

The 2nd International Conference on Business and Banking Innovations (ICOBBI)
“Nurturing Business and Banking Sustainability”
Surabaya, 14th - 15th August 2020

Proceeding Book of
The 2nd International Conference on Business and Banking Innovations
(ICOBBI) 2020
“Nurturing Business and Banking Sustainability”
Surabaya, 14 - 15th August 2020

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FOREWORD

Alhamdulillah, praise be to Allah Subhanahu Wa Ta'ala for granting us the opportunity to organize and publish the proceedings of the 2nd International Conference on Business and Banking Innovations (ICOBBI) with the topic “*Nurturing Business and Banking Sustainability*”. This proceeding contains several researches articles from many fields in Marketing, Management Technology, Finance, Banking, Human Resources Management, Information System Management, and Islamic Economics.

The 2nd International Conference on Business and Banking Innovations was held on 14th – 15th August 2020 by virtual (online) meeting and organized by the Master Management Study Program of STIE PERBANAS Surabaya in Collaboration with six Higher Education Institutions in Indonesia and five Universities from Asia countries. Keynote speakers in this conference were: Prof. Angelica M..Baylon, Ph.D (Director of the Maritime Academy of Asia and the Pacific, Philippines), Chonlatis Darawong, Ph.D. (Head of the Master of Business Program Sripatum Chonburi University - SPU Graduate School Bangkok, Thailand), Prof. Madya Dr. Reevany Bustami (Director of Centre for Policy Research and International Studies Universiti Sains Malaysia), Associate Prof. Dr. Elisha Nasruddin (Graduate School of Business Universiti Sains Malaysia), Associate Prof. Pallavi Pathak Ph.D. (School of Management Sciences, Varanasi, India) and Prof. Dr. Tatik Suryani (Head of the Master of Management Study Program of STIE Perbanas Surabaya, Indonesia).

I would like to give high appreciation to the Rector of STIE Perbanas Surabaya for his support at this event. Acknowledgments and thank you to all the steering and organizing committees of the ICOBBI for the extra ordinary effort during the conference until this proceeding published. Thank you very much to all presenter and delegates from various Universities. Beside it, I would like to express our gratitude to the six universities, namely Universitas 17 Agustus Surabaya, Universitas Surabaya, Universitas Dr. Soetemo Universitas Dian Nuswantoro Semarang, STIE 66 Kendari, Institut Institut Bisnis dan Keuangan Nitro Makassar which has been the co-host of this event.

Hopefully, the proceeding will become a reference for academics and practitioners, especially the business and banking industry to get benefit from the various results of the research field of Business and Banking associated with Information Technology. Proceedings also can be accessed online on the website <https://pascasarjana.perbanas.ac.id>.

Chair of the Master Management Study Program
STIE Perbanas Surabaya

Prof. Dr. Tatik Suryani, M.M.

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The Pattern of Spatial Interaction of Workers in Central Java Province using the Explanatory Spatial Data Analysis (ESDA) Approach

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ABSTRACT

The mobility of labor from one area to another forms a pattern of labor spatial interaction. In 2019, there are 17.4 million people in Central Java Province who have the potential to mobilize workers. This is due to the difference in wages between the area of origin and the destination area, the unemployment of the area of origin, development in other areas. This study aims to analyze the pattern of spatial interaction of the workforce in 29 District and 6 cities in Central Java Province. The sample used by the workforce from 2014 to 2019. This research method uses the euclidean distance spatial weight matrix approach to calculate Local Moran's I with Explanatory Spatial Data Analysis (ESDA). The results of this study concluded that the pattern of spatial interaction of labor internally in Central Java Province occurred. This is evidenced by the strong spatial interaction pattern of the workforce in Central Java Province in 2019. Cilacap District workers, Demak District workers, Banyumas District workers, Semarang City workers, Tegal District workers, Semarang District workers, and Pemalang District workers with high labor characteristics have spatial interactions with district / city workers with labor characteristics high. The weak pattern of spatial interaction of labor in Central Java Province in 2019 was shown from Banjarnegara District, Batang District, Blora District, Pekalongan City, Temanggung District, Purworejo District, Rembang District, Rembang District, Sragen District workers, Sukoharjo District workers, Wonosobo District workers, Karanganyar District workers, and Pekalongan District workers with low labor characteristics interact spatially with District / cities with low labor characteristics. The pattern of spatial interaction of workers in Central Java Province which is manifested in the form of labor migration is thought to be due to the open unemployment rate, most of which are high school graduates. The difference in wages for work from the region of origin and the wages for the work of the destination region is a consideration for workers who migrate internally in Central Java Province.

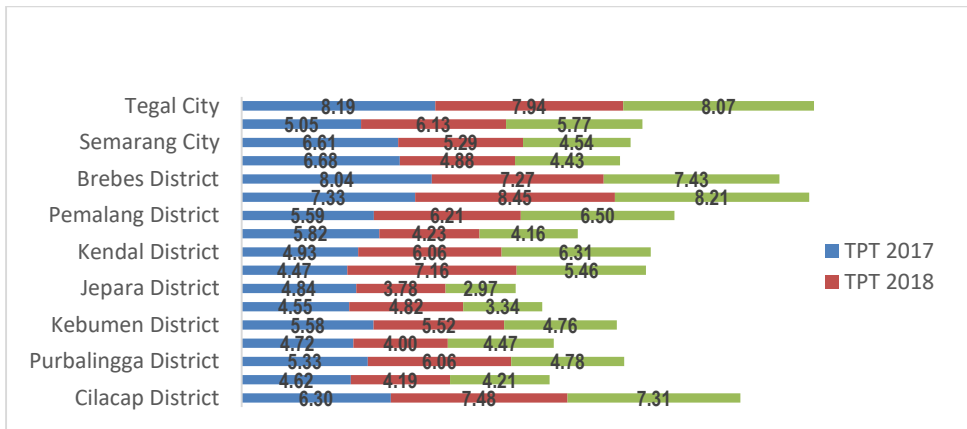
1. INTRODUCTION

In 2019, there were 17.4 million workers in Central Java Province. The number of workers in Central Java Province in 2019 based on male gender was 10, 23 million, and the workforce based on female gender was 7.2 million. The mobility of the workforce in Central Java is thought to be high because most job seekers are mostly high school graduates, there are 135,044 people, followed by workers with university graduates of 93,030 people, and job seekers with Diploma I, Diploma II, and Diploma III graduates are 39,013 people. Central Java Province's open unemployment is quite high. Table 1 shows that the unemployment rate is quite high in Central Java Province from 2017 to 2019, most of the open unemployment is Cilacap District, Banyumas District, Purbalingga District, Banjarnegara District, Kebumen District, Sragen District, Jepara District, Demak District, Kendal District, Batang District, Pemalang District, Tegal District, Brebes District, Magelang City, Semarang City, Pekalongan City, and Tegal City.

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Table 1
 Open Unemployment Rate in Central Java Province

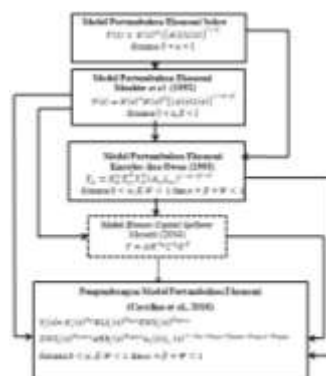


Source : BPS-Statistics Indonesia, August National Labor Force Survey 2019

The open unemployment rate between District / cities in Central Java Province is a driving factor for workers to migrate to other District / cities whose income is higher than their home regions. This study adopts the results of research from Moretti (2004). The results of Moretti's (2004) study concluded that workers with higher education and workers with certain skills had the desire to move places to find work with high wages. The higher education workforce and workers who have certain skills have the aim to improve their lives and well-being. This study developed a growth model from Solow (1956) that was developed by Mankiw et. al., (1992) who consider the importance of education in economic growth. Education is part of human capital. Education will increase economic growth by increasing labor productivity. The main objective of this study is to analyze the spatial interaction pattern with the euclidean distance weight matrix. This research is important because there is no research on the interaction patterns of workers in Central Java Province with Explanatory Spatial Data Analysis (ESDA).

2. THEORETICAL FRAMEWORK

The framework of this study is the development of the economic growth model of Solow (1956), namely the Mankiw et. al., (1992) growth model, the Knowles and Owen economic growth model (1995), taking into account the role of educated labor, and the role of uneducated labor in its economic growth model Moretti (2004). Solow (1956) which has been developed by Knowles and Owen (1995) which prioritizes the role of health in economic growth. Education and Health are human capital. Mankiw et. al., (1992), and Knowles and Owen's (1995) model of economic growth consider the role of education and health in economic growth. Education and health will increase economic growth by increasing labor productivity. Education and health are inherent in the workforce. Increasing labor productivity will increase economic growth. This study also adopts a model of economic growth from Moretti (2004) which divides the workforce into educated and uneducated workers. The focus of this research is only on labor.



Source : Developed for this study

Figure 1. Theoretical Framework

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3. RESEARCH METHOD

This research was conducted in the period 2014-2019. The time period was selected with limited data used in the study. The sample of this study includes 29 districts and 6 cities in Central Java Province. This research is focused on the discussion of labor in Central Java Province

Table 1
 Research Data Description

Variabel	Indikator	Satuan	Sumber
Labor	Population aged 15 years and over who worked during the past week according to the highest education completed (not / not yet in university school) in the country	Orang	Central Java Statistics Bureau

Sources : Central Java Statistics Bureau (2020)

This study uses Explanatory Spatial Data Analysis (ESDA) with the Local Indicators of Spatial Association (LISA) method to answer the Spatial Interaction Patterns of Workers in Central Java Province using the spatial weight matrix of Euclidean Distance. This study focuses on the mobility of the workforce in 29 District and 6 cities in Central Java Province. This study uses labor data from 29 District and 6 cities in Central Java Province from 2014 to 2019. This study uses the 2014 workforce cut-off and 2019 workforce to be more focused.

Spatial Weight Matrix with Euclidean Distance Approach The use of the spatial weight matrix of Euclidean Distance is used to solve problems caused by the calculation of distance, time and labor mobility using the x coordinate point and the y coordinate point of each district / city in Tengah. This research was designed with a spatial autocorrelation method approach through locally using Local Moran’s I. Euclidean Distance is a unit of mills where 1 Euclidean Distance = 15.91 mills. Calculation of Euclidean Distance using Geoda version 14.1. which was released in August 2019. The spatial weight matrix of Central Java Province can be seen in Table 1.

Table 1
 Spatial Weight Matrix for 29 Regencies and 6 Cities in Central Java Province with the Euclidean Distance Approach

Number	District	The x coordinate point	The y coordinate point
1	Cilacap District	108,89	-7,488
2	Demak District	110,631	-6,91
3	Grobogan District	110,927	-7,117
4	Banjarnegara District	109,657	-7,351
5	Banyumas District	109,175	-7,455
6	Batang District	109,861	-7,02
7	Blora District	111,388	-7,074
8	Boyolali District	110,652	-7,416
9	Brebes District	108,929	-7,06
10	Magelang City	110,219	-7,477
11	Jepara District	110,767	-6,55
12	Karanganyar District	111,019	-7,657
13	Kebumen District	109,617	-7,654
14	Kendal District	110,157	-7,039
15	Klaten District	110,619	-7,686
16	Magelang District	110,246	-7,501
17	Pati District	111,042	-6,743
18	Salatiga City	110,497	-7,737
19	Pekalongan City	109,677	-6,893
20	Semarang City	110,389	-7,02
21	Surakarta City	110,822	-7,557

22	Tegal City	109,115	-6,869
23	Kudus District	109,62	-7,056
24	Pekalongan District	109,395	-7,036
25	Pemalang District	109,395	-7,036
26	Tegal District	109,158	-7,028
27	Temanggung District	110,135	-7,058
28	Wonogiri District	110,99	-7,258
29	Wonosobo District	109,907	-7,416
30	Purbalingga District	109,407	-7,323
31	Purworejo District	109,966	-7,705
32	Rembang District	111,461	-6,775
33	Semarang District	110,473	-7,27
34	Sragen District	110,974	-7,385
35	Sukoharjo District	110,834	-7,68

Source: data processed with GeoDa version 14.1. which was released in August 2019

Local Indicators of Spatial Association (LISA)

Local Indicators of Spatial Association (LISA) or Local Moran I statistics which are techniques to provide visual graphs about spatial grouping such as Moran’s Scatterplot (Fotheringham, Brunson et al., 2000; Haining, 2003). Spatial local autocorrelation indicates District / City contribution to autocorrelation in Central Java Province. Spatial local autocorrelation is a value that is observed as positive (similar) or negative (different) with neighboring observations, j. Moran's index values between $-1 \leq |I| \leq 1$. This study adopted the Local Moran I statistics from Anselin (1995). The time of research is one year, namely 2014-2020. Moran's I-statistic model of locally written spatial autocorrelation,

$$I_i = \frac{x_i - \bar{x}}{S_i^2} \sum_{j=1, j \neq i}^n w_{ij} (x_j - \bar{x}) \tag{1}$$

Where :

$$S_i^2 = \frac{\sum_{j=1, j \neq i}^n w_{ij} (x_j - \bar{x})^2}{n - 1}$$

$$Z_{I_i} = \frac{I_i - E[I_i]}{\sqrt{V[I_i]}}$$

$$E_{I_i} = - \frac{\sum_{j=1, j \neq i}^n w_{ij}}{n - 1}$$

$$E[I^2] = A - B$$

$$A = \frac{n - b_{2i} \sum_{j=1, j \neq i}^n w_{i,j}^2}{n - 1} b_{2i}$$

$$B = \frac{(b_{2i} - n) \sum_{k=1, k \neq i}^n \sum_{h=1, h \neq i}^n w_{i,k} w_{i,h}}{(n-1)(n-1)}$$

$$b_{2i} = \frac{\sum_{i=1, i \neq j}^n (x_i - \bar{x})^4}{\left(\sum_{i=1, i \neq j}^n (x_i - \bar{x})^2 \right)^2}$$

$$V_{I_i} = E[I_i^2] - E[I_i]^2$$

Information :

I_i is Local Moran's-I-statistic

$N = 29$ District dan 6 City in Central Java Province;

\bar{x} is average x ;

x is the observed variable;

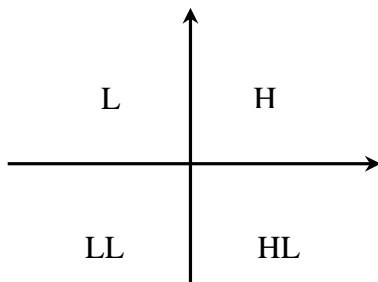
w_{ij} is elements of the spatial weight matrix that connect the observed District / City i (District / City) observations with its neighboring District / City;

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j by using the euclidean distance approach based on the x coordinate point and y coordinate point of District / City.

The Moran Scatter Plot

Local Moran's Index can also be represented in the form of The Moran Scatter Plot. This study adopted the concept of The Moran Scatter Plot from Dube and Legros (2014), Anselin (1995). The Moran Scatter Plot is divided into four quadrants, namely The High-High (HH) quadrant, The High-Low (HL) quadrant, The Low-High (LH) quadrant, The Low-Low (LL) quadrant. Determination of the quadrant position on The Moran Scatter Plot based on variable values in District / City Determination of the quadrant position on The Moran Scatter Plot based on the value of the variable in the observed District / City x_i^* , and variable values in neighboring District / City, x_j^* .



Sumber : Fothering *et al.*. (2000). Hainings

Figure 1. shows The Moran Scatter Plot.

The High-High (HH) quadrant shows District / Cities with high x values appear to be surrounded with other District / Cities with high x values. The Low-Low (LL) quadrant shows District / City with high labor value appearing surrounded with other District / City with low x value. The Low-High (LH) quadrant shows District / City with low x -values appearing surrounded by other District / City with low labor value.

4. DATA ANALYSIS AND DISCUSSION

LOCAL INDICATORS OF SPATIAL ASSOCIATION (LISA)

Local Indicators of Spatial Association (LISA) is an analysis of Local Moran's I. This study uses LISA for a workforce of 29 District and 6 Cities in Central Java Province. The distance between District / cities in Central Java Province is very close. The use of a spatial weight matrix with Euclidean Distance is very effective because it overcomes the problems of distance traveled, time traveled, labor mobility, and mobility of information with the principle of A Multidirectional Optimum Ecotope-Base Algorithm (AMOEBA). The principle of A Multidirectional Optimum Ecotope-Base Algorithm (AMOEBA) is designed for grouping spatial entities using empirical data (Aldstadt and Getis, 2006). An ecotope is a collection of spatial entities with the same characteristics based on local autocorrelation statistics. This study develops the concept of A Multidirectional Optimum Ecotope-Base Algorithm (AMOEBA) from Aldstadt and Getis (2006)

Table 2

Labor Spatial Weight Matrix 29 District and 6 Cities in Central Java Province with the Euclidean Distance Approach

Numbe r	District/City	2014		2019	
		Z	Wz	Z	Wz
1	District Cilacap	1,32	1,99	1,47	1,45
2	District Demak	0,34	0,8	0,29	0,82
3	District Grobogan	1,15	0,24	1,16	0,14
4	District Banjarnegara	-0,03	-0,08	-0,13	-0,1
5	District Banyumas	1,19	0,55	1,46	0,67
6	District Batang	-0,59	-0,49	-0,62	-0,49
7	District Blora	-0,14	-0,88	-0,34	-0,21
8	District Boyolali	0,36	-0,04	0,07	-0,4
9	District Brebes	1,6	-0,63	1,65	-0,55

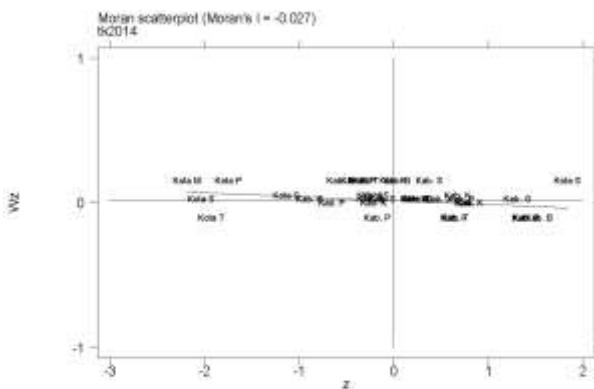
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10	City Magelang	-2,22	-0,32	-2,14	-0,31
11	District Jepara	0,61	0,3	0,59	0,25
12	District Karanganyar	-0,11	-0,02	-0,17	-0,12
13	District Kebumen	0,64	-0,29	0,34	-0,36
14	District Kendal	-0,19	0,41	-0,15	-0,39
15	District Klaten	0,68	-0,38	0,47	-0,39
16	District Magelang	0,82	-0,49	1,06	-0,56
17	District Pati	0,79	0,16	0,66	0,19
18	City Salatiga	-2,07	0,09	-1,93	0,06
19	City Pekalongan	-1,76	-0,19	-1,69	-0,13
20	City Semarang	1,97	-0,33	2,03	-0,32
21	City Surakarta	-1,07	-0,17	-1,15	-0,24
22	City Tegal	-1,9	0,91	-1,87	0,96
23	District Kudus	-0,22	0,72	-0,18	0,07
24	District Pekalongan	-0,43	-0,43	-0,24	-0,42
25	District Pemalang	0,45	-0,61	0,48	-0,55
26	District Tegal	0,68	-0,25	0,76	0,03
27	District Temanggung	-0,25	-0,26	-0,34	-0,21
28	District Wonogiri	0,19	-0,47	0,2	-0,5
29	District Wonosobo	-0,33	-0,31	-0,43	-0,37
30	District Purbalingga	0,21	-0,41	-0,13	0,44
31	District Purworejo	-0,59	0,27	-0,74	-0,29
32	District Rembang	-0,88	0,32	-0,78	0,23
33	District Semarang	0,5	-0,11	0,52	-0,14
34	District Sragen	-0,03	0,02	-0,21	-0,06
35	District Sukoharjo	-0,22	0,01	-0,2	-0,11

Source: data processed with GeoDa version 14.1. which was released in August 2019

MORAN SCATTER PLOT

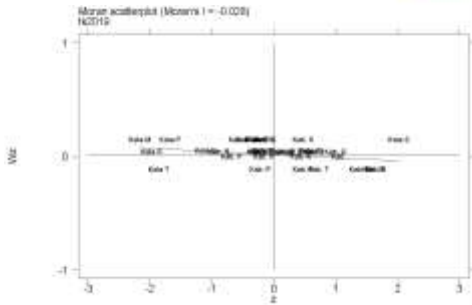
Moran scatter plot is a tool used to see the relationship between the District / City standardized observation values and the average value of District / City neighbors that have been standardized. The Moran scatter plot shown in Figure 2. shows the Moran scatter plot for the workforce of 29 District and 6 Cities in Central Java Province in 2014.



Source: Central Java data in Figures which have been processed with Stata Version 14, 2020

Figure 2. The Moran Scatter Plot of the 2014 Central Java Province Workforce

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Source: Central Java data in Figures which have been processed with Stata Version 14, 2020

Figure 2. The Moran Scatter Plot of the 2019 Central Java Province Workforce

Gambar 2 dan Gambar 3 menunjukkan perhitungan indeks Moran tenaga kerja Propinsi Jawa Tengah 2014 dan perhitungan indeks Moran tenaga Propinsi Jawa Tengah 2019. Tampak bahwa adanya autokorelasi negatif namun korelasinya lemah karena nilai indeks Moran mendekati nol, dimana indeks Moran tenaga kerja Propinsi Jawa Tengah 2014 adalah 0,027 dan nilai indeks Moran tenaga kerja Propinsi Jawa Tengah 2019 adalah 0,028.

Figure 2 and Figure 3 show the calculation of the Moran manpower index in Central Java Province 2014 and the calculation of the Moran manpower index for Central Java Province 2019. It appears that there is a negative autocorrelation but the correlation is weak because the Moran index value is close to zero, where the Moran index for the workforce of Central Java Province 2014 is 0.027 and the Moran index value for the workforce of Central Java Province 2019 is 0.028.



Figure 4. Map of the 2014 Central Java Province Workforce LISA Cluster Map

Figure 4 shows that the 2014 Workforce Cluster Map appears at the Cilacap District, Demak District, Banyumas District, Semarang, City, Tegal District, and Semarang District located in the hot spot area. The 2019 Workforce Cluster Map is located on the Cold Spot area, namely the Banjarnegara District, Batang District, Blora District, Pekalongan City, Temanggung District, Purworejo District, Rembang District, Sragen District, and Kebumen District.



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Figure 5. Map of the 2019 Central Java Province Workforce LISA Cluster Map

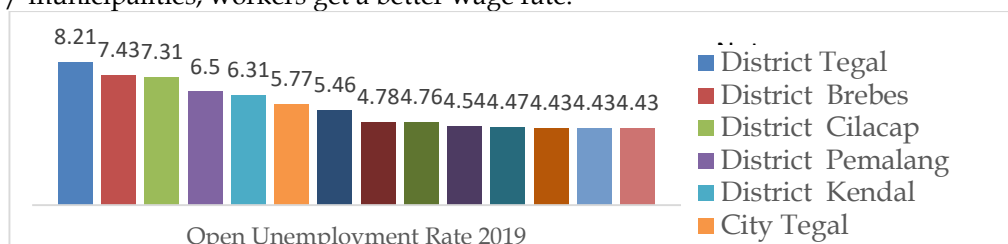
Figure 5 shows that the 2019 Workforce Cluster Map appears at the Cilacap District, Demak District, Banyumas District, Semarang City, Tegal District, and Semarang District, Pemalang District is located in the hot spot area. The 2019 workforce is located at the cold spot area, which are Banjarnegara District, Batang District, Blora District, Pekalongan City, Temanggung District, Purworejo District, Rembang District, Sragen District, Sukoharjo District, Wonosobo District, Karanganyar District, and Pekalongan District.

Table 3
LISA Distribution Pattern for Workers in Central Java Province
2014, and 2019

2014		2019	
HH	LL	HH	LL
Cilacap District	Banjarnegara District	Cilacap District	Banjarnegara District
Demak District	Batang District	Demak District	Batang District
Banyumas District	Blora District	Banyumas District	Blora District
Semarang City	Pekalongan City	Semarang City	Pekalongan District
Tegal District	Temanggung District	Tegal District	Temanggung District
Semarang District	Purworejo District	Semarang District	Purworejo District
	Rembang District	Pemalang District	Rembang District
	Sragen District		Sragen District
	Kebumen District		Sukoharjo District
			Wonosobo District
			Karanganyar District
			Pekalongan District

Source: Processed data. the year 2020

This research focuses on the workforce's strong spatial interaction pattern and the weak workforce spatial interaction pattern. Table 3 shows that the workforce in Central Java Province in 2014 had a strong spatial interaction pattern. This is shown by Cilacap District, Demak District, Banyumas District, Semarang City, Tegal District, and Semarang District with high labor characteristics that interact spatially with District / cities with high labor characteristics. The pattern of spatial interaction of workers in Central Java Province in 2019 shows a strong interaction. This can be seen from the existence of 6 District and 1 City whose workforce characteristics are high in spatial interaction with District /City whose characteristics are high workforce, namely Cilacap District, Demak District, Banyumas District, Semarang City, Tegal District, Semarang District, and Pemalang District. Table 3 shows the workforce in Central Java Province in 2014 there was a weak pattern of spatial interaction of labor. Weak spatial interaction patterns of labor in 2014 can be seen from the workforce of Banjarnegara District, Batang District workers, Blora District workers, Pekalongan City workers, Temanggung District workers, Purworejo District workers, Rembang District workers, Sragen District workers, and workers in Kebumen District with low labor characteristics that interact spatially with districts / cities with low labor characteristics. Weak spatial interaction patterns of labor in 2019 to 12 districts / cities. This can be seen from the workforce of Banjarnegara District, Batang District workers, Blora District workers, Pekalongan City workers, Temanggung District workers, Purworejo District workers, Rembang District workers, Sragen District workers, Sukoharjo District workers, Wonosobo, Karanganyar and Pekalongan districts with low labor characteristics interact spatially with districts / cities with low labor force characteristics. The pattern of spatial interaction of labor in Central Java Province in 2014, and the pattern of spatial interaction of workers in Central Java Province in 2019 are thought to have occurred due to the high unemployment rate in the area of origin so that workers with a certain level of education, and workers with a skill level desire Migrating to other districts / cities with the aim of working so that workers migrating to regencies / municipalities, workers get a better wage rate.



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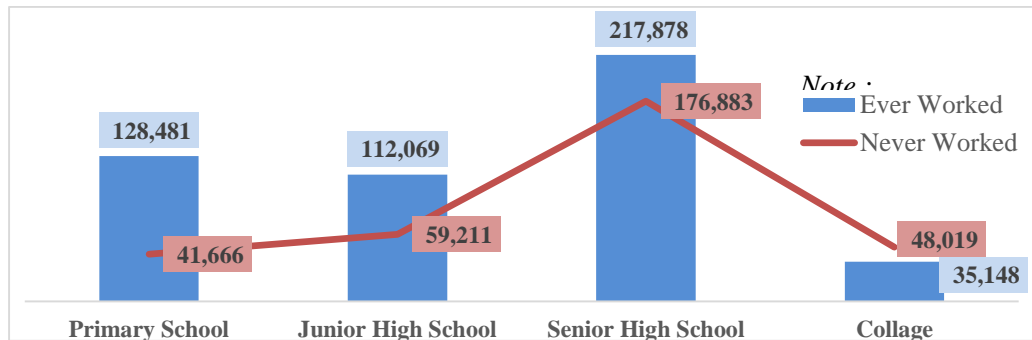
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Source: Central Java Data in Figures 2020, processed

Figure 6. Central Java Province Open Unemployment Rate in 2019

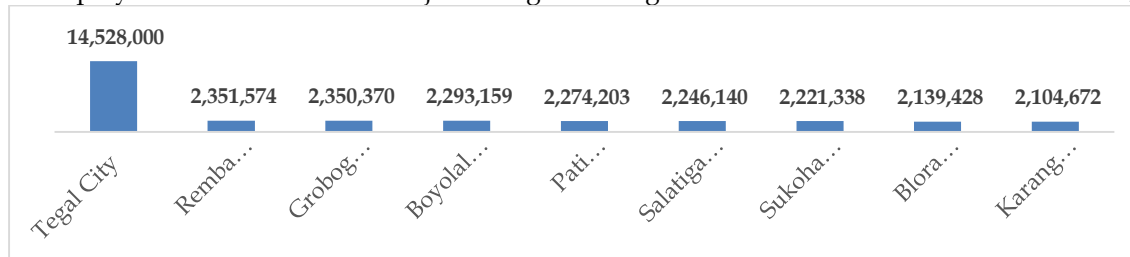
Figure 6. shows the open unemployment rate in Central Java Province in 2019. Unemployment in the area of origin is the driving force for the reason why workers do other Districts / Cities. The open unemployment rate (TPT) in Central Java Province in 2019 was mostly in Tegal Regency at 8.21 percent; District 7.43 percent; Cilacap Regency 7.31 percent; Pemalang Regency 6.5 percent; Kendal Regency 6.31 percent; Tegal City 5.77 percent; Demak Regency 5.46 percent; Purbalingga Regency 4.78 percent; Kebumen Regency 4.76 percent; Pekalongan City 4.54 percent; Banjarnegara Regency 4.47 percent; Pekalongan District, Surakarta City, and Semarang City each had an open unemployment rate of 4.43 percent.



Source: Central Java Data in Figures 2020, processed

Figure 7. Central Java Province Open Unemployment Rate in 2019

Figure 7 shows that the open unemployment in Central Java Province mostly comes from workers who have worked with 217,876 senior high school graduates, and open unemployment from workers with high school graduates who have never worked 176,883 people. Open unemployment in Central Java Province mostly comes from workers who have worked with 128,481 primary school graduates, and open unemployment from workers with junior high school graduates who have never worked for 59,211 people.

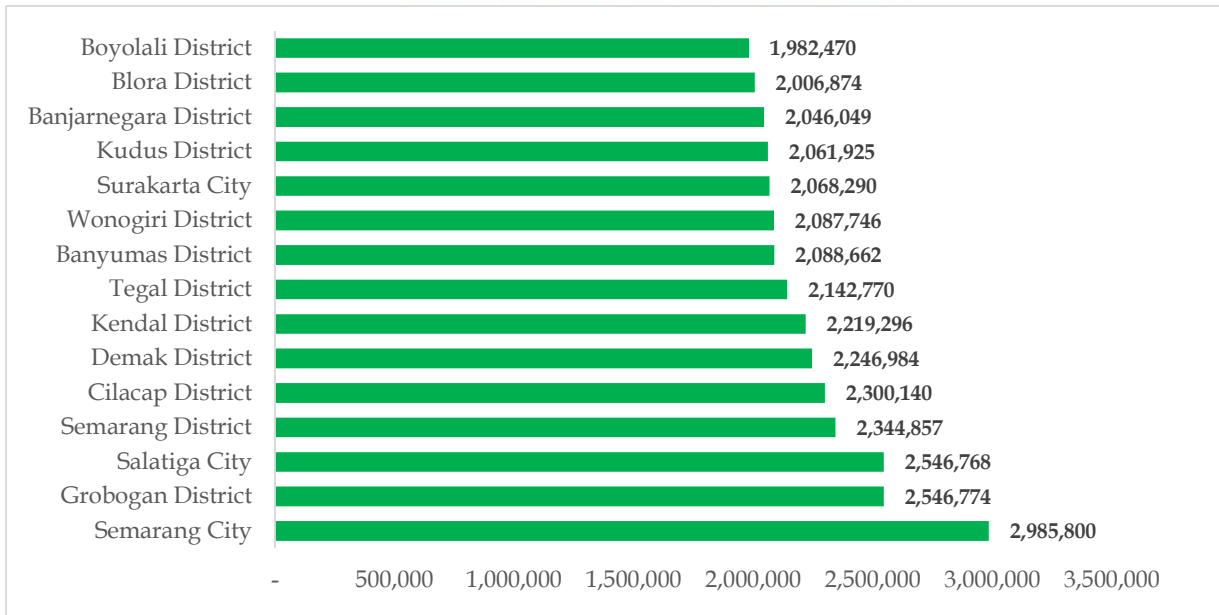


Source: Central Java Data in Figures 2020, processed

Figure 8. Primary Sector Wages in 2019

Figure 8 shows that the primary sector wages from the Agriculture, Forestry, Fisheries/ Agriculture, Forestry and Fisheries sectors are mostly found in Tegal City, Rembang Regency, Boyolali Regency, Pati Regency, Salatiga City, Blora Regency, and Karanganyar Regency.

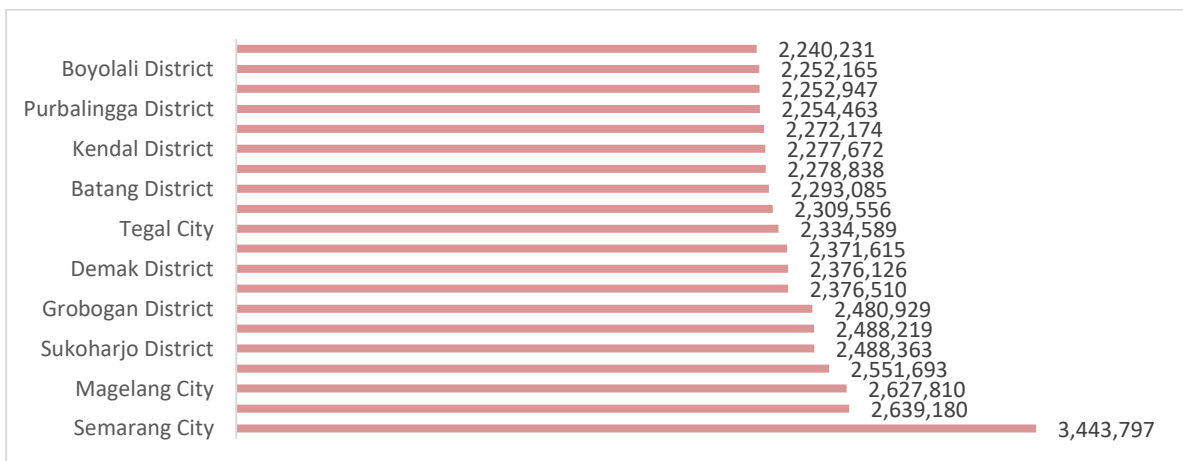
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Source: Central Java Data in Figures 2020, processed

Figure 9. Secondary Sector Wages in 2019

Figure 9 shows the secondary sector labor wages from the Mining and Quarrying sector; Processing industry; Procurement of Electricity and Gas; Water Supply; Waste, Waste, and Recycling Management; Construction, Mining and Quarrying; Manufacturing; Electricity and Gas; Water Supply; Sewerage, Waste Management, and Remediation Activities; Construction is mostly located in Semarang City, Grobogan Regency, Salatiga City, Semarang Regency, Cilacap Regency, Demak Regency, Tegal Regency, Banyumas Regency, Wonogiri Regency, Surakarta City, Kudus Regency, Banjarnegara Regency, Blora Regency, and Boyolali Regency.



Source: Central Java Data in Figures 2020, processed

Figure 10. Tertiary Sector Wages in 2019

Figure 10 shows the wages of workers in the tertiary sector (wholesale and retail sector; car and motorcycle repair; transportation and warehousing; provision of accommodation and food and drink; information and communication; financial services and insurance; real estate; corporate services; government administration, defense, and Compulsory Social Security; Education Services; Health Services and Social Activities; Other Services Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and Storage; Accommodation and Food Service Activities; Information and Communication; Financial and Insurance Activities; Real Estate Activities; Business Activities; Public Administration and Defense; Compulsory Social Security; Education; Human Health and Social Work Activities; Other Services Activities) mostly exist in Semarang City, Semarang Regency, Magelang City, Salatiga City, Sukoharjo Regency, Grobogan Regency, Karanganyar Regency, Demak Regency, Cilacap Regency, Tegal City, Sragen

Regency, Batang Regency, Purworejo Regency, Kendal Regency, Regency Kudus, Purbalingga Regency, Temanggung Regency, Boyolali Regency, and Kebumen Regency.

5. CONCLUSION, IMPLICATION, AND LIMITATIONS

The pattern of spatial interaction of labor in Central Java Province in 2014 and 2019. The cut-offs of this study were taken from the early 2014 research year and the final year of the 2019 study. The pattern of internal spatial interaction of labor in Central Java Province occurs. This is evidenced by the strong spatial interaction pattern of the workforce in Central Java Province in 2019. Cilacap Regency workers, Demak Regency workers, Banyumas Regency workers, Semarang City workers, Tegal Regency workers, Semarang Regency workers, and Pemalang Regency workers with high workforce characteristics interact spatially with Districts / City workers with their workforce characteristics high. The weak spatial interaction pattern of the Central Java Province workforce in 2019 is evident from the Banjarnegara Regency workforce, the Batang Regency workforce, the Blora Regency workforce, the Pekalongan City workforce, the Temanggung Regency workforce, the Purworejo Regency workforce, the Rembang Regency workforce, the Sragen Regency workers, Sukoharjo Regency workers, Wonosobo Regency workers, Karanganyar Regency workers, and Pekalongan Regency workers with low labor characteristics interact spatially with Districts / City whose characteristics are low workforce. The pattern of spatial interaction of workers in Central Java Province which is manifested in the form of labor migration is thought to be due to the open unemployment rate, most of which are high school graduates. The difference in wages for work from the region of origin and the wages for the work of the destination region is a consideration for workers who migrate internally in Central Java Province. High economic growth in a district / city will attract workers to enter other districts / cities.

The policy implication is that local governments must open up investment so that their regional revenues can increase. Investments that enter certain districts / cities will open up job opportunities for the surrounding community. Education and skill levels of workers through vocational training centers need to be improved so that the workforce is working in accordance with the existing needs in the labor market. There needs to be a standardization in the form of certification for workers who are ready to work in accordance with the job classification required in the work field.

The limitation of this study is that this study ignores health factors in its research. This study did not use the health variable in the study. In fact education and health are important human capital. Education and health will increase the productivity of workers.

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