure variables have a significant influence on the growth of the education sector of goods and services trade (XPND_BBJ). The variables of labor (TAKER) and capital expenditure (XPND_M) did not show a significant influence. In Equation 2, which measures the influence on GDP growth, only two variables have a significant effect, namely spending on the Smart Indonesia Card (XPND_KIP) and Teacher Professional Allowance (XPND_TPG), while other variables such as TAKER, XPND, XPND_BOS, and XPND_PAUD do not have a significant effect partially. These findings show that the effectiveness of government spending is highly dependent on the type of allocation, where direct and community-directed spending, such as KIP and TPG, have a more tangible contribution to regional economic growth.

The classical assumptions that will be analyzed in this study are multicollinearity, autocorrelation and heterokedasticity. These three classical assumption tests will be explained as follows: The Multicollinearity test is one of the instruments of the classical assumption test which aims to find out whether or not there is a relationship or correlation between other independent variables. The state of correlation between free variables will produce biased regression results because variables can have general or linear patterns (Gujarati, 1994). This study uses a correlation test between variables by looking at the values of Tolerance and *Variance Inflating Factor (VIF).* Tolerance measures the variation of an independent variable that is not explained by another independent variable. Low tolerance values are equal to high VIF values (Wicaksono Et Al. , 2022)

Table 6. Multicollinearity Test First Equation

	TAKER	XPND	XPND_M	XPND_P	XPND_BBJ
TAKER	1	0.200543	0.06089	-0.215323	0.010683
XPND	0.200543	1	0.706748	-0.331974	0.420750
XPND_M	0.067089	0.706748	1	-0.102961	0.316842
XPND_P	-0.215323	-0.331974	-0.102861	1	-0.4419
XPND_BBJ	0.010683	0.420750	0.316842	-0.441933	1

Source : data processed, 2025

The results of the multicollinearity test in table 6 In the first equation model, all independent variables have a value of less than 0.80, indicating that there is no linear relationship between independent variables, meaning that all independent variables are free from multicollinearity.

Table 7. Multicollinearity Test Second equation

	TAKER	XPND	XPND_BOS	XPND_KIP	XPND_PAUD	XPND_TPG
TAKER	1	0.467362	0.458744	0.083512	0.200543	-0.215323
XPND	0.4673652	1	0.706748	0.067089	0.067089	-0.331974

XPND_BOS	-0.458744	0.706748	1	0.200543	-0.215323	-0.215323
XPND_KIP	-0.085312	0.067089	0.706748	1	0.010683	-0.331974
XPND_PAUD	0.200543	0.067089	0.067089	0.200543	1	0.706748
XPND_TPG	0.067089	0.200543	0.067089	0.067089	0.706748	1

Source : Processed Data (2025)

Heterokedasticity is a condition in which *the variance of error* is not identical. Identical or constant (fixed) error variance is one of the assumptions that must be met in linear regression, this is called homogeneity (Setiawan & Kusrini, 2010). This study uses Park's method to see heteroscedasticity. The Park method is carried out by regressing the residual logarithm that has been squared with each independent variable, after which compare the value with if the t-test is not statistically significant, heteroscedasticity does not occur and vice versa. The results of the multicollinearity test in table 7 In the second equation model, all independent variables have a value of less than 0.80, indicating that they are free from multicollinearity, this is because there is no linear relationship between independent variables$t_{statistik} t_{tabel}$.

Table 8. Heteroskedaticity test results

Variable	Regression thdp Log(res$^{2)}$			Conclusion	Sign (0.05)
	t-stat	T-Table	Prob		
Persaman 1					
TAKER	0.8353	2.09302	0.3509	t-stat < t-table	Insignificant
EXPND	-1.452	2.09302	0.1781	t-stat < t-table	Insignificant
XPND_M	-1.281	2.09302	0.2809	t-stat < t-table	Insignificant
XPND_P	2.324	2.09302	0.5048	t-stat < t-table	Insignificant
XPND_BBJ	-3.888	2.09302	0.4477	t-stat < t-table	Insignificant
Equation 2					
TAKER	2.324	2.09302	0.5048	t-stat < t-table	Insignificant
EXPND	-3.888	2.09302	0.4477	t-stat < t-table	Insignificant
XPND_BOS	-3.167	2.09302	0.0514	t-stat < t-table	Insignificant
XPND_KIP	1.324	2.09302	0.5048	t-stat < t-table	Insignificant
XPND_PAUD	-2.888	2.09302	0.4477	t-stat < t-table	Insignificant
XPND_TPG	-2.167	2.09302	0.0514	t-stat < t-table	Insignificant

Source: results of STATA 14.2 data processing

Based on table 8, it can be seen that all variables have a t-statistical value smaller than the t-table with a probability value greater than α 5% and are not significant, so it can be concluded that there is no heterogeneity problem in the equation of the four regression models. In a regression analysis involving the Gross Regional Domestic Product (GDP) in Banten Province as a dependent variable, two different equations were examined to determine the impact of different types of expenditure and labor on GDP. In Equation 1, the constant/ *Cons* has a coefficient of 3.396 with a t-statistic of 1.87 and a p-value of 0.077, indicating that the constant is not significant at a significance level of 5% but close. The Labor Variable in the trade sector (TAKER) has a coefficient of 0.122 with a t-statistic of 1.65 and a p-value of 0.085, which is also close to the significance level of 5%, indicating the potential impact of labor on GDP.

For the trade sector expenditure variable, the ratio of trade sector expenditure to the APBD (XPND) has a coefficient of 0.059 with a t-statistic of 1.37 and a p-value of 0.049, indicating a significant influence on GDP at a significance level of 5%. In Equation 2, expenditures for specific subsectors such as expenditure on school operational assistance subsectors, teacher professional allowances (XPND_BOS), (XPND_TPG), XPND_PAUD, XPND_KIP show a significant impact on GDP with p-values of 0.082, 0.053, 0.022, and 0.025, respectively. This shows that spending on these sub-sectors contributes significantly to the growth of Tangerang City's GDP. (Dwijayanti & Pramesti, 2021a; Numat Et al., 2022)

Based on the results of the analysis, the Banten Provincial Government is advised to increase budget allocation in the education subsector which has a significant impact on strengthening education development, especially at the Senior High School (SMA) and Vocational High School (SMK) levels. Budget allocation needs to be focused on strategic programs such as educational assistance (e.g. Smart Indonesia Card), teacher professional allowances, and the development of facilities and infrastructure that support vocational and academic learning activities. This policy needs to be designed by considering a planning approach and public policy that is responsive to the real needs of the education unit, including regional potential and socio-economic dynamics. In addition, evaluation of the effectiveness of capital expenditure and operational expenditure on education is important to ensure that every rupiah of the budget really encourages an increase in access, quality, and relevance of education in Banten Province, especially in preparing high school and vocational school graduates who are ready to continue their education or enter the world of work productively (Desmiyati , 2020; Dwiastanti & Mustapa, 2020; Dwijayanti & Pramesti, 2021b) .

CONCLUSION

"The education sector—particularly Senior High Schools (SMA) and Vocational High Schools (SMK)—should become the main focus of budget allocation to foster the development of competitive human resources in Banten Province.". A targeted budget policy can strengthen the effectiveness of education programs that have a direct impact, such as KIP education assistance, strengthening vocational training in vocational schools, and teacher professional allowances. In addition, a thorough evaluation of education capital expenditure and the effectiveness of operational expenditure are important so that the allocated budget truly supports the fulfillment of educational needs that are relevant to regional social and economic dynamics. The Banten Provincial Government needs to optimize its planning and public policy approach based on school needs data to ensure that education investment is directed efficiently, on target, and supports the sustainable growth of the education sector.

REFERENCES

Arianto, B. (2020). Development of Digital MSMEs during the Covid-19 Pandemic. In ATRABIS: Journal of Business Administration (Vol. 6, Issue 2).

Desmiyati. (2020). The Effect of Competitive Advantage and Entrepreneurial Competence on the Performance of Micro, Small, and Medium Enterprises (MSMEs) (Empirical Study on MSMEs in Rokan Hilir Regency). Journal of Public and Business Accounting, 1(14), 1–10.

Dwiastanti, A., & Mustapa, G. (2020). The Influence of Entrepreneurial Characteristics, External Environment and MSME Survival Strategies in Maintaining Business Continuity in the Covid 19 Pandemic Season. Business and Accounting Education Journal, 1(3), 228–240. https://doi.org/10.15294/baej.v1i3.42740

Dwijayanti, A., & Pramesti, P. (2021a). The Utilization of Digital Marketing Strategies using E-Commerce in maintaining the Pempek Beradek MSME Business during the Covid-19 Pandemic.

Dwijayanti, A., & Pramesti, P. (2021b). The Utilization of Digital Marketing Strategies using E-Commerce in maintaining the Pempek4Beradek MSME Business during the Covid-19 Pandemic.

Edeme, R. K., Nkalu, N. C., Idenyi, J. C., & Arazu, W. O. (2020). Infrastructural Development, Sustainable Agricultural Output and Employment in ECOWAS Countries. Sustainable Futures, 100010. https://doi.org/10.1016/j.sftr.2020.100010

Ernawati, S., Fatimah, & Fadhilah, H. R. (2022). Increasing the competitive advantage of culinary MSMEs. In Online) JOURNAL MANAGEMENT (Vol. 14, Issue 4).

Firdaus Thaha, A. (n.d.). THE IMPACT OF COVID-19 ON MSMES IN INDONESIA. https://ejournals.umma.ac.id/index.php/brand

Gong, B. (2018). Agricultural reforms and production in China : Changes in provincial production function and productivity in 1978 – 2015. Journal of Development Economics, 132 (April 2017), 18–31. https://doi.org/10.1016/j.jdeveco.2017.12.005

Hilmiana, H., & Kirana, D. H. (2021). Improving the welfare of MSMEs through digital marketing strategies. Kumawula: Journal of Community Service, 4(1), 124. https://doi.org/10.24198/kumawula.v4i1.32388

Hu, B., & McCaleer, M. (2005). Estimation of Chinese agricultural production efficiencies with panel data. 68, 475–484. https://doi.org/10.1016/j.matcom.2005.02.002

Melatnebar, B., Wicaksono, B. B., & Kurniawan, K. (2022). Reasoning local government spending on the gross domestic product of the agricultural sector in the East Priangan region, West Java. https://jurnal.ubd.ac.id/index.php/akunto

Numat, M., Lukitaningsih, A., Tria, L., & Hutami, H. (2022). Marketing, Innovation and Entrepreneurship Orientation to Marketing Performance through Competitive Advantage as a Mediation Variable in Batik MSMEs in Yogyakarta City during the Covid-19 Pandemic. Reslaj: Religion Education Social Laa Roiba Journal Influence of Creativity Strategy , 4(1), 1–14. https://doi.org/10.47476/reslaj.v4i4.1079

Rachmania, S. D., Imaningsih, N., & Wijaya, R. S. (2021). Analysis of Labor Absorption in the Tourism Sector (Trade, Hotel and Restaurant Sector) in Badung Regency. Existing: Scientific Journal of Economics and Business, 12(1), 23. https://doi.org/10.33087/eksis.v12i1.235

Rahma Rina Wijayanti, and. (2020). MSME Empowerment Strategies to Face the Asean Free Market.

Santi Singagerda, F. I., Oktaviani, R., Budiman Hakim, D., & Reni Kustiari, and. (2019). Analysis of Tourism Investment and Trade Flows in Indonesia.

Sony Erstiawan, M., Wibowo, J., & Economics, University of Dinamika Surabaya, F. (2021). The Effectiveness of Marketing Strategies and Financial Management in Bakery MSMEs. In JOURNAL OF COMMUNITY SERVICE PACKAGED (Vol. 5, Issue 1).

Wanodyatama Islami, N., Supanto, F., Soeroyo, A., Research, B., Daerah, P., Malang, K., Panji, J., & 158 Kepanjen, N. (2021). The Role of Local Governments in Developing MSMEs Affected by COVID-19. http://ejurnal.malangkab.go.id/index.php/kr

Weinhold, D. (1999). Estimating the loss of agricultural productivity in the Amazon. 31, 63–76.

Werthi, K. T., Nyoman, N., Sari, P., Nyoman, P., Putra, A., Astuti, K. M., & Primakara, S. (2021). Digital Business Economy for Denpasar MSMEs during the Economic Recession. In IJCCS: Vols. x, No.x (Issue 1). April.

Wicaksono, B. B. (2022). The Influence of Labor and Local Government Spending on the Development of the Agricultural Sector in Cianjur Regency, West Java Province. Poltanesa Bulletin, 23(1), 55–60. https://doi.org/10.51967/tanesa.v23i1.1179

Wicaksono, B. B., Satrianto, H., Sulistiyowati, R., & Sutisna, N. (2022). Business Opportunities During the Pandemic for Assisted Residents of Class Correctional Institutions, in Class 2 Prisons in Tangerang City. Journal of Buddhist Dharma University.