


To Link or Not To Link: A Network Analysis of Labor

Firdaus Kurniawan Syahputra

Fakultas Ekonomi dan Bisnis, Universitas Mataram, Indonesia

Email: fiddsyahputra@gmail.com

| Article Info | ABSTRACT |
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| Keywords: Social Network Analysis, Labor Mobility, Networks. | This study examines the structure of social networks on labor mobility. This study examines the structure of social networks on labor mobility and the factors that cause it, in Mataram and the West Lombok region. Social network analysis (SNA) is used as a method to achieve the research objectives. By taking a sample of 122 samples randomly. From the results of data processing, it is known that 1.) Labor-Company: Degree Centrality: 1.060, Betweenness: 0.0 Average Length: 1.0 Modularity: 0.796 and Number of Communities: 23. 2.) Labor-Region Degree Centrality: 1.542 Betweenness: 0.0 Average Length: 1.0 Modularity: 1.466 and Number of Communities: 23 of Communities: 11 And there are 7 motives why labor decides to do mobility. With this we can find out how the network between regions or companies that become the destination of. And what motives encourage workers to perform mobility. |
| This is an open access article under the CC BY license  | Corresponding Author: Firdaus Kurniawan Syahputra E-mail: fiddsyahputra@gmail.com |

INTRODUCTION

The phenomenon of labor mobility is an economic and social phenomenon that often occurs in the labor market in a region (Malik, 2018). Labor mobility refers to the tendency of labor movement from one industry to another, from one sector to another or from one company to another. The movement from one job to another from one sector to another and from one company to another (Haviz, Suryaman and Tri, 2021). Labor mobility can improve the welfare of workers. In addition, there is mobility, between companies and workers there is a stabilization, namely on the part of companies that want quality workers while workers want high salaries (Central Statistics Agency, 2015).

Labor mobility does not only describe the workforce mobilizing between sectors or from one company to another, insight into this mobility pattern is very necessary, in the context of sustainable economic development in improving the welfare of the population (Labor) (Hasid *et al.*, 2022). With this, labor mobility can be considered as a parameter of economic income and human resource development.

The area that became a case study was Mataram City and around West Lombok Regency. Mataram City is the economic and administrative center of West Nusa Tenggara Province (NTB), As the center of government, business and education, the development of industrial and service activities in Mataram City provides job vacancies from within Mataram City even from various nearby areas outside the city, so that there is a migration of labor from the surrounding areas, which offers various job vacancies in formal sectors such as the trade industry, services and tourism. The challenges faced by companies in retaining the workforce are competence, job satisfaction and loyalty. Because there is a tendency for workers to move to other companies for the reason that companies offer better working conditions. Coupled with the relationship between companies and informal social networks with the workforce. By understanding the phenomenon that occurs, we can delve deeper into the patterns and factors that cause the workforce to move.

The social and economic situation in the area of origin that cannot meet the needs of a resident causes the person to want to go to another area that can meet the needs (Puspitasari and Mudakir, 2010). While each individual has different needs, the assessment of the area of origin of each individual in the community is different, so that the decision-making process to make a move (mobility) of each individual is also different. Supported by the theory of migration, according to Mantra in the article explained that the main motive of the population in moving is due to economic motives, this motive develops because of economic inequality between various regions (Purnomo, 2009). There are better job opportunities or greater income levels (Sundari, Karismawan and Salmah, 2020).

Poverty is a problem that is often encountered in many countries, especially in developing countries (Pratiwi, Ashar and Syafitri, 2020). Therefore, the situation is one of the factors that causes the population of every region in Indonesia such as in the province of West Nusa Tenggara. Many of the population moved due to poverty. Poverty and population mobility are two crucial concepts that are related to the development economy and demographic change (Thurlow, Dorosh and Davis, 2019).

Apart from that, a factor that plays an important role in determining the form of mobility is related to distance. In carrying out mobility, residents are more likely to move in short distances or move non-permanently. However, it is possible that long distances are not the choice of residents to do mobility.

Thus, it can be concluded that the writing of this article aims to explore in more detail related to the pattern of labor mobility using the social network analysis method in Mataram City and both from outside the area heading to Mataram City. By paying attention to various factors that affect these movements, this study is expected to be able to provide a deeper understanding of labor dynamics in this developing region.

METHOD

This study uses the Social Network Analysis (SNA) method. The study of the research location was carried out in the city of Mataram. Using Gephi 0.10.1 software. To find out the direction of the pattern by visualizing the relationship between nodes and what factors cause workers to decide to move work from one company to another, not even from the city of Mataram but even from outside the surrounding area. This research is directed to answer the research objectives (a) Namely to find out how social distancing is in the workforce that has carried out work mobility between companies in the city of Mataram and its surroundings (b) What factors cause the workforce to move jobs.

Type of Research

The type of research used is quantitative research. Quantitative research methods are research that is identical to the numerical appearance in data collection techniques directly in the field. In quantitative research, it is used to find the desired information by using data in the form of numbers in the information analysis tool regarding the objectives of our research (Djollong, 2014).

Data source

The type of data based on the acquisition in this study uses primary data and secondary data.

1. Primary data is data obtained directly from data sources. Primary data in this study were obtained through a survey collected directly in the field.
2. Secondary data is data obtained indirectly or through a second party. Secondary data is usually obtained from official publications, including data that is used as literature, such as books and reports (Rahman, 2021). Secondary data obtained from this study is from government agencies and related companies.

Data Collection Techniques

With a sample of 122 respondents, it was obtained using:

1. Administrative Data

The source of data taken is from the government or labor institutions and from companies.

2. Survey

The survey was carried out to obtain facts or data in the field (Unaradjan, 2019). Data collection sourced from direct surveys to the field uses Questionnaires compiled by researchers to obtain information related to the career change of workers and other information that is considered important to achieve research objectives.

RESULTS AND DISCUSSION

The type of pattern used in social network analysis in this study is to use the directed network pattern. The directed network pattern means that every node or point that is connected to other nodes (forming a network) has a direction of mobility. Supported by quotations (Borgatti *et al.*, 2009) There is a graph with the term sociogram that visualizes actors or nodes in the form of points and relationships in the form of arrows, which come from the interaction that is the target of the interaction, this graph displays an overview that social network analysis shapes the interaction between actors or nodes in the social network.

Based on the Network Overview results: Centrality: Degree Centrality, Network Diameter, Closeness Centrality, Degree Centrality, Eigenvector Centrality and Modularity.

Centrality

Centrality is a way to determine actors or nodes using size (matrix) or by way (Source, Target) on Social Networks (Bakry, 2020). The use of centrality in graph theory and social networks can be grouped into four types, namely degree centrality, betweenness centrality, closeness centrality and eigenvector centrality (Setatama and Tricahyono, 2017), with the addition of modularity to be able to determine the level of node density of a community or cluster in a network (Khatoun and Banu, 2019).

Degree Centrality

Accumulation of relationships or With Degree Centrality which means that the node that is the center is most connected to the other nodes of the company. There is an Indegree term that indicates a relationship that leads to the Node and Outdegree which means a relationship that leads out of the Node.

Betweenness Centrality

Become a parameter that describes the frequency that frequently occurs that passes through a Node in the shortest distance. For example, if there are two groups of nodes and which nodes are often passed by the two nodes.

Closeness Centrality

The degree of proximity of one node to another on average based on the amount of distance between nodes.

Network Visualization and Discussion

To get an idea of the Workforce-Companies that are the destination of the workforce so that there is a concentration in the company with an indication of a large Node.

Graph of Labor Networks with Companies

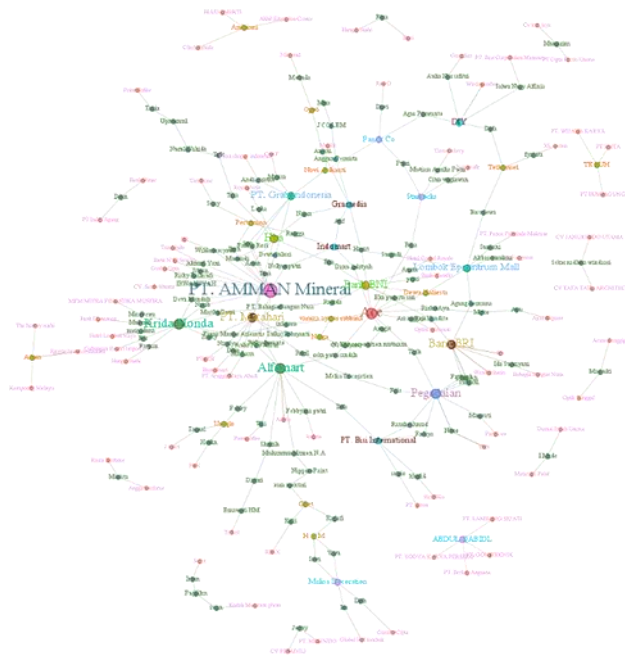


Figure 1 1-Labor-Enterprise Social Network Graph

Based on the visualization of the graph above, there are several clusters or large groups of interactions that are formed related to the companies that are the destination of the workforce. Namely Pink, Light Orange, Dark Green and Brown. The Pink cluster has the largest variation of nodes, marking as the highest cluster. It illustrates that the pink cluster dominates the mobility pattern that is the goal of most workers in choosing to move. The pink cluster that has the largest nodes represents the Mataram area which is the area or area with the most labor destinations.

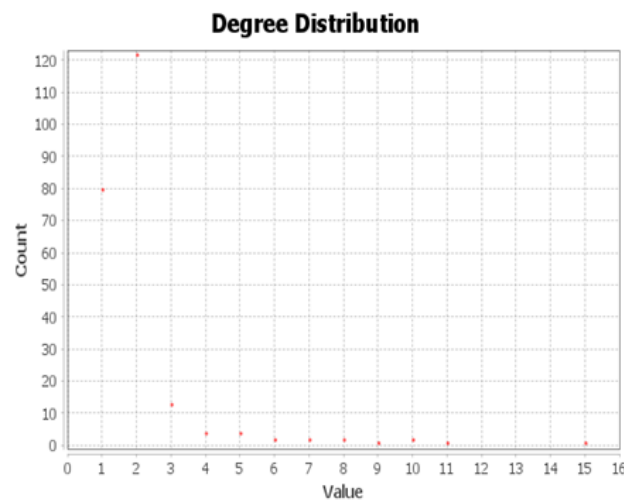
Table 1. 1- Companies with the most concentration

| Company | Node Color |
|------------------------|-------------------|
| PT. AMMAN Mineral | Pink |
| Ace | Young Orange |
| Krida Honda | Dark Green |
| PT. Matahari | Dark Chocolate |
| Lombok Epicentrum Mall | Light Green |
| Pegadaian | Blue |
| PT. Grab Indonesia | Light Green |
| PT. BISI International | Bright Blue |

As the most dominant company in becoming the destination of the workforce to carry out mobility, PT. AMMAN Mineral. Followed by Ace, Krida Honda, Alfamart, Pegadaian, DIY, Lombok Epicentrum Mall, PT. Grab Indonesia, Hira, PT. BISI International where these companies are the destination of the workforce.

Degree Centrality

Average Degree: 1.060

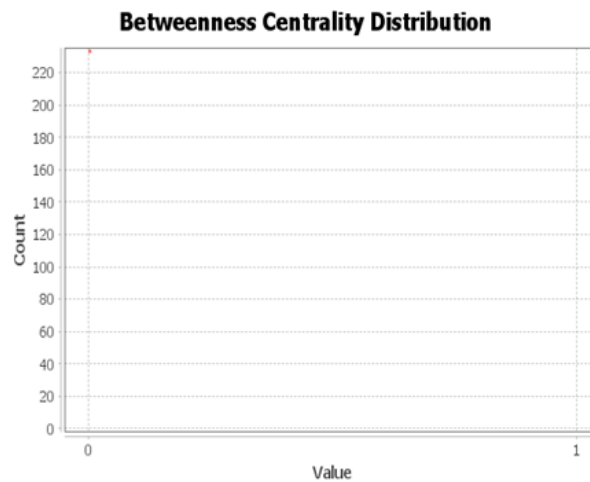


It is known that the Average Degree value is: 1,060 (high value = Highly connected network) which means the level of density or concentration of a node with many nodes that are the center of concentration. Known Indegree: 11. which means that many large nodes are central to other nodes. In this study, it means that there are 11 companies that are the largest centers for gathering labor.

Betweenness Centrality

Network Interpretation: directed, Diameter: 1, Radius: 0

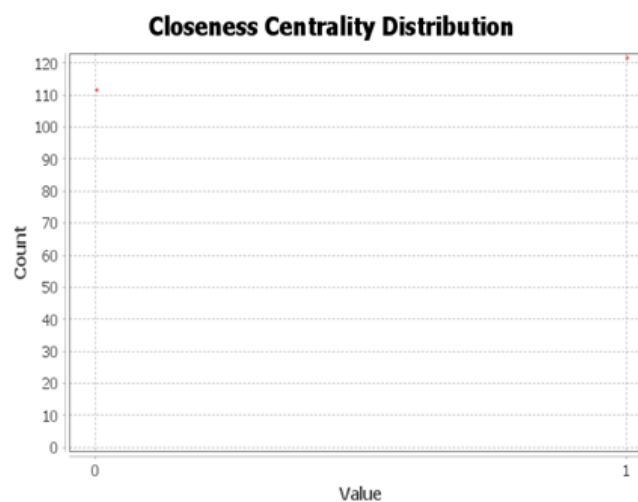
Average Path length: 1.0



Betweenness Centrality Value: 0.0 means that there are no Company Nodes that are frequently skipped or that are between 2 large sets of nodes. And based on the value of Average Path Length: 1.0 (High Value) indicates that nodes pass through many intermediaries. In this case, it means that there are no companies that are between the 2 companies with the highest concentration level.

Closeness Centrality

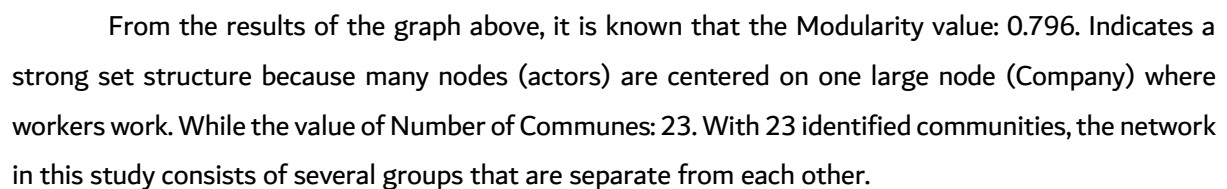
Closeness values: 0.0 and 1.0



Based on the results of the graph above, it can be seen that there are some nodes that have a closeness value: 0.0. And Others: 1.0

Modularity

Resolution: 1.0, Modularity: 0.796, Modularity with resolution: 0.796, Number of Communities: 23.

[illegible]

In the graph data above, it is known that there are 4 large clusters and several small clusters that are formed related to the workforce and the area where the workers work destination.

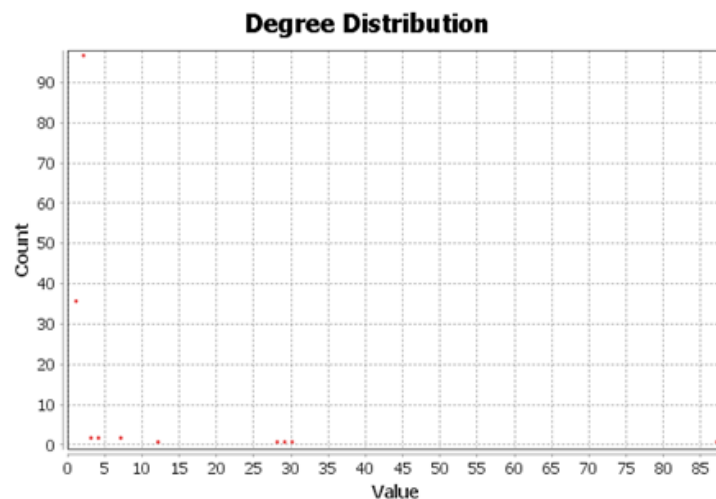
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| Region | Node Color |
|-------------|----------------|
| Mataram | Light Brown |
| Taliwang | Green |
| Cakranegara | Blue |
| Ampenan | Dark Chocolate |

Mataram with the largest node (light brown) makes it the most dominant area that is the destination of the workers. Then, Taliwang with nodes (Green), Cakranegara (Blue), Ampenan (Dark Brown) which indicates that the nodes are connected to the Mataram node. This means that many of the previous workers who worked in the area then carried out mobility.

Degree Centrality

Average Degree: 1.542



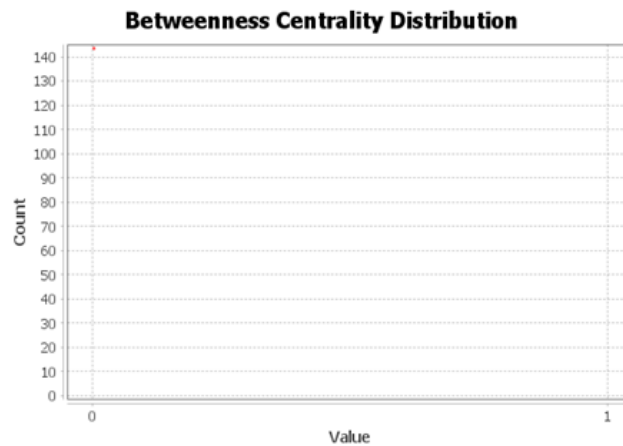
It is known that the degree value: 1,542 (Very high value) means that the connected network is very high. Where the concentration or density between nodes (labor) that are many centered with nodes (regions) is many.

Beetwenes Centrality

Network Interpretation: directed, Radius: 0

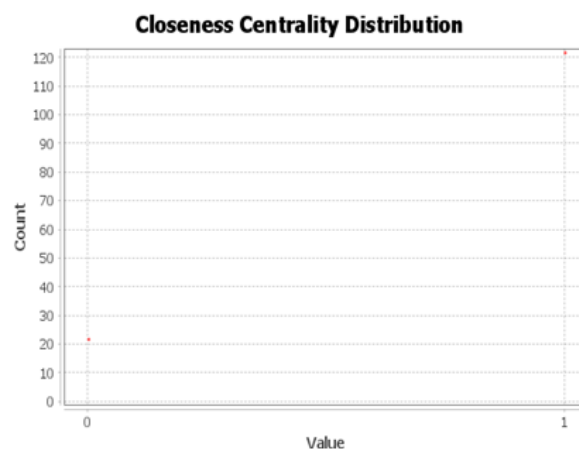
Diameter: 1

Average Path Length: 1.0



Betweenness Centrality value: 0.0 which means that there are no Region nodes that are frequently crossed or that are between 2 large sets of nodes. And based on the value of Average Path Length: 1.0 (High Value) indicates that nodes pass through many intermediaries. In this case, it means that there is no area between the 2 regions with the highest concentration level.

Closeness Centrality



Closeness values: 0.0 and 1.0

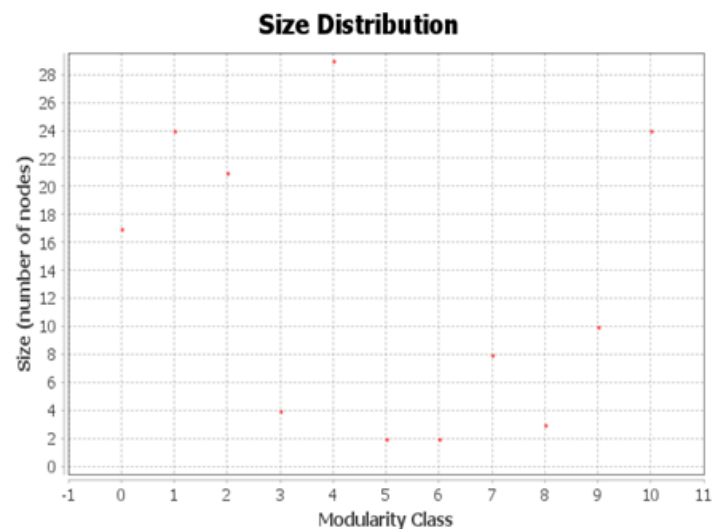
Based on the results of the graph above, it can be seen that there are some nodes that have a closeness value: 0.0. which indicates that a node with another node cannot reach quickly. And with an Average Length value of 1.0

Modularity

Randomize: On

Use edge weights: On

Resolution: 1.0, Modularity: 0.466, Number of Communities: 11



From the results of the graph above, it is known that the Modularity value: 0.466. Demonstrates a fairly strong set structure. Because there are not many nodes (actors) centered on one large node (region). Where the level of interconnectedness of each node in a community is not very connected to each other from one community to another. While the value of Number of Communes: 11. Which means that there are as many as 11 communities or associations.

Factors Causing Mobility

Table 3 - Factors Causing Labor Mobility

| Factors Causing Mobility | Frequency | Presentation |
|--|-----------|--------------|
| Higher earnings | 54 | 44,3% |
| Better career opportunities | 70 | 57,4% |
| Unsupportive work environment | 13 | 10,7% |
| Bad relationships with bosses and colleagues | 2 | 1,6% |
| Distance or location of the workplace | 41 | 33,6% |
| Want to try a new field | 20 | 16,4% |
| Family reasons | 30 | 24,6% |

*Each respondent can choose more than one reason

Based on the results of the survey and the data that has been processed. There are as many as 7 (seven) labor motives in carrying out mobility. The highest motive that becomes the decision of the workforce in deciding to do job mobility is because they want to get "better job opportunities". With the

most selected frequencies: 70 with a percentage: 57.4%. and with the "Higher income" motive the frequency is chosen: 54 with a percentage: 44.3%. Some workers also chose "Distance or workplace" as their reason for moving with the frequency chosen: 41 with percentage: 33.6%.

"Bad relationship with superiors or co-workers" is the least chosen motive by the workforce in carrying out mobility with a frequency of as much as 2 with a percentage: 1.6%.

CONCLUSION

Labor mobility in Mataram and West Lombok The interaction between workers' motivation to change jobs and the structure of social networks between workers-firms and between labor-regions. The application of Social Network Analysis (SNA) in research to be able to understand more deeply about the relationship and connection of labor mobility. By visualizing the network of job transitions between workers and between workers and regions.

Workforce-Enterprise

PT. AMMAN Minerals with the largest level of node variation in figure 1.1 is the company that has the most relationships with the workforce, indicating that many workers are doing mobility. Other companies that are connected with a large level of node variation such as, Ace, Krida Honda, Alfamart, Pegadaian, DIY, Alfamart, Lombok Epicentrum Mall, Gramedia, Hira, PT. BISI International, Bank BNI, Bank, Bank BRI, PT. Sun. It was identified that there were 23 communities with Modularity: 0.796 degrees and Degree Centrality: 1,060

Region-Labor

Mataram as a dominant area that is the destination of the workforce to carry out mobility. With the largest node variation rate in the network figure 2.1. which indicates that many workers from related areas are mobilizing to Mataram. The related areas are also such as Ampenan, Cakranegara, LabuApi, Taliwang, Narmada, Maluku, Senggigi. With the number of communities 11. With Modularity Degrees: 0.466. and Degree Centrality: 1,542.

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