

**STUDY ON RELATIONSHIP BETWEEN URBANIZATION
CITY INDEX AND COVID-19 SPREAD**

FINAL PROJECT REPORT

*A Report submitted in fulfillment of the requirement for the award of the degree of
Bachelor in Department of Industrial Engineering, Faculty of Engineering.*



**DEPARTMENT OF INDUSTRIAL ENGINEERING
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UNIVERSITAS ANDALAS
PADANG
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ABSTRACT

The urbanization process occurs continuously. The urbanization index is supported by economic, social, environmental and government conditions. Today the world is shocked by a pandemic called COVID-19. The spread of COVID-19 cases is also supported by the existence of big cities. Where is the big city that is the center of economic and government activity. Then the busy city activities also affect the urbanization conditions of the city. In the last few months, COVID-19 has spread to 213 countries and 2 territories. In other words, the existence of urbanization in an area can be a factor that supports the spread of COVID-19. This study aims to examine the effect of a city's urbanization index on the spread of COVID-19. This study focuses on 34 cities in Indonesia with hypothesis testing using the SEM-PLS method and SMARTPLS application assistance. Data processing using the Structural Equation Modeling (SEM) method consists of 5 steps, namely designing a structural model, designing a measurement model, making a path diagram (path diagram), evaluating the SEM-PLS model and conducting hypothesis testing. The results showed that there were 28 research indicators consisting of 5 economic indicators, 8 social indicators, 11 environmental indicators, 3 government indicators and 1 COVID-19 spread indicator. Convergent validity is done by eliminating indicators with values below 0.5. There are 17 indicators that have been eliminated, leaving 11 indicators. Discriminant validity was done by eliminating X1B and X3B. Cronbach alpha and composite reliability in the study were above 0.7. The value of R-Square in this study is 0.968 percent. This explains the influence of economic, social, environmental and government variables at 96.8 percent. Economic, social and environmental organizational factors have a t-statistic value more than 1.96 and a p-value less than 0.05. Meanwhile, the government factor has a t-statistic value less than 1.96 and a p-value more than 0.05. There is an influence on the urbanization index of a city on the spread of COVID-19. Where economic, social, environmental variables have a significant effect on the spread of COVID-19, and government variables do not have a significant effect on the spread of COVID-19.

Keywords: COVID-19, Urbanization Index, SEM-PLS

ABSTRAK

Proses urbanisasi terjadi secara terus menerus. Indeks urbanisasi didukung oleh keadaan ekonomi, sosial, lingkungan serta pemerintahan. Dewasa ini dunia diguncangkan oleh pandemi yang disebut COVID-19. Penyebaran kasus COVID 19 juga disokong oleh keberadaan kota besar. Dimana kota besar yang menjadi pusat kegiatan ekonomi dan pemerintahan. Kemudian aktivitas kota yang sibuk juga mempengaruhi kondisi urbanisasi dari kota tersebut. Dalam waktu beberapa bulan terakhir COVID-19 menyebar ke 213 negara dan 2 daerah teritori. Dengan kata lain keberadaan urbanisasi pada suatu daerah dapat menjadi faktor yang menunjang penyebaran COVID-19. Penelitian ini bertujuan untuk menguji pengaruh indeks urbanisasi suatu kota terhadap penyebaran COVID-19. Penelitian ini fokus pada 34 kota di Indonesia dengan pengujian hipotesis menggunakan metode SEM-PLS dan bantuan aplikasi SMARTPLS. Pengolahan data dengan menggunakan metode Structural Equation Modeling (SEM) terdiri dari 5 langkah yaitu merancang model struktural, merancang model pengukuran, membuat diagram jalur (diagram path), melakukan evaluasi model SEM-PLS dan melakukan pengujian hipotesis. Hasil penelitian menunjukkan bahwa terdapat 28 indikator penelitian yang terdiri dari 5 indikator ekonomi, 8 indikator sosial, 11 indikator lingkungan, 3 indikator pemerintah dan 1 indikator COVID-19. Validitas konvergen dilakukan dengan menghilangkan indikator dengan nilai dibawah 0,5. Ada 17 indikator yang sudah dieliminasi, menyisakan 11 indikator. Validitas diskriminan dilakukan dengan menghilangkan X1B dan X3B. Cronbach alpha dan composite reliability dalam studi di atas 0,7. Nilai R Square pada penelitian ini sebesar 0,968 persen. Hal ini menjelaskan pengaruh variabel ekonomi, sosial, lingkungan, dan pemerintahan sebesar 96,8 persen. Faktor organisasi ekonomi, sosial dan lingkungan memiliki nilai t-statistik besar dari 1,96 dan p-value kecil dari 0,05. Sedangkan faktor pemerintah memiliki nilai t-statistik kecil dari 1,96 dan p-value besar dari 0,05. Terdapat pengaruh indeks urbanisasi suatu kota terhadap penyebaran COVID-19. Dimana variabel ekonomi, sosial, lingkungan berpengaruh signifikan terhadap penyebaran COVID-19, dan variabel pemerintah tidak berpengaruh signifikan terhadap penyebaran COVID-19.

Kata Kunci: COVID-19, Indeks Urbanisasi, SEM-PLS