

Externalities of Southern Cross Road (JLS) Toward Coastal Area in Southern District Malang

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ABSTRACT

Regional disparities occur because each region with other regions have different endowment factor. That factors such as: human resources, geographic region, and the availability of facilities and infrastructure development. This is reinforced by the opinion of the school of neoclassical economists, such as: Walter Isard (1950.63), Myrdal (1976, 56-59 and 62-65), Friedmann (1979, 221) and the latter is Douglass (1979, 76). The results of the study explains that Southern Cross Road infrastructure in Regional South Malang provide positive externalities to the local economic development community coastal areas. It also increases the cap on the input sector in the coastal fishing industry by increasing investment and the addition of a fleet of ships. Negative externalities pull of natural resources occurs in coastal areas throughout the economic centers in Malang quickly and massively. Availability of coastal natural resources are still in the category of sustainable although exploration is likely to increase after the Southern Cross Road infrastructure development (JLS).

The method of analysis used tool is the Maximum Sustainable Yield/MSY and Economic Valuation (Valuation Method Contingen/CVM) to examine the results

of Willingness value formulation to Pay/WTP and Willingness value to Act / WTA. The pull of the resources in the coastal region are explained qualitatively descriptive. Sustainability Development Paradigm used in explaining the Southern Cross Road infrastructure externalities (JLS) on regional development in the coastal areas of South Malang district.

Keywords: Coastal Areas, Natural Resources and Sustainability Development

I. Introduction

Justice in regional development has always been a major problem for the process of national development, especially related to the problem of regional disparities (regional imbalances). The gap region is a reasonable price to be paid in the process of considering the development of the region with other regions have differences in endowment factor, human resources, geographic region, and the availability of facilities and infrastructure development. This is reinforced by the opinion of the school of neoclassical economists, among others: Walter Isard (1950.63) which

argues that the main factors forming region of space, the physical factors, socio-economic, and cultural, Hirschmann (1958.88) which gave rise to the theory polarization effects and a trickling-down effect that the development of an area does not occur simultaneously (unbalanced development), Myrdal (1976, 56-59 and 62-65) with a theory that explains the relationship between developed regions and areas behind using the term backwash effect and spreads effect, Friedmann (1979, 221) put more emphasis on hierarchy formation in order to facilitate the development of systems development that became known as the theory of the growth centers and the latter is Douglass (1979, 76) introduces a model of linkage birth village-city (rural-urban linkages) in development of the region.

Road transport infrastructure in particular is the type of infrastructure that determine the development of a region. Spillover effects of road infrastructure investment on economic growth in the region not only affect themselves, but also the impact on surrounding areas or neighbors (Calderon, 2004). The importance of the development of road infrastructure in the region is also supported by Rietveld and Nijkamp (2000) which states that in addition to the region's development is determined by a combination of factors of production proper, such as labor and capital, as well as by infrastructure, especially transport. Kasikoen (2005) suggested that the infrastructure facilities such as roads, bridges, communications, markets, schools and clean water are important elements as the prime mover in the foundation supporting the

development of the region. Improved road infrastructure will lead to lower transport costs, followed by increasing the productivity of private production factors. Therefore, the development of road infrastructure will bring increased productivity of various factors of production.

Road infrastructure has a role in creating value of an item. In neoclassical theory, an item has a value corresponding to the cost of production or specifically by the sacrifice of labor costs incurred. Transportation equipment is something that can create higher value on an item, so that the goods can satisfy the consumer needs. In this regard, transportation gives value to a product through the process of moving goods from production centers to consumption centers. Value creation is the transport of goods by making transportation as an economically valuable tool (Polak and Heertje, 2001).

Southern Cross Road infrastructure development (JLS) in district Malang became an important instrument in the development of the concept of regions, especially coastal areas which is the dominant characteristic of the Southern part of Java Island. This study describes the externalities of Southern Cross Road (JLS) in district Malang toward the development of coastal areas. The paradigm used in explaining the relationship between the development of road infrastructure development areas, namely sustainability (sustainable development paradigm). This is due to the three objectives to be achieved, namely: economic growth in the region (economics growth), social welfare development of fair and equitable (social progress) as well as ecological

sustainability (ecological balance).

II. Research Methods

According to the model of the relationship between CPUE (c/f) with a total effort following regression equation: $Y = a - bX$, where $Y = C/f$, and $X = f$.

MSY estimation procedure is obtained by the following calculation.

- a. According to Schaefer models :
- $$C/f = a - bf \quad C = af - bf^2$$

At the point of maximum effort (F_{max}), then the catch will be Zero. $C = af - bf^2 = 0$; If so at that point $a = bf$; or $f = a/b$. At the maximum catch (MSY), the level of effort (F_{opt}) are at half maximum effort level ($1/2 \cdot a/b = a/2b$).

By inserting the value of $a/2b$ to the regression equation:

$C = af - bf^2$ be $C = a \cdot a/2b - b(a/2b)(a/2b)$ or

$$C = a^2/2b - a^2/4b \text{ or}$$

$$C = 2a^2 / 4b - a^2 / 4b$$

4b,

thus, the C_{max} or MSY becomes:
 $MSY = A^2/4b$ and $f_{opt} = A/2b$

- b. Exponential Model - Fox
 Fox exponential model formula:
 $MSY = - (1/b) \cdot e^{(A-1)}$ and $f_{opt} = 1/b$

It would be good if the value of MSY and optimum effort also calculated the range, so it can be known 'upper limit' and 'lower limit'. The level of utilization of fish resources can be obtained by dividing: (Production/MSY) which is commonly expressed in percent (%).

The analytical tool used in determining the value of WTP is

multilevel probit model is suitable for use on the dependent variable econometric model multinominal-choice ordinal in nature (Greene, 2000: 875). In a multilevel probit model is the outcome of the dependent variable is discrete (discrete choice), so that the model used is a multilevel probit model can be written in the form of latent regression proposed by Aitchison and Silvey (1957) in which the latent maximum willingness to pay WTP^* is the is a linear function of a vector of independent variables:

$$WTP^* = \beta_i X_i + \varepsilon \dots \dots \dots (1)$$

$WTP =$ Latent index (unobservable) that determines the value of the maximum WTP for individual i

β_i = Parameter or coefficient of stating the effect of the change of variable X on the probability of WTP

X_i = Independent Variables in the form of various characteristics of individual i observed surrounding

ε = Standard Error

maximum WTP categorization of latent index function becomes:

- a. $WTP = 0$ if $WTP^* \leq 0$
- b. $WTP = 1$ if $0 < WTP^* < \mu_1$
- c. $WTP = 2$ if $\mu_1 < WTP^* \leq \mu_2$
- d. $WTP = 3$ if $\mu_2 < WTP^* \leq \mu_3$
- e. $WTP = 4$ if $\mu_3 < WTP^*$

μ is a parameter threshold value (threshold level) are not known

to be estimated along with the β parameter. The probability of the event or the probability to observe a particular sequence of WTP values were calculated using the normal cumulative distribution function (cumulative normal distribution function) $\Phi (.)$

As follows:

- a. Prob (WTP = 0) = $\Phi (-\beta'x)$
- b. Prob (WTP = 1) = $\Phi (\mu_1 - \beta'x) - \Phi (-\beta'x)$
- c. Prob (WTP = 2) = $\Phi (\mu_2 - \beta'x) - \Phi (\mu_1 - \beta'x)$
- d. Prob (WTP = 3) = $\Phi (\mu_3 - \beta'x) - \Phi (\mu_2 - \beta'x)$
- e. Prob (WTP = 4) = $1 - \Phi (\mu_4 - \beta'x)$

For all probability value is positive so that it meets:

$$0 < \mu_1 < \mu_2 < \mu_3$$

As noted above, the threshold value μ was estimated with coefficient β , μ and β parameters are estimated by maximizing the function loglikelihood (Greene, 2000: 821: Eviews User's Guide. 1998: 436):

$$L (\beta, \mu) = \sum_{i=1}^n \log [WTP = 0 | x_i - \beta\mu] + \dots + \sum_{i=1}^n \log [WTP = 4 | x_i - \beta\mu] \quad (2)$$

This research was conducted in the district of South Malang which is crossed by the Southern trans infrastructure (JLS).

III. Empirical Result

1. Externalities of Southern Cross Road toward Coastal Area in South Malang

Use and management of land in the mainland will indirectly affect

conditions in coastal areas. Because empirically, there are ecological relevance (functional relationship) both among ecosystems in the coastal areas as well as between the coastal region and the land above the high seas. Therefore Infrastructure JLS also directly impact the functional relationship between ecosystems in coastal areas and between coastal and land on the high seas in accordance with the opinion of Bengen (2001). JLS at the Regional Infrastructure of South Malang has the potential to increase economic activity in the region. Therefore, it does not rule out the possibility of economic activities in the coastal zone and the sea will lead to over fishing in the management of natural resources is sustainable and sustained. This is due to the ease of access to transport will encourage industrial sectors related to fisheries will grow. Both on the input side and the output side of the fishing industry in the Region of South Malang. It's like being raised by Dercon and Krishnan (1998) Changes in Poverty in Rural Ethiopia In 1989 to 1995. The other facts described Fan, Hazell, and Thorat (2000) in Government Spending, Growth, and Poverty In Rural India. Investment in roads sector is to contribute to the growth of the agricultural and non-agricultural sectors of the economy in the region.

Changes in the area of economic activity that occurred in the coastal zone, particularly in relation to fish resources (SDI) at the time before and after the infrastructure development in the region JLS South Malang can be seen from the indicators, among

others:

a. The number of bidders and fleet

Information obtained from a staff PPP Dadap cottage explained before the building of infrastructure in the region JLS South Malang, number of participants around 10-12 people. This figure shows an increase to 17 participants as has been the completion of the auction JLS. An auction participant explained the increase in number of bidders is due to the absence of infrastructure JLS they no longer send it catches fish buyers who came directly to the location where the auctioneer. This system led to profits earned by bidders be increased because fish do not require shipping costs to other regions. The number of bidders increased also strongly correlated with the increasing number of board vessels that provide loans to fishermen. This means that an increase in economic activity on the input side of the fishing industry

along with JLS infrastructure development in district of South Malang.

b. The Amount of Fish Catch

The amount of the catch fish landed on PPP Dadap cottage at Blue Spring for a variety of different types of fish numbers. The difference is due to the fish catch one of them is fishing gear. Using panel data from 10 species of fish that have high economic potential will be known how the fisheries sector of economic activity in South Malang region before and after JLS to catch fish. Economically valuable fish samples that will trigger the action to continue to pursue the rational economic benefit if it continues to produce (capture) of the commodity. Complete results of the use of SDI in South Malang region to sample 10 fish species of economic value in the interval ranging from 2006 to 2011 can be seen in the graph below.

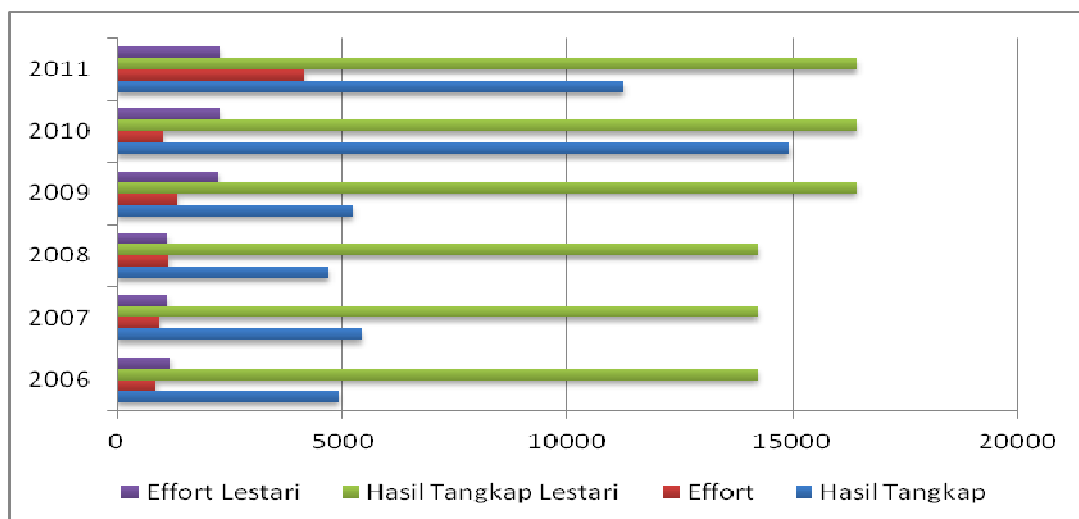


Figure 1: Results of Analysis of Maximum Sustainable Yield (MSY) of the 10 species of fish

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The graph above explains that the fishing conditions of the sample 10 economically valuable fish species are still in a normal condition or sustainable. Fish catches in the 2006-2008 interval showed no significant increase. Catches showed an increasing trend from 2009 and its peak in 2010 the situation has correlation with the data associated with the fishing fleets/boats which started in 2009 also increased the number of fleets. So in 2009 showed economic activity increased utilization SDI is motivated by expectation to earn huge profits by starting the functioning of JLS in South Malang. The graph above also explains despite a spike in the use of SDI in South Malang region when it begins to function JLS, exploitation is still not showing the occurrence of over fishing. It can be seen from the value of the catch of fish (white line) is still below the sustainable catch (yellow line). Increased economic activity in the fisheries sector has not shown the exploitation of SDI that cause overfishing.

This result is different from the fishing gear used to fish utilization. The graph above explains that the fishing gear/efort used at intervals in 2006-2008 coincident with sustainable effort. In 2010 showed that the fishing gear/effort exceeds the limit of sustainable effort. That

is coercion to catch fish with emphasis on fishing gear. This means that the fishery industry intends to maximize the catch of fish though the fish catch is not correlated with the amount of fishing gear.

The difference between the amount of fishing gear to catch fish in the region of South Malang because the fishermen do not perform standardization fishing gear to catch fish fishing fleet in accordance with the ability to surf the coastal and marine areas. Leveler fishermen fishing gear used to catch the fish that caused a gap between the number of fish gear and catch fish.

2. Willingness To Pay and Willingness To Accept Formulation

In the coastal zone communities benefit from JLS with WTP value indicators have a more equitable distribution. This indicates that the JLS in the zone can support local economic development community. That is an ideal zone which can encourage the growth of local economies in all groups of society. Benefits received by the people residing in the coastal zone is largely due to the ease of accessibility around the region. In the coastal zone of the community who feel benefit from the construction of JLS and expressed willingness to provide funds value (WTP value of 58 672). WTP values in the coastal zone of South Malang is as follows.

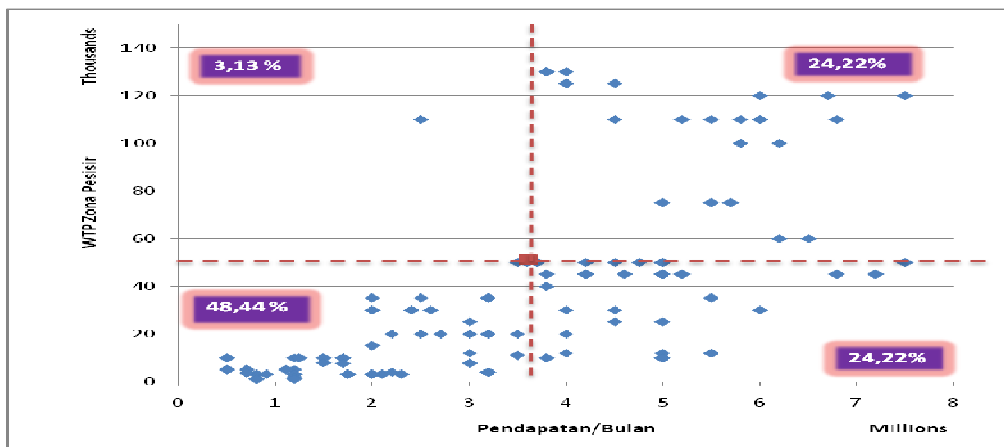


Figure 2: Value of WTP Coastal Zone in South Malang Region

JLS infrastructure construction benefits can be felt by both groups of individuals, groups or businesses. JLS infrastructure development can be said to encourage local economic development by increasing economic activity indicator coastal communities that use the main input is fish. People who are in the zone pesisir who receive great benefit is the group composed of businessmen farms, cooperative managers, fish wholesalers, entrepreneurs ice cubes, BRI Unit Sumbermanjing Wetan, broker/realtor ground, LPM Petra University.

Coastal zone is an area that has a character that is open access means that all the people without exception can utilize and exploit the potential of natural resources freely. Groups of people who feel aggrieved and expressed willingness to accept the

value of the environmental damage caused by the construction of JLS (WTA value of 239,090.91). Aspects of loss felt by the people residing in the zone coast generally work as a shrimp farm owners, ship managers, boat owners, entrepreneurs, staff of PPP Dadap cottage, fish traders. Some things that make people feel should receive compensation for loss received due to reduced groundwater quality, attractiveness beauty of the forest is lost, the environment is flooded, and many mudflow. The condition is caused due to the perception of dwindling communities, the pressure becomes strong sea winds, flooding and easy environment. In the coastal zone of the income distribution between the community and the value of the WTA in South Malang is as follows.

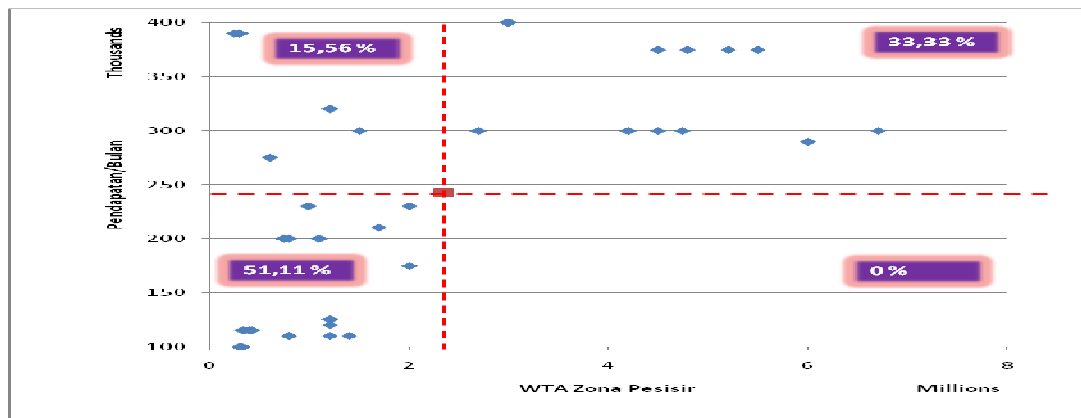


Figure 3: Value of WTA Coastal Zone in South Malang Region

3.

Distribution Map of The Pull of Natural Resources in Coastal Area

JLS infrastructure at the time of this study produces research that concludes that JLS has provided benefits to the local community economic development, especially in the agricultural zone and the coastal zone. JLS infrastructure at its current state still serves as the economic servicing for economic activity in the region so as to encourage the South Malang backwash effect especially of commodities derived from natural resources, namely forests, agriculture and fisheries. Backwash process effect of the wealth of natural resources in the region south to the center of Malang in Malang economic growth stronger. Strong pull is caused by the formation of the road network system that forms a unified movement of goods and services in South Malang region. The road network is formed consisting of a network of national roads (arterial and non-arterial), provincial, district roads (primary local) and local road districts (local secondary).

JLS infrastructure as a national category primary arterial roads

contribute to encourage the pull of natural resources in the forest zone, the coastal zone and agricultural zones spread all corners of Malang. Forest products and agricultural products have attracted the tendency of the Sub-District Donomulyo, Bantur and Gedangan for Sumbermanjing Wetan clumped in the District, and from this district and then spread to the Sub-District Turen, Malang and Batu City (green arrows). The potential of natural resources (forest and agriculture) in Sub-District Donomulyo apart clumped into Sumbermanjing Wetan also lead to economic centers in Sub-District Kepanjen. Commodities fishery products both primary and secondary products (blue) attracted towards the center of economic growth in Malang and Batu City. Stone Town is more specifically based on secondary products such as fish crackers, fish paste and shredded fish, whereas Malang focus more resources on commodity fresh caught fish and farmed fish. Distribution of potential natural resource in South Malang after infrastructure development can be seen in the map below.

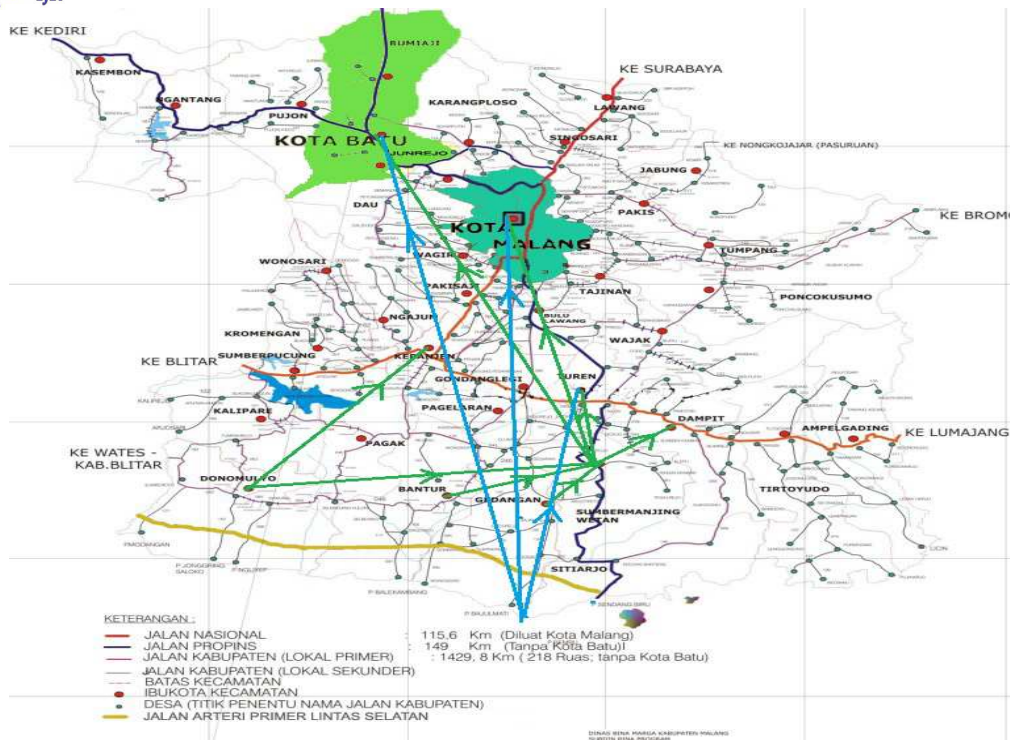


Figure 4: Distribution Map of The Pull of Natural Resources from Coastal Area to Economic Center in Malang

IV. Conclusion

Functioning of JLS in the district of South Malang will directly affect the economic of local activities in coastal region is influenced by the influx of owners of capital/technology as well as newcomers who have quality human resources better. Therefore, in the perspective of sustainable development that requires a balance between the goals of economic and social objectives need to be issued regulations governing the establishment of equilibrium. Regulation is needed, among others, namely: (1). Organize and prioritize areas designated as economic activity to be determined as the business district, (2). Set the scale of effort or labor-intensive investment, (3).

Set the regulatory use of environmentally friendly technologies, (4). Prioritize the use of local human resources as labor, (5). Doing the optimum scale of production so as not to add to the damage to the environment, (6). Supervision of the business entity through proper control mechanisms and (7). Requires businesses to spend social/CSR to the local community which aimed for the benefit of education, health and economies of the people.

REFERENCES

- [1] Adisasmita, Rahardjo. 2008 : *Pengembangan Wilayah : Konsep dan Teori*. Graha Ilmu

- Media. 2008.
- [2] Ahmad Firman, 2007. *Dampak Sektor Transportasi Terhadap Sektor Pertanian dan Peternakan di Indonesia*. Research Center-University of Padjadjaran
- [3] Akil, Sjarifuddin, 2003. *Pengembangan Wilayah dan Penataan Ruang di Indonesia : Tinjauan Teoritis dan Praktis*. Papers in Lecture Prime Graduate Program in City and Regional Planning Master of UGM. Jogjakarta May 5, 2003.
- [4] Amstrong, H. and J. Taylor. 2009. *Regional Economics and Policy*. Blackwell Publisher. Massachusetts.
- [5] Antle, J.M. 2008. *Human Capital, Infrastruktur and The Productivity of Indiann Rice Farmers*. *Journal of Development Economics* 14 : 163-181
- [6] Aschauer, D.A. 2009. *Why is Infrastructure Important* . Bank of Boston, Boston., Inin Munnell, A.H. (ed.), Is there shortfall in public capital investment. Proceedings of a Conference Sponsored by the Federal Bank of Boston, Federal Reserve Bank of Boston, Boston.
- [7] Banister D., and J. Berechman. 2010. *Transport Investment And Economic Development*. UCL Press, United Kingdom.
- [8] Bayes, Abdul. 2011. *Infrastructure and Rural Development : Insight From A Garmen Bank Village Phone Initiave in Bangladesh*. *Agriculture Economics* 25. 261-272
- [9] Barton, D. N. 1994. *Economic Factors and Valuation of Tropical Coastal Resources*. SMR-report 14/94. Center for Studies of Environment and Resources, University of Bergen. Norway.
- [10] Boarnet, M.G. 1995. *Transportation Infrastructure, Economic Productivity, and Geographic Scale: Aggregate Growth versus Spatial Redistribution*.
- [11] Buurman, J. and P. Reitveld. 1999. *Transport Infrastructure and Industrial Location: The Case of Thailand*. *Journal of The Applied Regional Science Conference*, 11 (1) : 45 – 62..
- [12] Butler, Stewart. E., Walter. E.G., Richard. J.H., Rene. T.S., Hilmy. I, Arthur. L.W. 1984. *Highway Investment and the National Economy*. *Transportation Research Record*, 98 (4): 42 - 51.
- [13] Calderon, C. And Serven, L. 2004. *The Effects of Infrastructure Development on Growth and Income Distribution*
- [14] Cavalanti, C. 2000. *The Environment, Sustainable Development and Public Policies : Building Sustainability in Brazil*

- [15] Capello, R. 2000. *The City-network Paradigm: Measuring Urban Network Externalities*, Urban Studies, Vol.37, no: 11. October, pp. 1925-45.
- [16] Capello, R. 2007. *Regional Economics*. First Published. Routledge, London and New York.
- [17] Dahuri, R.; Rais, J.; Ginting, S.P.; dan Sitepu, M.J., 2001. *Pengelolaan Sumber Daya Wilayah Pesisir dan Lautan Secara Terpadu*. Pradnya Pratama. Jakarta.
- [18] Dercon, S dan P Krishnan. *Changes in Poverty In Rural Ethiopia 1989-1995 : Measurement, Robustness Test And Decomposition*. WPS/98-7. Oxford : Center For The Study of African Economics. 1998.
- [19] Durkin, Jr, J.T. and R.W. Wassmer. 1994. *Public Infrastructure Spending And Private Income Generation in Large US Cities*, Working Paper, Lincoln Institute Of Land Policy, Cambridge, MA.
- [20] Eisner, R. 1991. *Infrastructure and Regional Economic Performance*, New England Economic Review, September-October; 47-58.
- [21] European Commission (1996), *APAS-Methodologies for Transport Impact Assessment*, Luxemborg, Office for Official Publications of the European Communities.
- [22] Fauzi A, 2000. *Persepsi Terhadap Nilai Ekonomi Sumberdaya*. Paper Presented at *The Training For Trainers on Integrated Coastal Zone Management (ICZM)*. Coastal Project, November. Bogor.
- [23] Fan, Shengen dan Connie Chan Kang. *Road Development, Economic Growth and Poverty Reduction In China*. IFPRI Reserach Report No 138.2005
- [24] Fujita, M., P. Krugman. and A.J. Venables. 1999. *The Spatial Economy: cities, regions and international trade*, Cambridge, Mass. MIT Press.
- [25] Fulton L. and B. Susantono. 2002. *Cost Effective Transport Systems: A Case Study of Jakarta*. Energy Prices and Taxes 3rd Quarter International Energy Agency, Jakarta.
- [26] Houghwout, F.A. 1996. *Infrastructure, Wages, And Land Prices*, Unpublished Paper, Woodrow Wilson Schoo, Princeton University.
- [27] Hoitz-Eakin, D and Schwartz, A.E. 1995. *Infrastructure in a Structural Models of Economic Growth*. Regional Science and Urban Economics, Vol 125, P.131-151

- [28] Hokby, S. & Soderqvist, T. (2001). *Elasticities of demand and willingness to pay for environmental services in Sweden*. Taken dated July 14, 2012.
- [29] Kelejian, H.H. and D.P. Robinson. 1997. *Infrastructure Productivity Estimation and Its Underlying Econometric Specifications: A Sensitivity Analysis, Papers in Regional Science* 76 (1): 115-31
- [30] Kwon, Eunkyung. 2001. *Infrastructure, Growth and Poverty Reduction In Indonesia : A Crosssectional Analysis*, Asian Development Bank Institute
- [31] Mitchell, Robert Cameron, dan Richard T. Carson. 1989. *Using Surveys to Value Public Goods: The Contingent Valuation Method*. Resources for The Future, Washington D. C.
- [32] Moteff, John, Claudia Copeland dan John Fischer, 2003. *Critical Infrastructure : What Makes An Infrastructure Critical ?*. Congressional Service.
- [33] Munnell, A. H. 1990. *How Does Public Infrastructure Affect Regional Economic Performace*, in Munnell A.H. (ed.), *Is there shortfall in public capital investment*. Proceedings of a Conference Sponsored by the Federal Bank of Boston, Federal Reserve Bank of Boston, Boston.
- [34] Njoh, A. J. 2000. *Transportation Infrastructure and Economics Development in Sub Saharan Africa*. Public Works Management and Policy. Vol 4, P 286-296.
- [35] Polak, J.B., and Heertje, 2001. A. *Analytical Transport Economics : An International Perspective*. Edward Elgar. Cheltenham, UK.
- [36] Queiroz C and Gultam, S. 1992. *Road Infrastructure and Economic Development, 2 nd Edition*. The World Bank. Baltimore : The Jo Hopkins University Press.
- [37] Rainey, D.V., and G. Murova. 2001. *Transportation Infrastructure and Rural Economic Growth*.
- [38] Ramirez, M.T., and H.S. Esfahani. 1999. *Infrastructure and Economic Growth*. Unpublished, University of Illinois at Urbana-Champaign. Banco de la Republica, Subgerencia de Estudios Economicos, Bogota, Colombia.
- [39] Reitveld, P., and P. Nijkamp. 2001. *Transport Infrastructure and Regional Development. Analytical Transport Economics. An International Perspective. Transport Economics, Management and Policy*. Edited by Jacob B. Polak and Arnold Heertje. Edward Elgar Publishing, Inc. Northampton, MA. USA.

- [40] Stephan, A. 1997. *The Impact of Road Infrastructure on Productivity and Growth: Some Preliminary Results for the German Manufacturing Sector*. Discussion Paper, FS (IV): 47–97.
- [41] Vickerman, R. 1995. *Location, Accessibility and Regional Development: The Appraisal of Tran-European Network*, *Transport Policy* 2 (4): 225-34. World Bank. 2003. *Indonesia Averting an Infrastructure Crisis: A Framework for Policy and Action*.
- [42] Wang, H. & Whittington, D. (2006). *Willingness to pay for air quality improvement in Sofia, Bulgaria*. Development Research Group, World Bank. Taken dated July 14, 2012.
- [43] Whittington, D. (1996). *Administering Contingent Valuation Surveys in Developing Countries (Special Papers)*. Economy and Environment Program for Southeast Asia (EEPSEA). Taken dated Augst 30, 2012.
- [44] Zhao, J. & Kling, C.L. (2004). Willingness to pay, compensating variation, and the cost of commitment. *Economic Inquiry*, 42 (3), 503-517.