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Using Correlation Analysis to Examine the Impact of Covid-19 Pandemics on Various Socioeconomic Aspects: Case study of Indonesia*

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Abstract

This paper diagnoses the determination of Covid-19 on economic and social aspects in Indonesia. Panel data collected from 34 provinces in Indonesia for the 2020-2023 period supports the quantitative method. Three analyzes (Spearman, Kendall, and Pearson) were used to measuring the relationship and its partial effect. Research findings indicate that Covid-19 cases have a negative impact on labor productivity, migration, domestic violence, and sexual harassment. From other results, per capita spending, well-being, unemployment, and poverty actually increased when there was a surge in Covid-19. For the Spearman rho correlation, with a degree of 1 percent ($p \leq 0.01$), there is a significant effect between capita spending on well-being, per capita spending and well-being on migration, and poverty on labor productivity. Tested by Kendall's tau and Pearson, the Covid-19 tragedy positively affected per capita spending, well-being, unemployment, poverty, and mortality, but labor productivity, migration, domestic violence, and sexual harassment were negatively affected by Covid-19. The partial probability level ($p \leq 0.05$ and $p \leq 0.01$) reveals a significant effect of per capita spending on well-being, migration on per capita spending and well-being, and poverty on labor productivity. Although per capita spending has a significant impact on well-being (5 percent confidence level), there is a slight difference from the Pearson test, where with a tolerance limit of 1 percent, poverty affects sexual harassment significantly. Covid-19 has taught many things, so that humanity does not disappear with conditions that seek peace. Policy makers need to schedule a more inclusive national and regional resilience system.

Keywords: Social; economy; Covid-19; Correlation; panel data

Introduction

Although in some countries declared the status of Coronavirus disease 2019 (Covid-19) from 'pandemic' to 'endemic', it will always be known as a global disease in the 21st century (e.g. Melimopoulos, 2022; Katzourakis, 2022; The Lancet Infectious Diseases, 2022). This transition of status does not guarantee a brief holistic recovery (Rahmawati et al., 2022). The domino effect is that humans are threatened with extinction because they spend a lot of energy to fight this virus, continuity across generations, it tested the phase of caring in navigating the existence of the ecosystem. Recently, Donthu (2020) and van Barneveld et al. (2020) find that the peak of the fall in prosperity and a crisis of confidence also hit the wealthy, or those who were previously considered upper class, to make it through difficult times.

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After going through two periods, since its emergence was detected in China in 2019, local, domestic, and cross-border governments have again focused on thinking about and perfecting regulations that prioritize economic and social resilience (Rahman et al., 2021). For example in Indonesia, for the long term, the government maneuvered through large-scale social restrictions (PSBB) and claimed that this policy was more stringent which was channeled to limit routines such as tightening transportation modes, restricting cultural attractions, reducing activities in public facilities, school holidays, stop religious celebrations and activities in places of worship, and insulate offices (Anugerah et al., 2021). In the short term or after easing, it is now turning to imposing restrictions on community activities (PPKM). The second regulation emphasizes more on the microscale, where the Java-Bali PPKM is focused on the islands of Bali and Java as the 'epicenters' in Indonesia (Khoirunurrofik et al., 2021). In practice, the government centralizes offices and educational networks (Maria et al., 2021). Without compromising the health aspect, only 75 percent of implementing work from home (WFH) and teaching processes, while 25 percent direct these activities in offices (WFO), school buildings, and universities through epidemiology.

The government's success in driving the spread of Covid-19 has actually broken economic and social mobility (Ibn-Mohammed et al., 2021). The high control of operating hours in all fields is contrary to the desire of business people, communities, media, and scholars to immediately escape from the bondage of welfare. Considering the population size in Indonesia is classified as densely fourth after China, India, and the USA, it is difficult to imagine getting out of suffering (Irwansyah et al., 2022). Uniquely, of the 4 countries, only two countries are classified as economic market forces, referring to an inclusive economic growth rate (GDP). The large demographic bonus from Indonesia and India does not reflect an even proportion of prosperity. The portrait of the 'middle income trap' only rests on the dilemma of a decline in happiness (Kurniawan et al., 2021).

Towards economic stability is relatively long, but there are certain clauses that are met. Its vital condition relates to political courage in decision-making that maintains the framework of national independence. With managing social visits, work spaces, gatherings, and even restoring community psychology, Panneer et al. (2022), Popkova et al. (2021), Muhyiddin and Nugroho (2022), and Mustari et al. (2022) emphasized that the response of stakeholders in integrating a complex economic empowerment system is the most ideal thing. In an instant, developments that allow full awareness of being devoted to organizations, households, and social groups at least give birth to closeness and moral commitment. Covid-19 is not only the responsibility of the government, but all components. Sustainable development embodies mechanisms that automatically facilitate the achievement of international goals (Shulla et al., 2021).

Not always disasters in the world like the Covid-19 outbreak are gradual. In this period, humans must survive and confine themselves for a moment in the fight to prevent transmission. Referring to the pattern of dependence on humanity from the cycle of empirical, theoretical, and recent phenomena, the urgency of the paper is to identify the effects of Covid-19 growth on socioeconomic in Indonesia. The agenda for the paper is composed of five points. The first phase is the introduction. Followed by data and methods in the second phase. Results are in the third phase. Furthermore, the fourth and fifth phases include discussion and conclusion sessions. The essence of the study maps the effects of the Covid-19 pandemic that hinders or improves social and economic structures based on seven pillars (per capita spending, well-being, unemployment, poverty, labor productivity, migration, mortality, domestic violence, and sexual harassment).

Publications highlighting the relevance of Covid-19 to social and economic factors support research motivation. Examining the decline in household consumption due to Covid-19,

it is traced in the capacity of families who tend to spend their spending on medicines, increasing internet quota while children are studying at home, and preparing food supplies whose intensity is higher than the normal situation (Amalia [9](#) et al., 2020). Not enough, it predicted economic uncertainty to reduce well-being (Thygesen et al., 2021; Bathina et al., 2021). Suryahadi et al. (2021), Haldar and Sethi (2022), and Ohrnberger et al. (2021) linked the government's anticipation through intensive lockdowns, so that various industries reformed the system and rejuvenated with more modern technology. Companies quickly adapt and adopt production tools dynamically, but labor productivity fluctuations trigger employees to lose their jobs, mass unemployment, and encourage poverty. For the sake of locking at the regional level and domestic borders, the government will prohibit job seekers from abroad from entering and leaving the country for a while. Tightening regulations also stop urbanites from migrating to minimize physical contact.

In essence, human habitats cannot lock themselves away for too long, be it at home, in certain locations, and for an uncertain of time. People find it hard to shine like they used to because of the pleasures of continuing to grow isolated. This has prompted the UK government to allocate a portion of public spending into Covid-19 disaster mitigation (Minister for Patient Safety, Suicide Prevention and Mental Health of the UK, 2021). At an enormous cost, the government is trying to offer special assistance to patients with mental disorders and feelings of out-of-bounds anxiety to re-motivate the population (Li et al., 2019). Volunteers, doctors, psychiatrists, and medical personnel are mobilized so that sufferers stimulate an inspiring unity of life (Shroff et al., 2022). Planning combined with careful tracking, control, and mentoring becomes a synchronized health insurance. In other places, for example, poor countries and developing countries, they are still rethinking whether to try this crucial regulation or are they are still fighting with physical safety. The distribution of vaccines is only limited to a program to reduce the death rate, but concrete steps to trace the traces of sexual harassment and domestic violence are still constant. In fact, if you follow the counseling transformation that is intended for the public, it makes sense rather than only targeting the body's immune system to reduce the risk of exposure. It is known that the world mortality ratio because of being positive for Covid-19 is not much [22](#) compared to people who have experienced domestic violence and sexual harassment. (Kotlar et al., 2021; Mittal & Singh, 2020; Usta et al., 2021). Traits (2020), Kaukinen (2020), Evans et al. (2020), Campbell (2020), and Sacco et al. (2020) suspect that wives and children are more often victims while staying at home during the pandemic.

Data and methods

Data set

In the context of sources of information, data is collected from official government publications. National scale data are simulated over four periods (2020 to 2023). Specifically, for data in 2022-2023, it is a linear prediction that implies future developments and is still temporary. The research output limits only nine parameters. Economic factors comprise five elements (per capita spending, well-being, unemployment, poverty, and labor productivity) and four social factors (migration, mortality, domestic violence, and sexual harassment).

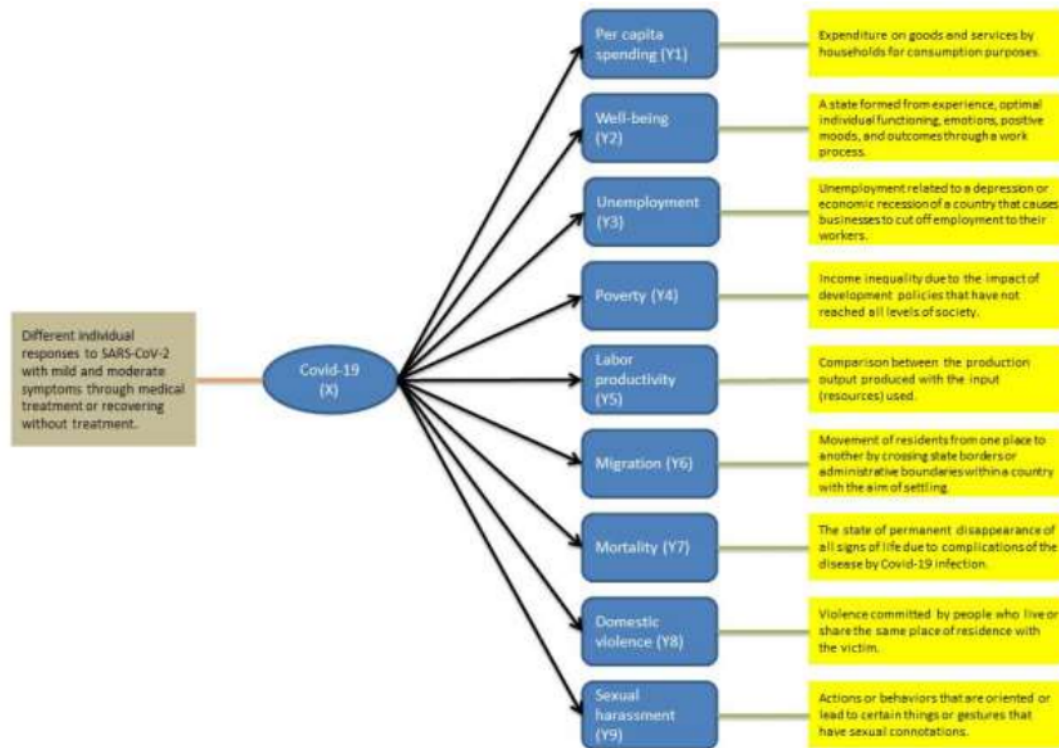


Figure 1. Conceptual framework (Source: compiled from Varlamovaa dan Larionova , 2015; Tapsin dan Hepsag, 2014; Gaucher et al., 2022; Musikanski et al., 2017; Soylu et al., 2018; Streeten, 1994; Yulia d¹³ Irina, 2020; Salehi et al., 2012; Muñoz-Mora et al., 2022; Melde, 2012; Akin dan Banfi, 2019; Choi et al., 2019; Bhaskaran et al., 2021; Walby et al., 2017; Robinson, 2003; Rakovec-Felser, 2014; Merkin, 2012; Bondestam dan Lundqvist, 2020; Focacci et al., 2022; Patel et al., 2020).

Each indicator refers to concepts and definitions by the discoveries of professionals, scholars, and scholars who are competent in their field. The functions and terms of all variables are summarized in *Fig. 1*.

Data processing

It presented the data interpretation instrument through a quantitative approach. The investigative technique uses the panel regression method based on associations between 34 provinces in Indonesia, so that the cross-section and time-series data are 1,360 samples. Soc⁶ and business studies with Covid-19 issues tied to panel regression analysis are still ongoing (e.g. Khalid et al., 2021; Tinungki e¹⁶, 2022; Barría-Sandoval et al., 2022; Çivak et al., 2021; Abdelkafi et al., 2022; Pan, 2022; Haldar and Sethi, 2021; Junaidi et al., 2020; Ong and Marheni, 2021). There are two formulations in the panel regression, including models that only consider individual effects (α_i) and include the effects of time or time variables as follows:

One way model:

$$Y_{it} = \alpha + \alpha_i + X'_{it}\beta + \varepsilon_{it}$$

Two way model:

$$Y_{it} = \alpha + \alpha_i + \delta_t + X'_{it}\beta + \varepsilon_{it}$$

As shown in Fig. 1, the two functions of the above equation are played by Covid-19 as independent variables and eight dependent variables positioned by per capita spending, well-being, unemployment, poverty, labor productivity, migration, mortality, domestic violence, and sexual harassment. Constants (α) represent terms in algebraic operations in the form numbers and do not contain variables. Then, is the vector or parameter of the estimation result, it is the observation, and it defines the regression error term. This equation also shows where there is an additional time effect denoted by delta, which is fixed or random between periods.

Table 1. Interpretation of correlation coefficient and significance type (*Source:* modified from Schmidt and Osebold, 2017; Singh, 2013).

Coefficient interval	Relationship	Level of confidence	Specification
> 0.7	Very high correlation	$p \leq 0.001$ (99.9 percent)	Highly significant
< 0.5	High correlation	$p \leq 0.01$ (99 percent)	Very significant
< 0.3	Medium correlation	$p \leq 0.05$ (95 percent)	Significant
< 0.1	Low correlation	$p > 0.05$ (95 percent)	Not significant
≤ 0.2	Very low correlation	$p \leq 0.1$ (90 percent)	Considerable

Correlation analysis examines trends in the impact of Covid-19 on economic and social factors. In standard statistical rules, there are three correlation assumptions, namely Spearman, Kendall, and Pearson (Chok, 2008; Bolboacă and Jäntschi, 2006; Bishara and Hittner, 2012; May and Looney, 2022). After the data was tabulated, the statistical software was programmed via IBM-SPSS v.25. The sophistication of this tool not only concludes positive (+) and negative (-) coefficients, but also combines probabilities. The absolute values of the correlations and their associated p-values are described in Table 1.

Wonu et al. (2021), Kozak (2008), and Schober et al. (2018) claim that correlation analysis can solve the hypothesis. In the proof, the correlation tests the partial effect between variables with tolerances above or below the tolerance limit. It is worth testing other hypotheses. If the probability is less than alpha, then H_1 is accepted and H_0 is rejected and vice versa.

$$H_1: r \neq 0$$

There is a significant correlation between x and y .

$$H_0: r = 0$$

There is no significant correlation between x and y .

Hypothesis development

Research design to set detailed parameters in variables (see Table 2). Collectively, the hypothesis offering frames the connections between variables whose outcome is the hypothesis accepted or otherwise.

Table 2. Variable specifications and range of hypotheses (*Source:* compiled from Databoks, 2022; Central Bureau of Statistics, 2022).

Variables and symbols	Scope	Unit	Hypotheses and expected markers
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Covid-19 (X)	Annual positive cases	Incidence	
Per capita spending (Y1)	Household consumption	Rp (IDR)	H ₁ : The higher the Covid-19 case, the lower the per capita spending.
Well-being (Y2)	Human happiness	Index	H ₂ : The higher the Covid-19 case, the lower the well-being.
Unemployment (Y3)	Conjuncture unemployment	Percent	H ₃ : The higher the Covid-19 case, the stronger the unemployment.
Poverty (Y4)	Relative poverty	Percent	H ₄ : The higher the Covid-19 case, the stronger poverty.
Labor productivity (Y5)	Value added workforce	\$ (USD) per hour	H ₅ : The higher the Covid-19 case, the lower the labor productivity.
Migration (Y6)	Groups that move abroad looking for formal and informal jobs	Person	H ₆ : The higher the Covid-19 case, the lower the migration.
Mortality (Y7)	Died due to Covid-19	Person	H ₇ : The higher the Covid-19 case, the stronger the mortality.
Domestic violence (Y8)	Psychological and physical violence in the household	Case	H ₈ : The higher the Covid-19 cases, the stronger the domestic violence.
Sexual harassment (Y9)	Sexual acts that can happen and not wanted by anyone and anywhere	Case	H ₉ : The higher the Covid-19 case, the stronger the sexual harassment.

The operationalization of the above variables decorates nine hypothetical targets based on the premise. There is a similarity in size among the six variables. The first is unemployment and poverty (percentage). Second, between migration and mortality (person). Third, domestic violence and sexual harassment (cases). However, Covid-19, per capita spending, well-being, and labor productivity have diverged.

Results

Descriptive statistics

Table 3 accommodates the recapitulation of national data from 34 provinces. Descriptive statistical data informs that there is a different slope of the ten variables. The gap in per capita spending with unemployment referring to the minimum, maximum, mean, and standard deviation (SD) scores looks fantastic. Regarding the acquisition of the largest value from the minimum, it reached 4,170,994.71, while the smallest was 4.94. From the maximum version, the dominant one is 4,822,910.12 and 6.26 is the smallest. Looking at the mean, the highest is up to 4,529,290.74, then the lowest is at 5.56. During 2020-2023, SD scores were striking, with the largest being 273,542.79, but 0.59 being the lowest.

Table 3. Descriptive statistical unit (*Source:* compiled from Databoks, 2022; Central Bureau of Statistics, 2022).

Var.	Min.	Max.	Mean	SD	N
x	743,198	6,057,142	3,049,478.50	2,549,687	1,360
y1	4,170,994.71	4,822,910.12	4,529,290.74	273,542.79	1,360
y2	68.28	73.98	71.11	2.35	1,360

y3	4.94	6.26	5.56	.59	1,360
y4	8.50	10.19	9.67	.79	1,360
y5	12.10	15.04	13.75	1.40	1,360
y6	234,451	512,168	363,056.75	130,208.54	1,360
y7	22,138	156,553	118,303.75	64,311.97	1,360
y8	299,911	431,471	358,360	55,326.73	1,360
y9	5,237	6,872	5,720	778.18	1,360

Correlation analysis

Starting from the Spearman's rho correlation, the use of this statistical method is to test allegations about the existence of a relationship between variables in an ordinal database (ranking) or on a ratio scale without meeting the assumption of normality (Hauke and Kossowski, 2011; Bobera et al., 2016). Within four periods, *Table 4* depicts the negative and positive correlations or in very low to very high items. At this moment, it is clear that the relationship from Covid-19 to labor productivity, migration, domestic violence, and sexual harassment is negative ($C = -0.600$, $C = -0.400$, $C = -0.800$, and $C = -0.800$). The rest, if Covid-19 cases increase, per capita spending, well-being, unemployment, and poverty will actually increase. The partial coefficients of the five ($C = 0.400$, $C = 0.400$, $C = 0.400$, $C = 0.600$, and $C = 0.800$), are positive correlations. Five hypotheses are accepted and the remaining four are rejected. The probability level refers to 1 percent, so there is a two-way significance of per capita spending on well-being ($p = 0.000$), then per capita spending and well-being on migration ($p = 0.000$), and poverty on labor productivity ($p = 0.000$). Interestingly, the correlation from Covid-19 to mortality and vice versa as the highest coefficient is up to 80 percent.

Table 4. Spearman's Test (Source: SPSS v.25).

Var.	x	y1	y2	y3	y4	y5	y6	y7	y8	y9
x	1	.400 (.600)	.400 (.600)	.400 (.600)	.600 (.400)	-.600 (.400)	-.400 (.600)	.800 (.200)	-.800 (.200)	-.800 (.200)
y1	.400 (.600)	1	1** (.000)	.600 (.400)	-.400 (.600)	.400 (.600)	-1** (.000)	.800 (.200)	-.200 (.800)	.200 (.800)
y2	.400 (.600)	1** (.000)	1	.600 (.400)	-.400 (.600)	.400 (.600)	-1** (.000)	.800 (.200)	-.200 (.800)	.200 (.800)
y3	.400 (.600)	.600 (.400)	.600 (.400)	1	-.400 (.600)	.400 (.600)	-.600 (.400)	.800 (.200)	.200 (.800)	-.200 (.800)
y4	.600 (.400)	-.400 (.600)	-.400 (.600)	-.400 (.600)	1	-1** (.000)	.400 (.600)	.000 (1.000)	-.800 (.200)	-.800 (.200)
y5	-.600 (.400)	.400 (.600)	.400 (.600)	.400 (.600)	-1** (.000)	1	-.400 (.600)	.000 (1.000)	.800 (.200)	.800 (.200)
y6	-.400 (.600)	-1** (.000)	-1** (.000)	-.600 (.400)	.400 (.600)	-.400 (.600)	1	-.800 (.200)	.200 (.800)	-.200 (.800)
y7	.800 (.200)	.800 (.200)	.800 (.200)	.800 (.200)	.000 (1.000)	.000 (1.000)	1 (.000)	1	-.400 (.600)	-.400 (.600)
y8	-.800 (.200)	-.200 (.800)	-.200 (.800)	.200 (.800)	-.800 (.200)	.800 (.200)	-.400 (.600)	-.400 (.600)	1	.600 (.400)
y9	-.800 (.200)	.200 (.800)	.200 (.800)	-.200 (.800)	-.800 (.200)	.800 (.200)	-.400 (.600)	-.400 (.600)	.600 (.400)	1
Obs.	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360

Notation: ** $p \leq 0.01$

The next session examines the correlation of Kendall's tau (τ). This correlation is the group of non-parametric statistical tests (Puka, 2011). In the presentation process, there are no assumptions that require observations or samples to be normally distributed. In addition, there is also no provision in which a construct formed from a variable must be linear (Dehling et al., 2017). Ho et al. (2021) argue that the use of research data is not normal (not linear). This is, of course, quite different from parametric statistical tests because there are special provisions regarding data that have a linear and normal distribution.

Curiosity on partial and two-way effects in Kendall's test is presented in Table 5. For the correlation coefficient, the correlation of the independent variable's relationship to the dependent variable seems too far away. There is a mix of negative to positive coefficient points. The biggest one is the correlation between Covid-19 and mortality with the acquisition of 0.667 (66.7 percent), so it is classified as a medium correlation. The rest, more to the very low correlation, where there is reaching -0.667. Practically, the correction level starts from $\leq 0.2 - \leq 0.7$ or in the very low to medium classification. Here, it explains that the increase in Covid-19 so far has increased per capita spending, well-being, unemployment, poverty, and mortality. Then, the Covid-19 tragedy in Indonesia has actually reduced labor productivity, migration, domestic violence, and sexual harassment. In other words, hypotheses 1, 2, 8, and 9 are rejected. However, there are no significant obstacles for hypotheses 3, 4, 5, 6, and 7.

Table 5. Uji Kendall's (Source: SPSS v.25).

Var.	x	y1	y2	y3	y4	y5	y6	y7	y8	y9
x	1	.333 (.497)	.333 (.497)	.333 (.497)	.333 (.497)	-.333 (.497)	-.333 (.497)	.667 (.174)	-.667 (.174)	-.667 (.174)
y1	.333 (.497)	1	1* (.000)	.333 (.497)	-.333 (.497)	.333 (.497)	-1** (.000)	.667 (.174)	.000 (1.000)	.000 (1.000)
y2	.333 (.497)	1** (.000)	1	.333 (.497)	-.333 (.497)	.333 (.497)	-1** (.000)	.667 (.174)	.000 (1.000)	.000 (1.000)
y3	.333 (.497)	.333 (.497)	.333 (.497)	1	-.333 (.497)	.333 (.497)	-.333 (.497)	.667 (.174)	.000 (1.000)	.000 (1.000)
y4	.333 (.497)	-.333 (.497)	-.333 (.497)	-.333 (.497)	1	-1** (.000)	.333 (.497)	.000 (1.000)	-.667 (.174)	-.667 (.174)
y5	-.333 (.497)	.333 (.497)	.333 (.497)	.333 (.497)	-1** (.000)	1	-.333 (.497)	.000 (1.000)	.667 (.174)	.667 (.174)
y6	-.333 (.497)	-1** (.000)	-1** (.000)	-.333 (.497)	.333 (.497)	-.333 (.497)	1	-.667 (.174)	.000 (1.000)	.000 (1.000)
y7	.667 (.174)	.667 (.174)	.667 (.174)	.667 (.174)	.000 (1.000)	.000 (1.000)	-.667 (.174)	1	-.333 (.497)	-.333 (.497)
y8	-.667 (.174)	.000 (1.000)	.000 (1.000)	.000 (1.000)	-.667 (.174)	.667 (.174)	.000 (1.000)	-.333 (.497)	1	.333 (.497)
y9	-.667 (.174)	.000 (1.000)	.000 (1.000)	.000 (1.000)	-.667 (.174)	.667 (.174)	.000 (1.000)	-.333 (.497)	.333 (.497)	1
Obs.	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360

Notation: * $p \leq 0.05$, ** $p \leq 0.01$

In both partial probabilities ($p \leq 0.05$ and $p \leq 0.01$), there is a significant effect of per capita spending on well-being ($p = 0.000$). On the other hand, migration also affects per capita spending and well-being ($p = 0.000$), and poverty with labor productivity ($p = 0.000$).

According to Sinnema and Robinson (2012), the Pearson correlation is addressed to the strength of the direction and calculates the linearity of the two variable relationships. The Pearson

correlation measure examines the change from one predictor variable to another, with the main aim being in the same direction or in the opposite direction.

Table 6. Uji Pearson (Source: SPSS v.25).

Var.	x	y1	y2	y3	y4	y5	y6	y7	y8	y9
x	1	.245 (.755)	.093 (.907)	.352 (.648)	.646 (.354)	-.822 (.178)	-.280 (.720)	.623 (.377)	-.731 (.269)	-.629 (.371)
y1	.245 (.755)	1	.988* (.012)	.580 (.420)	-.572 (.428)	.001 (.999)	-.950 (.050)	.886 (.144)	-.546 (.454)	.596 (.404)
y2	.093 (.907)	.988* (.012)	1	.534 (.466)	-.689 (.311)	.128 (.872)	-.929 (.071)	.812 (.188)	-.449 (.551)	.711 (.289)
y3	.352 (.648)	.580 (.420)	.534 (.466)	1	-.257 (.743)	.233 (.767)	-.805 (.195)	.447 (.553)	-.004 (.996)	.237 (.763)
y4	.646 (.354)	-.572 (.428)	-.689 (.311)	-.257 (.743)	1	-.756 (.244)	.543 (.457)	-.141 (.859)	-.259 (.741)	-.999** (.001)
y5	-.822 (.178)	.001 (.999)	.128 (.872)	.233 (.767)	-.756 (.244)	1	-.123 (.877)	-.460 (.540)	.823 (.177)	.721 (.279)
y6	-.280 (.720)	-.950 (.050)	-.929 (.071)	-.805 (.195)	.543 (.457)	-.123 (.877)	1	-.800 (.200)	.373 (.627)	-.522 (.448)
y7	.623 (.377)	.886 (.114)	.812 (.188)	.447 (.553)	-.141 (.859)	-.460 (.540)	-.800 (.200)	1	-.855 (.145)	.177 (.823)
y8	-.731 (.269)	-.546 (.454)	-.449 (.551)	-.004 (.996)	-.259 (.741)	.823 (.177)	.373 (.627)	-.855 (.145)	1	.213 (.787)
y9	-.629 (.371)	.596 (.404)	.711 (.289)	.237 (.763)	-.999** (.001)	.721 (.279)	-.552 (.448)	.177 (.823)	.213 (.787)	1
Obs.	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360	1,360

Notation: * $p \leq 0.05$, ** $p \leq 0.01$

Broadly speaking, *Table 6* captures the opposite frequencies of the four relationships and the five relationships that are in line with the proposed hypothesis. Between 2020-2023, the level of causality proves that when Covid-19 rises, it will strengthen per capita spending ($C = 0.245$), well-being ($C = 0.093$), unemployment ($C = 0.352$), poverty ($C = 0.646$), and mortality ($C = 0.623$). The increase in Covid-19 cases reduces labor productivity ($C = -0.822$), migration ($C = -0.280$), domestic violence ($C = -0.731$), and sexual harassment ($C = -0.629$). The highest determination when compared to other relationships is Covid-19 to poverty at 64.6 percent. At the level of p-values (5 percent), two-way significance occurs between per capita spending and well-being ($p = 0.012 \leq 0.05$) and a level of 1 percent or not exceeding the 0.01 limit is poverty against sexual harassment ($p = 0.001 \leq 0.01$).

Discussion

The soaring number of Covid-19 infections in Indonesia during the last three periods was because of incomplete vaccination doses, lack of population interest in vaccine programs, government socialization that was not balanced with background knowledge, uneven infrastructure, homecoming flows during religious celebrations, and ideological heritage that clashes with the benefits of vaccines with individual beliefs. The government is waiting for the right time to campaign for a 'new normal' if that point of view is slowly eliminated. In turn, the struggle and holding on for a while is 'hibernation' it is not impossible that it will shine like other countries. This is not the end of everything. Moreover, Indonesia hopes that the Covid-19 chain will end or be broken by 2023. Closing access with a top line is not a logical solution to stopping the Covid-

19 cluster as it was in early 2020, but an adaptive distribution that combines coordination and protection on all fronts, in harmony with restoring healthy living traditions.

The plurality of historical backgrounds, traditions, cultures, ethnicities, and races of the population in Indonesia in each region unites to fight Covid-19. Even though they live and are scattered on separate islands due to the sizeable area of Indonesia, this is not an excuse and instead becomes a geographical advantage that blocks the transmission route of the pandemic (Susanto et al., 2020). Here, the Indonesian government is not too bothered about limiting the mobility of the population. This position clearly benefits Indonesia. However, the vital problem is the level of density that accumulates in 2-3 areas, which are indeed the concentration of infection prevention. The predicate of Indonesia as one nation that failed to close access to the transmission of Covid-19 is an antithesis that hurts the field of epidemiology (Roziqin et al., 2021). Compared to neighboring areas such as Singapore in Southeast Asia, which have a minor population, they have made achievements because they make quick and responsive decisions. Therefore, Indonesia's superior climate and geographical composition have been wasted and have not hampered this virus. At the world level, performing the Indonesian government's policies is the 4th worst in solving the Covid-19 problem. Unfortunately, the government's ambiguous steps to comprehensively track Covid-19 do not represent a transparent framework (Ayuningtyas et al., 2021).

Recent studies that highlight geographical opportunities and weaknesses from demographic pressures in the face of the Covid-19 pandemic emergency support the scientific facts above. Covid-19 threatens to lose from this crisis, undermining the long-term social health insurance system, accumulating in social financing (Sparrow et al., 2020). Economic motives to dampen structural changes that are oriented to the strength of solidarity from the layers of society to contemporary ideas (Abdi et al., 2021). A transferable approach to an island-based country. Social responsibility makes people aware of prioritizing social actions (Sundawa et al., 2021). This truth became a 'topic of conversation' around the world because Indonesia changed the mode, which was originally a large-scale lockdown with full control of the central government, now returned to local governments (city – district – province).



Figure 2. Blocking zone (Source: The Harian Jogja, 2020).

However, the hard work of the Indonesian government needs to be appreciated. They have operated lockdown policies that represent a wider audience to various points. Fifty border

gates are temporarily closed. The inflow and access to outside the area from the end of March 2020 to the end of August 2020, especially land transportation, is closed with a movable concrete barrier (MBC). To suppress the rate of development of new variants such as Beta, Delta, and Alpha, the government made an anatomy and locked the distribution of transmission starting from the center of the capital (Jakarta). The mapping of coherence to cover and limit the movement of the population extended not only to big cities but also to villages or villages (see *Fig. 2*). The special areas 'circled in red' are zones, the 'little red circles' are buffer zones or boundaries, and the 'non-red' ones are designated as separate zones.

The seriousness of the government in risking the way forward cannot be immediately felt. For a short period, pathology and social intervention were implemented through quarantine and psychotherapy courses. Responding to economic difficulties, the government willingly set policies on food subsidies, social help, discounts on primary needs, and online pre-employment training to control hunger.

Following the example of China, which made brilliant improvements to emerge from the Covid-19 invasion. Launching from The Worldometer (2022), the country that accounts for 18.47 percent of the global population and the largest in the world, takes preventive initiatives by neutralizing bad news in the media about the origins of the Covid-19 disease which is thought to be deadly, intentionally created and created as a weapon biological mass killers, the existence of a global conspiracy, smoothing the third world war, deciding international trade competition, and other misinformation (Zhao et al., 2021; AlTakarli, 2020; Keni et al., 2020). If public trust is hampered, it will disrupt psychology and trigger simultaneous anger (Yu et al., 2021).

Conclusions

The aim of this paper is to study the socio-economic impact of the brutality of Covid-19 in Indonesia. The analysis determined by the three approaches concludes that a pandemic that is developing positively affects per capita spending, well-being, unemployment, poverty, and mortality. Other results also confirm that the growth of Covid-19 has negatively affected labor productivity, migration, domestic violence, and sexual harassment.

Learning from Indonesia, recommendations to the government to be careful and reconsider a fair middle ground in combining economic networks and health protocols. Must prioritize one of the two in lightening the multi-layered burden of all parties. The options chosen are expected to make it easier for elements of society. Innovative and creative programs are worth fighting for. Without ignoring humanity, partnering outside government institutions is effective. There is no reason to abandon public demands only for the sake of the economic aspect, but government competence must also support the social aspect.

Because it limited the target data for 2020-2023, other researchers can absorb the shortcomings of the methodology by adding more mature instruments, such as variables related to complex social events and economic phenomena. Further work has implications for academic development. Practical contributions are concerned with improving welfare levels and taking the initiative toward incidental vulnerabilities.

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