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Logistics Performance And Other Factors As Antecedents Of The Sustainability Performance Of G-20 Countries

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Abstract

Logistics directly affects the growth and development of a nation, making it a vital component of economic development (Hofman, 2017). Numerous studies have established a direct link between a country's economic progress and its logistics performance. This relationship encompasses various dimensions, including economic, developmental, environmental, and social aspects. Within the context of sustainable supply chain management, the environmental and social aspects are often highlighted (Seuring and Muller, 2008; World Bank, 2007, 2018; United Nations, 2010; OECD, 2011; World Economic Forum, 2015).The logistics industry has a significant impact on environmental and social issues and consumes a substantial amount of energy resources, leading to high carbon emissions (Rashidi and Cullinane, 2019). Thus, efforts to reduce carbon emissions are crucial. Initiatives such as developing adequate infrastructure like highways to reduce travel time and waiting times at ports for container unloading are essential. Elevating the competency and quality of logistics services also plays a role in improvement, as logistics professionals contribute not only to material movement but also support marketing functions, product development, pricing, and customer service. In Indonesia, a G-20 member, the logistics sector contributes significantly to the country's Gross Domestic Product (GDP). However, challenges related to infrastructure and environmental impact need to be addressed. In this regard, the Logistics Performance Index (LPI) published by the World Bank serves as a valuable tool to assess logistics performance and promote sustainability. Within the context of sustainability performance, this research aims to analyze the influence of Logistics Performance and other factors on sustainability performance in G-20 countries, with a focus on Indonesia. LPI data and other relevant indicators are employed to identify the effects of these variables on sustainability performance. The study is expected to offer insights for practitioners and organizations to take steps towards improved sustainability performance while also contributing theoretically to the field.

Keywords: Logistics, Sustainability Performance, G-20, Logistics Performance Index, Infrastructure, Carbon Emissions, Logistics Services

INTRODUCTION

The logistics industry has a major impact on environmental and social issues and consumes a large proportion of energy resources, resulting in high carbon emissions. The role of this industry greatly impacts the economic growth of the country. (Rashidi and Cullinane, 2019). Thus, efforts are needed to reduce the amount of carbon emissions, one of which is by building adequate infrastructure facilities such as toll roads so as to shorten the distance and travel time. Another effort is to shorten the dweling time of containers at the port so as to create efficiency in the process of loading and unloading containers at Customs. In addition, improving the competence and quality of logistics services is also an improvement effort, this is done by all logistics personnel by not only managing the movement of materials, but also supporting the functions of marketing, product development and promotion, product pricing and conveying new ideas to provide customer service. Logistics personnel must ensure that the

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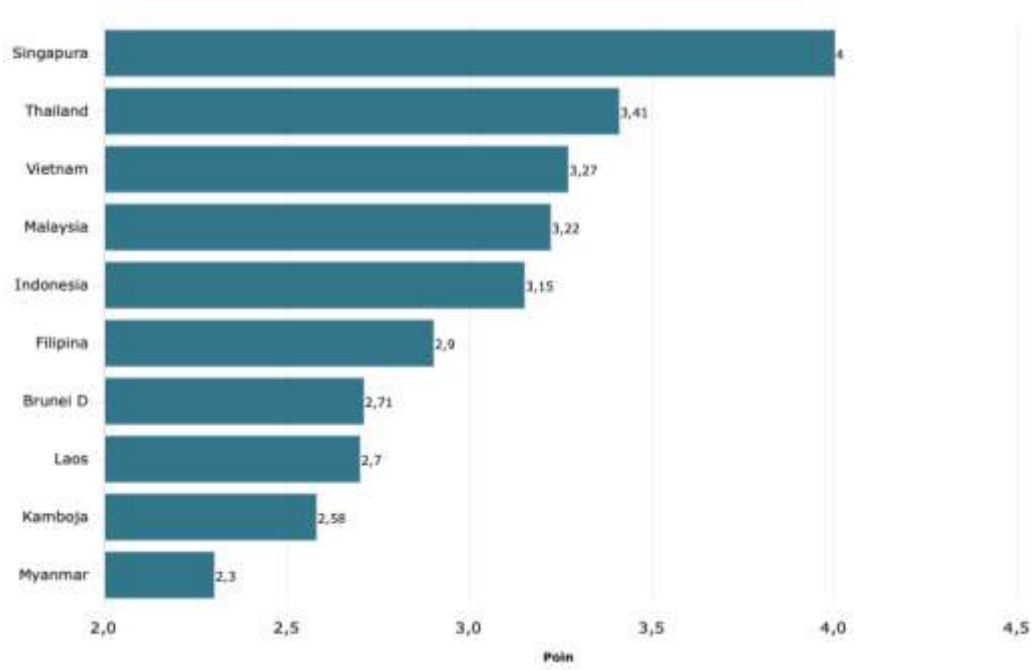
company provides fast, accurate and quality services. By improving on the above, the country's gross domestic product and Logistics Performance Index will inevitably increase, which will be a reason for investors to make investments in the country.

In indonesia, which is a member of the G-20, it was recorded that the logistics sector reached a gross domestic product of Rp119.72 trillion in 2017,up from Rp104. 69 trillion in 2016. However,the logistics sector economy reached Rp30.7 trillion in the first quarter of 2018, higher than the previous month. Since the third quarter of 2017, the gross domestic product of logistics grew by more than 6%. In fact, based on constant prices in 2010, the gross domestic product of the logistics sector grew by 10.86% in the first quarter of 2018 compared to the first quarter of 2017. In contrast, the gross domestic product of the transportation and warehousing sector reached Rp99.46 trillion, or grew by 8.37% compared to the same quarter of the previous year. The land transportation sector still accounts for more than 55% of the gross domestic product of transportation and warehousing, air transportation accounts for 17.5% of gross domestic product , and the warehousing, transportation support services, postal, and Courier subsectors account for 15.7% of gross domestic product .

The 2018 Logistics Performance Index stood at 3.15 on a scale of 1-5, according to World Bank data. Indonesia's logistics Competitiveness Index is below Singapore (4.0), Thailand (3.41), Vietnam (3.27), and Malaysia (3.22). Getting closer to 1 indicates a country's logistical competitiveness is getting worse. However, Indonesia's competitiveness has increased in recent years. In 2018, the country was ranked 46th in the world, the first increase since 2010. The geography of the Indonesian archipelago is one of the problems for the government. It is expected that the increase in Indonesia's logistics competitiveness will be driven by infrastructure development promoted by the government, especially inter-regional connectivity. The following picture shows more details:



Sources: Databoks.katadata.co.id, 2022

Figure 1. G20 Countries Logistics Index

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The Logistics Performance Index is a tool used to determine the performance of a country's logistics trade. Logistics Performance Index is based on the value of Gross Domestic Product and Purchasing Power Parity. An understanding of these indicators can help the authorities in order to make decisions or policies that apply in the country so as to increase the country's international trade, which is highly dependent on variables that facilitate trade such as transportation, exchange rates, government regulations etc. With the increase in logistics services can efficiently reduce the cost of trade, security of delivery of goods and delivery timeliness.

RESEARCH METHODS

This study is a type of hypothesis testing with the intention to analyze the effect of the independent variables of Logistics Performance Index, city population, inttrade, indiva, gross domestic product, and purchasing power parity—on the dependent variable, namely sustainability performance as measured by environmental, economic, and social factors in G20 countries. The Data used in the study is secondary data from wordbank so that the type of research design is quantitative and in the form of hypothesis testing), 2010, 2012, 2014, 2016, and 2018 is the year of the data period. Independent variables, also known as free variables, and dependent variables, also known as bound variables, are the two variables involved in the study. this analysis used research data for twenty G20 member countries.

RESULTS AND DISCUSSION

Results Of Research Analysis

The results of the analysis of model selection test 1 (environmental sustainability performance), 2 (financial sustainability performance) and 3 (social sustainability performance) to determine differences in data behavior both individually and time using Chow, LM and Hausman Test as follows :

Table 1 Model Selection Test

Model	Model Selection Test						Results
	Chow Test		Lm Test		Hausman Test		
	Tstat	Prob	Tstat	Prob	Tstat	Prob	
Model 1	14.290996	0.8960	34.36669	0.0000	10.622150	0.1008	Rem
Model 2	35.685454	0.0115	37.80224	0.0000	28.573192	0.0001	Fem
Model 3	30.751840	0.0430	4.301388	0.0381	24.031208	0.0005	Fem

Based on the test results, it is known that the Chow Test on model 1 produces a prob value of Chi Square Cross-section greater than 0.05 (alpha 5%), it was decided that based on the test there is no difference in behavior between individuals and time so that the next test needs to be done to confirm whether there is really no difference in behavior with the LM Test. In models 2 and 3 for the CHOW Test produced prob value of Chi Square Cross-section is smaller than 0.05 (alpha 5%) it was decided that based on the test there are differences in behavior between individuals and time so that the next test needs to be done to confirm whether there are differences in behavior with the LM Test.

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Based on the LM test results show that both models 1-3 produce lmstat probe values smaller than 0.05 (alpha 5%), it is evident that both models 1-3 have differences in data behavior both individually and in time so that the next step is to test the final selection of individual effect (Fixed effect vs. Random effect) which is best for estimating the model using the Hausman test. The results of the Hausman Test showed a value greater than 0.05 (alpha 5%) then concluded model 1 using the estimated Random Effect Model. While the results of the Hausman Test for models 2 and 3 showed a value smaller than 0.05 (alpha 5%) then concluded models 2 and 3 using the estimated results of the Fixed Effect Model.

Table 2. Environmental Sustainability Performance Hypothesis Test

Variabel	Koefisien	Std Error	Tstat	Prob	Results
C	-15.76109	5.575150	-2.827025	0.0058	
Logistics Performance Index	2.823382	1.220842	2.312652	0.0229	H_1 Accepted
Urban Population	0.163682	0.056546	2.894684	0.0047	H_3 Accepted
Inttrade	-0.047999	0.027293	-1.758643	0.0819	H_4 Rejected
Indva	0.116553	0.054400	2.142498	0.0348	H_5 Accepted
Gross Domestic Product	0.099118	0.201469	0.491974	0.6239	H_2 Rejected
Purchasing Power Parity	0.000189	0.000107	1.757534	0.0821	H_6 Rejected
Goodness Of Fit					
R-Squared	0.250737				
Adj R-Squared	0.202397				
F-Statistic	5.186984				
Prob(F-Stat)	0.000122				

Description: Siginifikansi level used is 5%

The coefficient of determination (adj R2) of the poverty model of 20.23% means that the ability of the independent variable in explaining the performance of environmental sustainability is 20.23% while the rest is explained by other independent variables that are not included in the model. The results of global Testing (Test F) showed that the probability value of the Fstat of 0.000122 < 0.05 (alpha 5%) then ha is accepted, statistically concluded that there is at least one independent variable in this study that affects the performance of environmental sustainability.

H1: The Effect Of Logistics Performance Index On Environmental Sustainability Performance (Lnco2)

Based on the results of statistical testing, it is known that the coefficient of logistics performance index is 2.823382, which means that if the logistics performance index increases by one unit, the environmental sustainability performance will increase by 2.823382 units. The test results showed the value of P value of 0.0229 < 0.05 (alpha 5%) then decided H1 accepted. Statistically concluded at 95% confidence level there is a positive effect of logistics performance index on environmental sustainability performance.

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The correlation between logistics performance index and environmental sustainability performance that countries that have a high logistics performance index value, the higher the environmental sustainability performance of the country. Generally, countries that have a high logistics performance index are developed countries which have adequate infrastructure so that logistics delivery is faster, high capacity which results in carbon dioxide (CO2) emissions are also high.

Table 3. Correlation Between Logistics Performance Index And LnCO2 In G20 Countries

No	Country	LPI						lnC02					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Russian Federation	2,6086	2,5850	2,6945	2,5709	2,7569	2,64	98,6523	99,3495	180,2413	467,7179	109,9679	191,19
2	Indonesia	2,7604	2,9448	3,0818	2,9845	3,1501	2,98	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
3	Argentina	3,0997	3,0467	2,9865	2,9626	2,8870	3,00	110,0224	39,6003	70,8830	69,3649	71,3242	72,24
4	Brazil	3,1982	3,1311	2,9440	3,0880	2,9858	3,07	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
5	Mexico	3,0473	3,0627	3,1283	3,1140	3,0514	3,08	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
6	Saudi Arabia	3,2208	3,1778	3,1484	3,1564	3,0110	3,14	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
7	India	3,1151	3,0759	3,0801	3,4200	3,1766	3,17	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
8	Turkey	3,2234	3,5095	3,5002	3,4237	3,1458	3,36	90,9226	96,8701	98,0934	103,8748	112,1286	100,38
9	China	3,4890	3,5170	3,5315	3,6611	3,6051	3,56	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
10	Korea, Rep.	3,6372	3,6954	3,6662	3,7171	3,6122	3,67	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
11	Italy	3,6444	3,6707	3,6911	3,7554	3,7392	3,70	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
12	Spain	3,6256	3,6997	3,7186	3,7274	3,8313	3,72	549,2587	51,9706	144,6235	114,1850	124,7332	196,95
13	Australia	3,8406	3,7265	3,8108	3,7934	3,7514	3,78	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
14	Norway	3,9330	3,6844	3,9582	3,7322	3,6966	3,80	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
15	Canada	3,8745	3,8465	3,8555	3,9307	3,7267	3,85	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
16	France	3,8430	3,8515	3,8473	3,9010	3,8445	3,86	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
17	United States	3,8558	3,9301	3,9178	3,9922	3,8851	3,92	104,8829	109,1848	109,2508	114,2862	104,7740	108,48
18	Japan	3,9659	3,9329	3,9146	3,9705	4,0257	3,96	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
19	United Kingdom	3,9544	3,8983	4,0146	4,0697	3,9871	3,98	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
20	Germany	4,1145	4,0327	4,1220	4,2260	4,2014	4,14	110,7916	353,5416	134,0438	134,0558	200,4499	186,58

From the table it can be seen that the highest indicator of carbon dioxide is the country Norway (logistics performance index 3.72) with a value of 196.95.

H2: The Effect Of Gross Domestic Product On Environmental Sustainability Performance (LnCO2)

Based on the results of statistical testing, it is known that the coefficient of gross domestic product is 0.099118, which means that if the gross domestic product increases by one unit, the environmental sustainability performance will increase by 0.099118 units. The test results showed a Pvalue value of 0.6239 > 0.05 (alpha 5%) then decided H2 rejected. statistically concluded that there is no effect of gross domestic product on the performance of environmental sustainability.

Table 4. Comparison Of Gross Domestic Product Indices and LnCO2 in G20 countries

No	Country	GDP (current US$) (Billions)						lnC02					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Norway	428,7570	509,5063	498,4101	368,8271	436,9997	448,50	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
2	Argentina	423,6274	545,9824	526,3197	557,5314	524,8197	515,66	110,0224	39,6003	70,8830	69,3649	71,3242	72,24
3	Saudi Arabia	528,2073	735,9748	756,3503	644,9357	816,5787	696,41	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
4	Turkey	776,9926	880,5564	938,9526	869,6930	778,4719	848,93	90,9226	96,8701	98,0934	103,8748	112,1286	100,38
5	Indonesia	755,0942	917,8699	890,8148	931,8774	1.042,2715	907,59	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
6	Mexico	1.057,8013	1.201,0900	1.315,3512	1.078,4907	1.222,4082	1.175,03	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
7	Spain	1.422,1082	1.324,7443	1.371,2227	1.232,9130	1.420,9941	1.354,40	549,2587	51,9706	144,6235	114,1850	124,7332	196,95
8	Australia	1.147,5892	1.546,5086	1.467,5048	1.206,6851	1.428,5296	1.359,36	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
9	Korea, Rep.	1.144,0670	1.278,4276	1.484,3182	1.500,1116	1.724,8456	1.426,35	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
10	Canada	1.617,3434	1.828,3665	1.805,7499	1.527,9947	1.725,3292	1.700,96	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
11	Russian Federation	1.524,9175	2.208,2958	2.059,2420	1.276,7870	1.657,3296	1.745,31	98,6523	99,3495	180,2413	467,7179	109,9679	191,19
12	Italy	2.136,1000	2.086,9577	2.162,0096	1.877,0717	2.091,9324	2.070,81	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
13	India	1.675,6153	1.827,6379	2.039,1274	2.294,7980	2.702,9297	2.108,02	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
14	Brazil	2.208,8381	2.465,2283	2.456,0438	1.795,6933	1.916,9337	2.168,55	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
15	France	2.645,1879	2.683,6717	2.855,9645	2.472,9643	2.790,9569	2.689,75	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
16	United Kingdom	2.491,1101	2.719,1583	3.087,1656	2.722,8520	2.900,7914	2.784,22	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
17	Germany	3.399,6678	3.527,1432	3.889,0931	3.469,8535	3.977,2895	3.652,61	110,7916	353,5416	134,0438	134,0558	200,4499	186,58
18	Japan	5.759,0718	6.272,3630	4.896,9944	5.003,6776	5.037,8354	5.393,99	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
19	China	6.087,1639	8.532,2300	10.475,6829	11.233,2765	13.894,8175	10.044,63	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
20	United States	15.048,9644	16.253,9722	17.550,6802	18.695,1108	20.527,1560	17.615,18	104,8829	109,1848	109,2508	114,2862	104,7740	108,48

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Based on the gross domestic product data of the G-20 countries, the lowest gross domestic product value is Norway, but based on the order of carbon dioxide (CO2) emissions Norway is ranked 15th. While the country with the highest gross domestic product value of the United States, but in order of carbon dioxide emissions are ranked 6th. This shows that there is no correlation between the value of a country's gross domestic product and carbon dioxide emissions.

H3: The Influence Of Urban Population On Environmental Sustainability Performance (LnCO2)

Based on the results of statistical testing, it is known that the coefficient of urban population is 0.163682, which means that if the urban population increases by one unit, the environmental sustainability performance will increase by 0.163682 units. The test results showed the value of P value of 0.0047 < 0.05 (alpha 5%) then decided h3 acceptable. Statistically concluded at 95% confidence level there is a positive influence of urban population on environmental sustainability performance.

Urban population or population movements from rural to urban areas have a positive effect on environmental performance, this means that the number of urban population is increasingly dense so that it requires higher transportation, resulting in an increase in carbon dioxide emissions. With the increase in the income of the population from the original rural switched to the city, of course, making changes in behavior to buy modes of transportation and the density of urban transportation causes carbon dioxide emissions to increase. Frequent population movements from rural to urban areas lead to higher electricity supply needs in urban areas, so that the construction of coal-fired power plants is needed, this is also one of the reasons for the increase in air pollutants. Rural populations are declining due to the need for factories or labor-intensive industries, massive industrial development is also a cause of increased emissions in the air.

Table 5. Correlation between Urban Population and LnCO2 in G20 countries

No	Country	URBANPOP %						lnCO2					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	India	30,9300	31,6340	32,3840	33,1820	34,0300	32,43	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
2	Argentina	49,9140	51,2760	52,6350	53,9890	55,3250	52,63	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
3	Indonesia	49,2260	51,7650	54,2590	56,7360	59,1520	54,23	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
4	China	68,3270	68,6840	69,2720	69,8550	70,4380	69,32	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
5	United States	70,8250	71,9740	73,0770	74,1340	75,1430	73,03	90,9226	96,8701	98,0934	103,8748	112,1286	100,38
6	Russian Federation	73,6870	73,7910	73,9500	74,1640	74,4330	74,01	98,6523	99,3495	180,2413	467,7179	109,9679	191,19
7	Turkey	76,9660	77,1700	77,1900	77,2240	77,3120	77,17	110,7916	353,5416	134,0438	134,0558	200,4499	186,58
8	Brazil	77,8150	78,4050	78,9930	79,5770	80,1560	78,99	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
9	Canada	78,4420	78,9020	79,3660	79,8400	80,3210	79,37	549,2587	51,9706	144,6235	114,1850	124,7332	196,95
10	Spain	78,3690	78,8780	79,3940	79,9170	80,4440	79,40	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
11	Korea, Rep.	79,1020	79,8740	80,6920	81,4850	82,2480	80,68	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
12	France	80,9370	81,1370	81,2180	81,3000	81,4110	81,20	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
13	Saudi Arabia	80,7720	81,1190	81,4830	81,8620	82,2560	81,50	104,8829	109,1848	109,2508	114,2862	104,7740	108,48
14	United Kingdom	81,9360	81,8510	81,7070	81,5620	81,4590	81,70	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
15	Mexico	81,3020	81,8370	82,3650	82,8860	83,3980	82,36	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
16	Australia	82,0840	82,5200	82,9600	83,4010	83,8440	82,96	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
17	Italy	84,3350	84,9230	85,4920	86,0420	86,5690	85,47	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
18	Norway	85,1820	85,4020	85,6020	85,8000	86,0120	85,60	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
19	Germany	90,8120	91,1480	91,3040	91,4570	91,6160	91,27	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
20	Japan	90,8490	91,1210	91,3770	91,6270	91,8700	91,37	110,0224	39,6003	70,8830	69,3649	71,3242	72,24

From wordbank data, the lowest urban population value of G-20 countries is India, with a value of 32.43 and a value of carbon dioxide emissions of 53.68. This is appropriate because with the lowest urban population value, India is also the country with the lowest carbon dioxide (CO2) emissions. While the country with the highest urban population value is Japan (79.37), with the highest emissions of 196.95. urban population is the ratio of the number of city residents compared to the total population of a country, meaning that more and more people are

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in urban areas in a country who work in industry, will have an impact on rising carbon dioxide (CO2) emissions.

H4: There Is An Influence Of Inttrade On Environmental Sustainability Performance (Lnco2)

Based on the results of statistical testing, it is known that the coefficient of inttrade is -0.047999, which means that if inttrade increases by one unit, the environmental sustainability performance will decrease by 0.047999 units. The test results showed a Pvalue value of 0.0819 > 0.5 (alpha 5%) then decided H4 rejected. It is concluded that statistically there is no influence of inttrade on the performance of environmental sustainability..

Table 5. Perbandingan Initrade dan LnCO2 Negara G20

No	Country	INTTRADE (%)						lnC02					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Argentina	3,4538	- 29,7408	- 11,3057	- 12,5432	- 11,7531	- 12,38	110,0224	39,6003	70,8830	69,3649	71,3242	72,24
2	China	4,7685	6,1380	6,0472	5,3870	5,5655	5,58	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
3	India	5,7964	10,2254	6,6020	4,8548	6,7583	6,85	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
4	Indonesia	7,5036	8,2226	9,6032	7,4351	8,3247	8,22	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
5	United States	10,4176	13,4529	13,1123	15,9445	9,3668	12,46	104,8829	109,1848	109,2508	114,2862	104,7740	108,48
6	Turkey	5,5410	11,0329	10,8845	14,5432	20,9922	12,60	90,9226	96,8701	98,0934	103,8748	112,1286	100,38
7	Brazil	3,0249	13,0723	48,9833	- 7,4891	16,1892	14,76	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
8	Saudi Arabia	16,3806	15,4325	22,0782	37,0284	25,5481	23,29	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
9	Mexico	11,8716	18,0564	22,7826	28,9151	36,7014	23,67	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
10	Korea, Rep.	13,4316	43,8947	28,2953	24,9768	27,1682	27,55	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
11	United Kingdom	23,9722	42,1867	18,1216	26,8239	36,5475	29,53	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
12	Italy	30,3545	- 18,6704	42,7706	42,8057	65,1359	32,48	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
13	Canada	19,4880	35,5208	22,4313	65,2727	23,9275	33,33	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
14	Australia	68,1215	20,3773	40,6638	35,5139	33,2982	39,59	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
15	Japan	6,9544	22,1647	126,3698	41,5351	62,7188	51,95	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
16	Norway	97,2446	25,2366	34,8625	64,3365	62,7528	56,89	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
17	Russian Federation	11,1901	11,7173	64,9239	240,1678	18,3742	69,27	98,6523	99,3495	180,2413	467,7179	109,9679	191,19
18	France	28,1454	190,6593	63,2502	55,7756	34,5500	74,48	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
19	Germany	19,1079	206,7253	38,2975	38,0133	90,1258	78,45	110,7916	353,5416	134,0438	134,0558	200,4499	186,58
20	Spain	324,8735	- 20,5634	45,7564	20,9932	29,5947	80,13	549,2587	51,9706	144,6235	114,1850	124,7332	196,95

Inttrade is a comparison of a country's total exports and imports divided by gross domestic product. From the table, it is obtained that the lowest inttrade value is China with a value of 5.58 and 76.80 carbon dioxide, while China ranks 3rd in the level of carbon dioxide (CO2) emissions, this proves there is no correlation between inttrade and carbon dioxide (CO2)emissions

H5: Indva Influence On Environmental Sustainability Performance (Lnco2)

Based on the results of statistical testing, it is known that the coefficient of indva is 0.116553, which means that if indva increases by one unit, the environmental sustainability performance will increase by 0.116553 units. The test results showed a Pvalue value of 0.0348 < 0.05 (alpha 5%) then it was decided that H5 was accepted. Statistically concluded at 95% confidence level there is a positive influence of indva on environmental sustainability performance.

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Table 6 comparison of Indiva and LnCO2 correlation in G20 countries

No	Country	INDVA (%)						lnCO2					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Argentina	2,4946	- 23,8002	- 9,6622	- 10,6013	- 9,0623	- 10,13	110,0224	39,6003	70,8830	69,3649	71,3242	72,24
2	India	3,6157	5,3879	3,7322	3,2241	4,0925	4,01	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
3	China	4,3718	5,7763	5,8022	5,7792	5,8798	5,52	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
4	Turkey	2,9061	5,5653	5,6920	8,4509	9,8677	6,50	90,9226	96,8701	98,0934	103,8748	112,1286	100,38
5	Indonesia	6,8729	7,2294	8,3745	7,8100	7,6783	7,59	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
6	United States	7,1286	8,4021	8,4499	10,8201	6,3207	8,22	104,8829	109,1848	109,2508	114,2862	104,7740	108,48
7	United Kingdom	7,7722	12,7839	5,7411	8,1301	10,5019	8,99	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
8	Mexico	6,3230	9,2733	11,0501	11,2677	14,1909	10,42	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
9	Korea, Rep.	5,0136	14,2078	10,6455	11,6387	11,7100	10,64	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
10	Brazil	3,0908	11,5209	40,6235	- 5,6029	10,5115	12,03	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
11	Italy	12,7624	- 7,1606	16,0797	16,4040	23,1690	12,25	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
12	Canada	8,5293	15,1142	9,4556	23,2629	8,8664	13,05	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
13	Saudi Arabia	11,5853	11,5850	15,6540	25,8325	19,9416	16,92	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
14	France	9,1543	57,0635	18,5591	15,9148	9,2160	21,98	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
15	Australia	42,3288	12,4552	24,4903	19,4263	18,5287	23,45	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
16	Germany	6,4234	65,1951	12,2247	12,3626	27,8294	24,81	110,7916	353,5416	134,0438	134,0558	200,4499	186,58
17	Norway	49,5392	13,6292	17,2790	26,0756	28,4161	26,99	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
18	Spain	142,1547	- 7,1089	14,3867	6,5866	8,7017	32,94	549,2587	51,9706	144,6235	114,1850	124,7332	196,95
19	Japan	6,9147	19,3218	92,2117	37,9795	49,6170	41,21	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
20	Russian Federation	6,6666	7,2322	37,9367	150,6216	11,5965	42,81	98,6523	99,3495	180,2413	467,7179	109,9679	191,19

Indva is the division of the value added of industrial products divided by the gross domestic product of a country. From the data obtained that the country with the lowest indiva value is India with a value of 4.01 and 53.68 carbon dioxide emissions. While the highest value of indiva is Russia with a value of 42.81 and carbon dioxide emissions (CO2) 191.19. This shows that countries with high industrial values will also increase carbon dioxide emissions.

H6: The Effect Of Purchasing Power Parity On Environmental Sustainability Performance (Lnco2)

Based on the results of statistical testing, it is known that the coefficient of purchasing power parity is 0.000189, which means that if purchasing power parity increases by one unit, environmental sustainability performance will increase by 0.000189 units. The test results showed a Pvalue value of 0.0821 > 0.10 (alpha 5%) then decided H6 rejected. It is concluded that statistically there is no effect of purchasing power parity on environmental sustainability performance (InCO2).

Table 7 Perbandingan korelasi Paritas Daya Beli dan LnCO2 Pada Negara G20

No	Country	PPP						lnCO2					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Brazil	283,1838	327,9877	338,5060	308,5221	370,8160	325,80	101,1771	114,5685	178,5467	72,7620	118,0392	117,02
2	Japan	736,7991	819,6979	839,8967	885,2275	1.036,3070	863,59	112,7449	137,9421	314,0964	175,6958	208,5615	189,81
3	United Kingdom	866,6555	973,8260	1.100,5612	1.143,1487	1.253,3612	1.067,51	119,4309	142,1544	113,4421	124,0749	136,1395	127,05
4	Norway	1.413,1782	1.672,4707	1.722,8618	1.475,6721	1.643,6105	1.585,56	230,5206	125,1274	138,7613	176,7008	178,2324	169,87
5	Korea, Rep.	1.363,5773	1.468,0980	1.621,3956	1.678,0924	1.852,9859	1.596,83	110,8232	146,0514	127,5165	124,8415	126,8568	127,22
6	United States	1.475,6825	1.483,6469	1.558,3060	1.733,2147	1.904,4995	1.631,07	104,8829	109,1848	109,2508	114,2862	104,7740	108,48
7	Australia	1.268,7744	1.550,6888	1.860,4712	2.116,3978	2.302,3096	1.819,73	200,0682	124,0799	155,6113	145,6828	142,8931	153,67
8	Italy	1.572,6804	1.684,5629	1.792,6002	2.026,9678	2.220,4423	1.859,45	116,8015	43,5428	133,1067	134,1136	163,4079	118,19
9	Germany	1.740,4903	2.012,7678	2.173,2274	2.383,2530	2.535,9497	2.169,14	110,7916	353,5416	134,0438	134,0558	200,4499	186,58
10	Mexico	2.084,1016	2.172,3838	2.200,2553	2.420,6714	2.600,3256	2.295,55	104,1751	112,4398	118,8038	125,5044	136,2946	119,44
11	France	2.057,2065	2.413,4352	2.622,2516	2.744,8966	3.116,5946	2.590,88	121,4612	330,7654	166,0069	156,6038	129,9195	180,95
12	Indonesia	2.334,6762	2.474,0039	2.662,0334	2.864,1064	3.125,3799	2.692,04	73,2747	75,7029	78,7012	77,2517	79,6523	76,92
13	China	2.295,7794	2.453,3517	2.686,2025	2.928,5931	3.161,7504	2.705,14	72,4912	75,0600	77,0656	78,4121	80,9522	76,80
14	Spain	2.798,9247	2.998,5344	3.187,1551	2.939,0942	3.145,9532	3.013,93	549,2587	51,9706	144,6235	114,1850	124,7332	196,95
15	Russian Federation	2.927,0037	3.480,2992	3.763,5350	3.538,9760	4.231,8423	3.588,33	98,6523	99,3495	180,2413	467,7179	109,9679	191,19
16	Argentina	3.185,4318	3.487,2327	3.807,1129	4.165,1697	4.579,3312	3.844,86	110,0224	39,6003	70,8830	69,3649	71,3242	72,24
17	India	4.525,4013	4.799,6129	5.034,4546	5.158,9004	5.340,8322	4.971,84	51,9548	55,7796	53,2085	52,9372	54,5112	53,68
18	Saudi Arabia	5.229,9070	6.153,1554	6.781,0220	7.735,0017	9.021,6138	6.984,14	118,3102	118,1267	127,4931	151,0890	134,8589	129,98
19	Canada	12.380,1649	15.124,5382	17.121,2772	18.712,0961	21.736,5355	17.014,92	115,9182	137,3807	119,8305	174,7676	120,7087	133,72
20	Turkey	15.048,9644	16.253,9722	17.550,6802	18.695,1108	20.527,1560	17.615,18	90,9226	96,8701	98,0934	103,8748	112,1286	100,38

Based on the table, the lowest purchasing power parity value is obtained by Brazil with a purchasing power parity value of 325.80 and carbon dioxide 117.02. The highest value of purchasing power parity is Turkey with a purchasing power parity value of 17615.18 and carbon dioxide emissions of 100.38. But the lowest value of carbon dioxide emissions is India (53.68) and the highest is Spain(196.95), this proves there is no correlation between purchasing power parity with carbon dioxide (CO2) emissions.

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Table 8 Financial Sustainability Performance Hypothesis Test

Variabel	Koefisien	Std Error	Tstat	Prob	Results
C	-15610.19	5251.482	-2.972530	0.0040	
Logistics Performance Index	6201.127	2278.623	2.721436	0.0081	H_7 accepted
Urban Population	-97.90031	37.93232	-2.580921	0.0118	H_9 accepted
Inttrade	-5.872670	16.89423	-0.347614	0.7291	H_{10} rejected
Indva	12.99435	36.15270	0.359430	0.7203	H_{11} rejected
Gross Domestic Product	-148.2394	57.25570	-2.589076	0.0116	H_8 accepted
Purchasing Power Parity	2.624395	0.150956	17.38519	0.0000	H_{12} accepted
Goodness Of Fit					
R-squared	0.984660				
Adj R-squared	0.979477				
F-statistic	189.9962				
Prob(F-stat)	0.000000				

Description: Siginifikansi Level 5%

The coefficient of determination (adj R2) of the poverty model is 97.94%, which means that the ability of the independent variable in explaining the performance of economic sustainability is 97.94% while the rest is explained by other independent variables that are not included in the model. The results of global Testing (Test F) showed that the probability value of the Fstat of 0.00000 < 0.05 (alpha 5%) then Ha is accepted, statistically concluded that there is at least one independent variable in this study that affects the performance of economic sustainability.

H7: The Effect Of Logistics Performance Index On Economic Sustainability Performance (Nex Export)

Based on the results of statistical testing, it is known that the coefficient of logistics performance index is 6201.127, which means that logistics performance index increased by one unit, then economic sustainability performance increased by 6201.127 units. The test results showed a Pvalue value of 0.0081 < 0.50 (alpha 5%) then it was decided that H7 was accepted. Statistically concluded that there is no positive effect of logistics performance index on the performance of economic sustainability.

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Table 9 correlation comparison of Logistics Performance Index and Nex Export of G20 countries

No	Country	LPI						NEX					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Russian Federation	2,61	2,58	2,69	2,57	2,76	2,64	4.792,54	6.122,69	6.263,83	5.179,41	6.331,17	5.737,93
2	Indonesia	2,76	2,94	3,08	2,98	3,15	2,98	3.137,66	3.734,84	3.947,83	4.144,17	4.715,57	3.936,01
3	Argentina	3,10	3,05	2,99	2,96	2,89	3,00	1.184,65	1.394,36	1.395,12	1.473,59	1.595,22	1.408,59
4	Brazil	3,20	3,13	2,94	3,09	2,99	3,07	5.482,19	5.985,54	6.194,86	5.210,48	5.585,51	5.691,72
5	Mexico	3,05	3,06	3,13	3,11	3,05	3,08	2.935,75	3.379,42	3.672,51	3.650,25	3.969,00	3.521,39
6	Saudi Arabia	3,22	3,18	3,15	3,16	3,01	3,14	1.963,92	2.439,08	2.512,89	2.151,96	2.497,96	2.313,16
7	India	3,12	3,08	3,08	3,42	3,18	3,17	10.066,88	11.638,51	12.918,13	14.744,24	17.279,89	13.329,53
8	Turkey	3,22	3,51	3,50	3,42	3,15	3,36	2.101,13	2.500,83	2.883,95	3.082,13	3.185,64	2.750,74
9	China	3,49	3,52	3,53	3,66	3,61	3,56	32.732,29	42.183,10	49.441,41	53.838,42	64.124,40	48.463,92
10	Korea, Rep.	3,64	3,70	3,67	3,72	3,61	3,67	2.789,78	3.044,69	3.370,46	3.629,66	4.061,22	3.379,16
11	Italy	3,64	3,67	3,69	3,76	3,74	3,70	4.327,56	4.370,12	4.478,14	4.413,03	4.818,76	4.481,52
12	Spain	3,63	3,70	3,72	3,73	3,83	3,72	2.970,06	2.878,91	3.001,62	3.038,71	3.406,33	3.059,13
13	Australia	3,84	3,73	3,81	3,79	3,75	3,78	2.041,63	2.554,35	2.603,56	2.383,56	2.721,23	2.460,86
14	Norway	3,93	3,68	3,96	3,73	3,70	3,80	717,74	843,43	843,17	682,97	813,79	780,22
15	Canada	3,87	3,85	3,86	3,93	3,73	3,85	3.041,51	3.364,08	3.498,35	3.274,07	3.655,10	3.366,62
16	France	3,84	3,85	3,85	3,90	3,84	3,86	5.133,00	5.317,53	5.689,44	5.503,60	6.101,46	5.549,01
17	United States	3,86	3,93	3,92	3,99	3,89	3,92	34.831,11	37.643,61	40.683,87	43.445,95	47.817,80	40.884,47
18	Japan	3,97	3,93	3,91	3,97	4,03	3,96	10.968,65	11.799,61	10.588,24	10.841,60	11.089,62	11.057,54
19	United Kingdom	3,95	3,90	4,01	4,07	3,99	3,98	4.945,53	5.346,27	5.970,31	5.847,98	6.275,90	5.677,20
20	Germany	4,11	4,03	4,12	4,23	4,20	4,14	6.865,72	7.311,95	8.027,12	7.971,95	8.936,51	7.822,65

From wordbank data obtained that the value of the logistics performance index of the lowest G-20 countries is Russia with a value of 2.64, while the value of Nex exports in position 14 (5737.93). While the country with the highest logistics performance index value is Germany with a value of 4.14 with the value of Nex exports ranked 16 (7822.65). The G-20 country with the lowest export Nex value is Norway (780,22) and the highest is China (48463,92). This proves that there is a correlation between logistics performance index with Nex exports of a country.

H8: There Is An Influence Of Gross Domestic Product On The Performance Of Economic Sustainability (Nex Export)

Based on the results of statistical testing, it is known that the coefficient of gross domestic product is -148.2394, which means that if gross domestic product increases by one unit, the performance of economic sustainability will decrease by 148.2394 units. The test results showed a Pvalue value of 0.0116 < 0.05 (alpha 5%) then it was decided that H8 was accepted. Statistically concluded at 95% confidence level there is a negative influence of gross domestic product on the performance of economic sustainability.

Table 10 comparison of correlation of Gross Domestic Product and Nex Export in G20 countries

No	Country	GDP (current US$) (Billions)						NEX					
		2.010	2.012	2.014	2.016	2.018	Rata Rata	2.010	2.012	2.014	2.016	2.018	Rata Rata
1	Norway	428,76	509,51	498,41	368,83	437,00	448,50	717,74	843,43	843,17	682,97	813,79	780,22
2	Argentina	423,63	545,98	526,32	557,53	524,82	515,66	1.184,65	1.394,36	1.395,12	1.473,59	1.595,22	1.408,59
3	Saudi Arabia	528,21	735,97	756,35	644,94	816,58	696,41	1.963,92	2.439,08	2.512,89	2.151,96	2.497,96	2.313,16
4	Turkey	776,99	880,56	938,95	869,69	778,47	848,93	2.101,13	2.500,83	2.883,95	3.082,13	3.185,64	2.750,74
5	Indonesia	755,09	917,87	890,81	931,88	1.042,27	907,59	3.137,66	3.734,84	3.947,83	4.144,17	4.715,57	3.936,01
6	Mexico	1.057,80	1.201,09	1.315,35	1.078,49	1.222,41	1.175,03	2.935,75	3.379,42	3.672,51	3.650,25	3.969,00	3.521,39
7	Spain	1.422,11	1.324,74	1.371,22	1.232,91	1.420,99	1.354,40	2.970,06	2.878,91	3.001,62	3.038,71	3.406,33	3.059,13
8	Australia	1.147,59	1.546,51	1.467,50	1.206,69	1.428,53	1.359,36	2.041,63	2.554,35	2.603,56	2.383,56	2.721,23	2.460,86
9	Korea, Rep.	1.144,07	1.278,43	1.484,32	1.500,11	1.724,85	1.426,35	2.789,78	3.044,69	3.370,46	3.629,66	4.061,22	3.379,16
10	Canada	1.617,34	1.828,37	1.805,75	1.527,99	1.725,33	1.700,96	3.041,51	3.364,08	3.498,35	3.274,07	3.655,10	3.366,62
11	Russian Federation	1.524,92	2.208,30	2.059,24	1.276,79	1.657,33	1.745,31	4.792,54	6.122,69	6.263,83	5.179,41	6.331,17	5.737,93
12	Italy	2.136,10	2.086,96	2.162,01	1.877,07	2.091,93	2.070,81	4.327,56	4.370,12	4.478,14	4.413,03	4.818,76	4.481,52
13	India	1.675,62	1.827,64	2.039,13	2.294,80	2.702,93	2.108,02	10.066,88	11.638,51	12.918,13	14.744,24	17.279,89	13.329,53
14	Brazil	2.208,84	2.465,23	2.456,04	1.795,69	1.916,93	2.168,55	5.482,19	5.985,54	6.194,86	5.210,48	5.585,51	5.691,72
15	France	2.645,19	2.683,67	2.855,96	2.472,96	2.790,96	2.689,75	5.133,00	5.317,53	5.689,44	5.503,60	6.101,46	5.549,01
16	United Kingdom	2.491,11	2.719,16	3.087,17	2.722,85	2.900,79	2.784,22	4.945,53	5.346,27	5.970,31	5.847,98	6.275,90	5.677,20
17	Germany	3.399,67	3.527,14	3.889,09	3.469,85	3.977,29	3.652,61	6.865,72	7.311,95	8.027,12	7.971,95	8.936,51	7.822,65
18	Japan	5.759,07	6.272,36	4.896,99	5.003,68	5.037,84	5.393,99	10.968,65	11.799,61	10.588,24	10.841,60	11.089,62	11.057,54
19	China	6.087,16	8.532,23	10.475,68	11.233,28	13.894,82	10.044,63	32.732,29	42.183,10	49.441,41	53.838,42	64.124,40	48.463,92
20	United States	15.048,96	16.253,97	17.550,68	18.695,11	20.527,16	17.615,18	34.831,11	37.643,61	40.683,87	43.445,95	47.817,80	40.884,47

H9: The Influence Of Urban Population On Economic Sustainability Performance (Nex Export)

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Based on the results of statistical testing, it is known that the coefficient of urban population is -97.90031, which means that if the urban population increases by one unit, the performance of economic sustainability will decrease by 97.90031 units. The test results showed a Pvalue value of 0.0118 < 0.05 (alpha 5%) then it was decided that H9 was accepted. Statistically concluded at 95% confidence level there is a negative influence of urban population on the performance of economic sustainability.

Urban population is the ratio of the total population of a city to the total population of a country. Based on the data analysis data shows that the value of urban population affects the value of Nex exports, this means that more and more people living in cities can be interpreted that on average they work in the field of industry that can increase the Nex exports of a country.

Table 11 comparison of urban population and Nex Export correlation in G20 countries

No	Country	URBANPOP %						NEX					
		2010	2012	2014	2016	2018	Rata Rata	2.010	2.012	2.014	2.016	2.018	Rata Rata
1	Norway	79,102	79,874	80,692	81,485	82,248	80,68	717,74	843,43	843,17	682,97	813,79	780,22
2	Argentina	90,849	91,121	91,377	91,627	91,87	91,37	1.184,65	1.394,36	1.395,12	1.473,59	1.595,22	1.408,59
3	Saudi Arabia	82,084	82,52	82,96	83,401	83,844	82,96	1.963,92	2.439,08	2.512,89	2.151,96	2.497,96	2.313,16
4	Australia	85,182	85,402	85,602	85,8	86,012	85,60	2.041,63	2.554,35	2.603,56	2.383,56	2.721,23	2.460,86
5	Turkey	70,825	71,974	73,077	74,134	75,143	73,03	2.101,13	2.500,83	2.883,95	3.082,13	3.185,64	2.750,74
6	Spain	78,442	78,902	79,366	79,84	80,321	79,37	2.970,06	2.878,91	3.001,62	3.038,71	3.406,33	3.059,13
7	Canada	80,937	81,137	81,218	81,3	81,411	81,20	3.041,51	3.364,08	3.498,35	3.274,07	3.655,10	3.366,62
8	Korea, Rep.	81,936	81,851	81,707	81,562	81,459	81,70	2.789,78	3.044,69	3.370,46	3.629,66	4.061,22	3.379,16
9	Mexico	77,815	78,405	78,993	79,577	80,156	78,99	2.935,75	3.379,42	3.672,51	3.650,25	3.969,00	3.521,39
10	Indonesia	49,914	51,276	52,635	53,989	55,325	52,63	3.137,66	3.734,84	3.947,83	4.144,17	4.715,57	3.936,01
11	Italy	68,327	68,684	69,272	69,855	70,438	69,32	4.327,56	4.370,12	4.478,14	4.413,03	4.818,76	4.481,52
12	France	78,369	78,878	79,394	79,917	80,444	79,40	5.133,00	5.317,53	5.689,44	5.503,60	6.101,46	5.549,01
13	United Kingdom	81,302	81,837	82,365	82,886	83,398	82,36	4.945,53	5.346,27	5.970,31	5.847,98	6.275,90	5.677,20
14	Brazil	84,335	84,923	85,492	86,042	86,569	85,47	5.482,19	5.985,54	6.194,86	5.210,48	5.585,51	5.691,72
15	Russian Federation	73,687	73,791	73,95	74,164	74,433	74,01	4.792,54	6.122,69	6.263,83	5.179,41	6.331,17	5.737,93
16	Germany	76,966	77,17	77,19	77,224	77,312	77,17	6.865,72	7.311,95	8.027,12	7.971,95	8.936,51	7.822,65
17	Japan	90,812	91,148	91,304	91,457	91,616	91,27	10.968,65	11.799,61	10.588,24	10.841,60	11.089,62	11.057,54
18	India	30,93	31,634	32,384	33,182	34,03	32,43	10.066,88	11.638,51	12.918,13	14.744,24	17.279,89	13.329,53
19	United States	80,772	81,119	81,483	81,862	82,256	81,50	34.831,11	37.643,61	40.683,87	43.445,95	47.817,80	40.884,47
20	China	49,226	51,765	54,259	56,736	59,152	54,23	32.732,29	42.183,10	49.441,41	53.838,42	64.124,40	48.463,92

Urban population has an effect on the performance of financial logistics, this means that the large number of urban residents in the majority because they work as factory workers makes the higher financial receipts of a country. The high number of urban population due to the many factories/industries that require labor-intensive/large number of workers. The number of industries of a country is certainly supported by government policies/regulations for investment in the country and the low regional minimum wage of a country. The low regional minimum wage of a country makes one of the considerations of investors investing in the country because the employee costs incurred by the company are also low, this makes one of the attractions to invest in a country.

H10: There Is An Influence Of Inttrade On The Performance Of Economic Sustainability (Nex Export)

Based on the results of statistical testing, it is known that the coefficient of inttrade is -5.872670, meaning that if inttrade increases by one unit, the performance of economic sustainability will decrease by 5.872670 units. The test results showed a Pvalue value of 0.7291 > 0.50 (alpha 5%) then decided H10 rejected. It is concluded that statistically there is no influence of inttrade on the performance of economic sustainability.

Table 12 comparison of Inttrade and Nex Export correlation in G20 countries

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No	Country	INTTRADE (%)						NEX					
		2.010	2.012	2.014	2.016	2.018	Rata Rata	2.010	2.012	2.014	2.016	2.018	Rata Rata
1	Argentina	3,45	- 29,74	- 11,31	- 12,54	- 11,75	- 12,38	1.184,65	1.394,36	1.395,12	1.473,59	1.595,22	1.408,59
2	China	4,77	6,14	6,05	5,39	5,57	5,58	32.732,29	42.183,10	49.441,41	53.838,42	64.124,40	48.463,92
3	India	5,80	10,23	6,60	4,85	6,76	6,85	10.066,88	11.638,51	12.918,13	14.744,24	17.279,89	13.329,53
4	Indonesia	7,50	8,22	9,60	7,44	8,32	8,22	3.137,66	3.734,84	3.947,83	4.144,17	4.715,57	3.936,01
5	United States	10,42	13,45	13,11	15,94	9,37	12,46	34.831,11	37.643,61	40.683,87	43.445,95	47.817,80	40.884,47
6	Turkey	5,54	11,03	10,88	14,54	20,99	12,60	2.101,13	2.500,83	2.883,95	3.082,13	3.185,64	2.750,74
7	Brazil	3,02	13,07	48,98	- 7,49	16,19	14,76	5.482,19	5.985,54	6.194,86	5.210,48	5.585,51	5.691,72
8	Saudi Arabia	16,38	15,43	22,08	37,03	25,55	23,29	1.963,92	2.439,08	2.512,89	2.151,96	2.497,96	2.313,16
9	Mexico	11,87	18,06	22,78	28,92	36,70	23,67	2.935,75	3.379,42	3.672,51	3.650,25	3.969,00	3.521,39
10	Korea, Rep.	13,43	43,89	28,30	24,98	27,17	27,55	2.789,78	3.044,69	3.370,46	3.629,66	4.061,22	3.379,16
11	United Kingdom	23,97	42,19	18,12	26,82	36,55	29,53	4.945,53	5.346,27	5.970,31	5.847,98	6.275,90	5.677,20
12	Italy	30,35	- 18,67	42,77	42,81	65,14	32,48	4.327,56	4.370,12	4.478,14	4.413,03	4.818,76	4.481,52
13	Canada	19,49	35,52	22,43	65,27	23,93	33,33	3.041,51	3.364,08	3.498,35	3.274,07	3.655,10	3.366,62
14	Australia	68,12	20,38	40,66	35,51	33,30	39,59	2.041,63	2.554,35	2.603,56	2.383,56	2.721,23	2.460,86
15	Japan	6,95	22,16	126,37	41,54	62,72	51,95	10.968,65	11.799,61	10.588,24	10.841,60	11.089,62	11.057,54
16	Norway	97,24	25,24	34,86	64,34	62,75	56,89	717,74	843,43	843,17	682,97	813,79	780,22
17	Russian Federation	11,19	11,72	64,92	240,17	18,37	69,27	4.792,54	6.122,69	6.263,83	5.179,41	6.331,17	5.737,93
18	France	28,15	190,66	63,25	55,78	34,55	74,48	5.133,00	5.317,53	5.689,44	5.503,60	6.101,46	5.549,01
19	Germany	19,11	206,73	38,30	38,01	90,13	78,45	6.865,72	7.311,95	8.027,12	7.971,95	8.936,51	7.822,65
20	Spain	324,87	- 20,56	45,76	20,99	29,59	80,13	2.970,06	2.878,91	3.001,62	3.038,71	3.406,33	3.059,13

Inttrade is the total exports and imports of a country divided by gross domestic product. From the table obtained the lowest value of the country's NEX exports is Norway, and the highest China, while the value of the country inttrade Norway is in position 16 and China is in position 2, this proves there is no relationship between inttrade and Nex exports.

H11: there is an influence of INDVA on the performance of economic sustainability (Nex Export)

Based on the results of statistical testing, it is known that the coefficient of indva is 12.99435, meaning that if indva increases by one unit, the economic sustainability performance will increase by 12.99435 units. The test results showed a Pvalue value of 0.7203 > 0.50 (alpha 5%) then decided H11 rejected. It is concluded that statistically there is no influence of indva on the performance of economic sustainability.

Table 13 comparison of Indiva and Nex Export correlation in G20 countries

No	Country	INDVA (%)						NEX					
		2.010	2.012	2.014	2.016	2.018	Rata Rata	2.010	2.012	2.014	2.016	2.018	Rata Rata
1	Argentina	2,49	- 23,80	- 9,66	- 10,60	- 9,06	- 10,13	1.184,65	1.394,36	1.395,12	1.473,59	1.595,22	1.408,59
2	India	3,62	5,39	3,73	3,22	4,09	4,01	10.066,88	11.638,51	12.918,13	14.744,24	17.279,89	13.329,53
3	China	4,37	5,78	5,80	5,78	5,88	5,52	32.732,29	42.183,10	49.441,41	53.838,42	64.124,40	48.463,92
4	Turkey	2,91	5,57	5,69	8,45	9,87	6,50	2.101,13	2.500,83	2.883,95	3.082,13	3.185,64	2.750,74
5	Indonesia	6,87	7,23	8,37	7,81	7,68	7,59	3.137,66	3.734,84	3.947,83	4.144,17	4.715,57	3.936,01
6	United States	7,13	8,40	8,45	10,82	6,32	8,22	34.831,11	37.643,61	40.683,87	43.445,95	47.817,80	40.884,47
7	United Kingdom	7,77	12,78	5,74	8,13	10,50	8,99	4.945,53	5.346,27	5.970,31	5.847,98	6.275,90	5.677,20
8	Mexico	6,32	9,27	11,05	11,27	14,19	10,42	2.935,75	3.379,42	3.672,51	3.650,25	3.969,00	3.521,39
9	Korea, Rep.	5,01	14,21	10,65	11,64	11,71	10,64	2.789,78	3.044,69	3.370,46	3.629,66	4.061,22	3.379,16
10	Brazil	3,09	11,52	40,62	- 5,60	10,51	12,03	5.482,19	5.985,54	6.194,86	5.210,48	5.585,51	5.691,72
11	Italy	12,76	- 7,16	16,08	16,40	23,17	12,25	4.327,56	4.370,12	4.478,14	4.413,03	4.818,76	4.481,52
12	Canada	8,53	15,11	9,46	23,26	8,87	13,05	3.041,51	3.364,08	3.498,35	3.274,07	3.655,10	3.366,62
13	Saudi Arabia	11,59	11,58	15,65	25,83	19,94	16,92	1.963,92	2.439,08	2.512,89	2.151,96	2.497,96	2.313,16
14	France	9,15	57,06	18,56	15,91	9,22	21,98	5.133,00	5.317,53	5.689,44	5.503,60	6.101,46	5.549,01
15	Australia	42,33	12,46	24,49	19,43	18,53	23,45	2.041,63	2.554,35	2.603,56	2.383,56	2.721,23	2.460,86
16	Germany	6,42	65,20	12,22	12,36	27,83	24,81	6.865,72	7.311,95	8.027,12	7.971,95	8.936,51	7.822,65
17	Norway	49,54	13,63	17,28	26,08	28,42	26,99	717,74	843,43	843,17	682,97	813,79	780,22
18	Spain	142,15	- 7,11	14,39	6,59	8,70	32,94	2.970,06	2.878,91	3.001,62	3.038,71	3.406,33	3.059,13
19	Japan	6,91	19,32	92,21	37,98	49,62	41,21	10.968,65	11.799,61	10.588,24	10.841,60	11.089,62	11.057,54
20	Russian Federation	6,67	7,23	37,94	150,62	11,60	42,81	4.792,54	6.122,69	6.263,83	5.179,41	6.331,17	5.737,93

The lowest Indiva value is Argentina, while the highest is Russian, while the lowest Nex export value is Norway and the highest is China, this proves that there is no correlation between Indiva and Nex exports. Indiva is a comparison of industrial added value compared to gross domestic product, therefore there is no influence between industrial added value, gross domestic product and Nex exports.

H12: The Effect Of Purchasing Power Parity On Economic Sustainability Performance (Nex Export)

Based on the results of statistical testing, it is known that the coefficient of purchasing power parity is 2.624395, which means that if purchasing power parity increases by one unit,

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the performance of economic sustainability will increase by 2.624395 units. The test results showed a Pvalue value of 0.0000 < 0.05 (alpha 5%) then it was decided that H12 was accepted. Statistically concluded at 95% confidence level there is a positive effect of purchasing power parity on the performance of economic sustainability.

Table 14 comparison of purchasing Power Parity and Nex Export correlation in G20 countries

No	Country	PPP						NEX					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Norway	283,1838	327,9877	338,5060	308,5221	370,8160	325,80	717,7405	843,4254	843,1688	682,9721	813,7913	780,22
2	Argentina	736,7991	819,6979	839,8967	885,2275	1.036,3070	863,59	1.184,6542	1.394,3611	1.395,1201	1.473,5876	1.595,2196	1.408,59
3	Australia	866,6555	973,8260	1.100,5612	1.143,1487	1.253,3612	1.067,51	2.041,6256	2.554,3470	2.603,5639	2.383,5619	2.721,2259	2.460,86
4	Saudi Arabia	1.413,1782	1.672,4707	1.722,8618	1.475,6721	1.643,6105	1.585,56	1.963,9230	2.439,0818	2.512,8912	2.151,9618	2.497,9602	2.313,16
5	Canada	1.363,5773	1.468,0980	1.621,3956	1.678,0924	1.852,9859	1.596,83	3.041,5094	3.364,0824	3.498,3486	3.274,0748	3.655,1035	3.366,62
6	Spain	1.475,6825	1.483,6469	1.558,3060	1.733,2147	1.904,4995	1.631,07	2.970,0555	2.878,9113	3.001,6165	3.038,7139	3.406,3314	3.059,13
7	Turkey	1.268,7744	1.550,6888	1.860,4712	2.116,3978	2.302,3096	1.819,73	2.101,1293	2.500,8326	2.883,9458	3.082,1307	3.185,6428	2.750,74
8	Korea, Rep.	1.572,6804	1.684,5629	1.792,6002	2.026,9678	2.220,4423	1.859,45	2.789,7829	3.044,6949	3.370,4617	3.629,6603	4.061,2228	3.379,16
9	Mexico	1.740,4903	2.012,7678	2.173,2274	2.383,2530	2.535,9497	2.169,14	2.935,7545	3.379,4163	3.672,5104	3.650,2536	3.969,0016	3.521,39
10	Italy	2.084,1016	2.172,3838	2.200,2553	2.420,6714	2.600,3256	2.295,55	4.327,5594	4.370,1239	4.478,1417	4.413,0267	4.818,7606	4.481,52
11	Indonesia	2.057,2065	2.413,4352	2.622,2516	2.744,8966	3.116,5946	2.590,88	3.137,6563	3.734,8407	3.947,8268	4.144,1669	4.715,5662	3.936,01
12	France	2.334,6762	2.474,0039	2.662,0334	2.864,1064	3.125,3799	2.692,04	5.133,0039	5.317,5266	5.689,4447	5.503,6031	6.101,4593	5.549,01
13	United Kingdom	2.295,7794	2.453,3517	2.686,2025	2.928,5931	3.161,7504	2.705,14	4.945,5307	5.346,2671	5.970,3102	5.847,9838	6.275,8967	5.677,20
14	Brazil	2.798,9247	2.998,5344	3.187,1551	2.939,0942	3.145,9532	3.013,93	5.482,1929	5.985,5443	6.194,8629	5.210,4769	5.585,5105	5.691,72
15	Russian Federation	2.927,0037	3.480,2992	3.763,5350	3.538,9760	4.231,8423	3.588,33	4.792,5430	6.122,6859	6.263,8277	5.179,4078	6.331,1688	5.737,93
16	Germany	3.185,4318	3.487,2327	3.807,1129	4.165,1697	4.579,3312	3.844,86	6.865,7198	7.311,9540	8.027,1176	7.971,9475	8.936,5099	7.822,65
17	Japan	4.525,4013	4.799,6129	5.034,4546	5.158,9004	5.340,8322	4.971,84	10.968,6474	11.799,6135	10.588,2372	10.841,5968	11.089,6161	11.057,54
18	India	5.229,9070	6.153,1554	6.781,0220	7.735,0017	9.021,6138	6.984,14	10.066,8796	11.638,5141	12.918,1324	14.744,2361	17.279,8859	13.329,53
19	China	12.380,1649	15.124,5382	17.121,2772	18.712,0961	21.736,5355	17.014,92	32.732,2938	42.183,1042	49.441,4100	53.838,4190	64.124,3973	48.463,92
20	United States	15.048,9644	16.253,9722	17.550,6802	18.695,1108	20.527,1560	17.615,18	34.831,1090	37.643,6102	40.683,8691	43.445,9527	47.817,8033	40.884,47

From the table, it is found that the lowest value of purchasing power parity and Nex exports is Norway, and the highest is China and the United States, therefore there is a correlation between purchasing power parity and Nex exports. The greater the population moves to urban areas to carry out industrial processes, the greater the country's export Nex.

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Table 15 Social Sustainability Performance Hypothesis Test

Variabel	Koefisien	Std Error	Tstat	Prob	Keputusan
C	1.485792	1.509102	0.984554	0.3281	
Logistics Performance Index	0.581825	0.570822	1.019276	0.3114	H_{13} Rejected
Urban Population	0.016730	0.012642	1.323371	0.1898	H_{15} Rejected
Inttrade	0.012623	0.006209	2.033173	0.0456	H_{16} Accepted
Indva	-0.033294	0.012647	-2.632568	0.0103	H_{17} Accepted
Gross Domestic Product	0.086008	0.061971	1.387880	0.1693	H_{14} Rejected
Purchasing Power Parity	-1.04E-05	2.18E-05	-0.475985	0.6355	H_{18} Rejected
Goodness Of Fit					
R-Squared	0.576537				
Adj R-Squared	0.433476				
F-Statistic	4.029989				
Prob(F-Stat)	0.000002				

Description: Siginifikansi Level 5%

Coefficient of determination (adj R2) of the poverty model of 43.34% means that the ability of the independent variable in explaining the performance of social sustainability of 43.34% while the rest is explained by other independent variables that are not included in the model. The results of global Testing (Test F) showed that the probability value of the Fstat of 0.00002 < 0.05 (alpha 5%) then Ha is accepted, statistically concluded that there is at least one independent variable in this study that affects the performance of social sustainability.

H13: The Effect Of Logistics Performance Index On Social Sustainability Performance

Based on the results of statistical testing, it is known that the coefficient of logistics performance index is 0.581825, meaning that if the logistics performance index increases by one unit, the performance of social sustainability will increase by 0.581825 units. The test results showed a Pvalue value of 0.3114 > 0.05 (alpha 5%) then decided H13 rejected. It is concluded that statistically there is no effect of logistics performance index on the performance of social sustainability.

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Table 16 correlation comparison of Logistics Performance Index and Educations in G20 countries

No	Country	LPI						Educations					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Russian Federation	2,6086	2,5850	2,6945	2,5709	2,7569	2,64	3,8805	3,7931	4,0139	3,7604	4,6782	4,03
2	Indonesia	2,7604	2,9448	3,0818	2,9845	3,1501	2,98	2,8123	3,4075	3,2880	3,5000	3,0000	3,20
3	Argentina	3,0997	3,0467	2,9865	2,9626	2,8870	3,00	5,0197	5,3458	5,3614	5,5455	4,8777	5,23
4	Brazil	3,1982	3,1311	2,9440	3,0880	2,9858	3,07	5,6488	5,8551	5,9485	6,3140	6,0885	5,97
5	Mexico	3,0473	3,0627	3,1283	3,1140	3,0514	3,08	5,1592	5,1031	5,2575	4,9068	4,2542	4,94
6	Saudi Arabia	3,2208	3,1778	3,1484	3,1564	3,0110	3,14	8,5105	8,5105	8,5105	8,5105	7,0858	8,23
7	India	3,1151	3,0759	3,0801	3,4200	3,1766	3,17	3,3777	3,8675	3,8675	4,2541	4,3637	3,95
8	Turkey	3,2234	3,5095	3,5002	3,4237	3,1458	3,36	3,7870	4,3872	4,4126	4,6277	4,2941	4,30
9	China	3,4890	3,5170	3,5315	3,6611	3,6051	3,56	3,7500	4,0774	3,7266	3,7936	3,5425	3,78
10	Korea, Rep.	3,6372	3,6954	3,6662	3,7171	3,6122	3,67	2,8400	2,8400	4,3331	4,3331	4,4581	3,76
11	Italy	3,6444	3,6707	3,6911	3,7554	3,7392	3,70	4,3341	4,0560	4,0613	3,8158	4,2561	4,10
12	Spain	3,6256	3,6997	3,7186	3,7274	3,8313	3,72	4,8561	4,4693	4,3034	4,2276	4,1816	4,41
13	Australia	3,8406	3,7265	3,8108	3,7934	3,7514	3,78	5,5430	4,8679	5,1647	5,2862	5,1234	5,20
14	Norway	3,9330	3,6844	3,9582	3,7322	3,6966	3,80	6,7463	7,3747	7,6950	8,0306	7,6441	7,50
15	Canada	3,8745	3,8465	3,8555	3,9307	3,7267	3,85	5,3564	4,6926	4,8436	4,8164	4,8890	4,92
16	France	3,8430	3,8515	3,8473	3,9010	3,8445	3,86	5,6586	5,4565	5,5121	5,4191	5,4072	5,49
17	United States	3,8558	3,9301	3,9178	3,9922	3,8851	3,92	6,7200	6,2759	6,1374	4,7982	4,9123	5,77
18	Japan	3,9659	3,9329	3,9146	3,9705	4,0257	3,96	3,5995	3,6474	3,5516	3,1464	3,0778	3,40
19	United Kingdom	3,9544	3,8983	4,0146	4,0697	3,9871	3,98	5,6682	5,6596	5,5645	5,3753	5,1680	5,49
20	Germany	4,1145	4,0327	4,1220	4,2260	4,2014	4,14	4,9437	4,9566	4,9210	4,8392	4,9758	4,93

From the table, it is found that the lowest logistics performance index is the Russian state with the value of educations at Position 6 (4.03) and the highest logistics performance index in the German state with the value of educations at position 11. The lowest educations value is Indonesia (3.20) with logistics performance index value at Position 2 (3.15) and the highest educations Saudi Arabia with logistics performance index value at Position 6 ((3.14)). Based on this, it can be seen that there is no correlation between the value of logistics performance index and educations.

H14: Changes In Gross Domestic Product To Social Sustainable Performance

Based on the results of statistical testing, it is known that the coefficient of gross domestic product is 0.086008, which means that if the gross domestic product increases by one unit, the performance of social sustainability will increase by 0.086008 units. The test results showed a Pvalue value of 0.1693 > 0.05 (alpha 5%) then decided H14 rejected. It is concluded that statistically there is no effect of gross domestic product on the performance of social sustainability.

Table 17 comparison of Gross Domestic Product and education correlations of G20 countries

No	Country	GDP (current US$) (Billions)						Educations					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Norway	428,7570	509,5063	498,4101	368,8271	436,9997	448,50	6,7463	7,3747	7,6950	8,0306	7,6441	7,50
2	Argentina	423,6274	545,9824	526,3197	557,5314	524,8197	515,66	5,0197	5,3458	5,3614	5,5455	4,8777	5,23
3	Saudi Arabia	528,2073	735,9748	756,3503	644,9357	816,5787	696,41	8,5105	8,5105	8,5105	8,5105	7,0858	8,23
4	Turkey	776,9926	880,5564	938,9526	869,6930	778,4719	848,93	3,7870	4,3872	4,4126	4,6277	4,2941	4,30
5	Indonesia	755,0942	917,8699	890,8148	931,8774	1.042,2715	907,59	2,8123	3,4075	3,2880	3,5000	3,0000	3,20
6	Mexico	1.057,8013	1.201,0900	1.315,3512	1.078,4907	1.222,4082	1.175,03	5,1592	5,1031	5,2575	4,9068	4,2542	4,94
7	Spain	1.422,1082	1.324,7443	1.371,2227	1.232,9130	1.420,9941	1.354,40	4,8561	4,4693	4,3034	4,2276	4,1816	4,41
8	Australia	1.147,5892	1.546,5086	1.467,5048	1.206,6851	1.428,5296	1.359,36	5,5430	4,8679	5,1647	5,2862	5,1234	5,20
9	Korea, Rep.	1.144,0670	1.278,4276	1.484,3182	1.500,1116	1.724,8456	1.426,35	2,8400	2,8400	4,3331	4,3331	4,4581	3,76
10	Canada	1.617,3434	1.828,3665	1.805,7499	1.527,9947	1.725,3292	1.700,96	5,3564	4,6926	4,8436	4,8164	4,8890	4,92
11	Russian Federation	1.524,9175	2.208,2958	2.059,2420	1.276,7870	1.657,3296	1.745,31	3,8805	3,7931	4,0139	3,7604	4,6782	4,03
12	Italy	2.136,1000	2.086,9577	2.162,0096	1.877,0717	2.091,9324	2.070,81	4,3341	4,0560	4,0613	3,8158	4,2561	4,10
13	India	1.675,6153	1.827,6379	2.039,1274	2.294,7980	2.702,9297	2.108,02	3,3777	3,8675	3,8675	4,2541	4,3637	3,95
14	Brazil	2.208,8381	2.465,2283	2.456,0438	1.795,6933	1.916,9337	2.168,55	5,6488	5,8551	5,9485	6,3140	6,0885	5,97
15	France	2.645,1879	2.683,6717	2.855,9645	2.472,9643	2.790,9569	2.689,75	5,6586	5,4565	5,5121	5,4191	5,4072	5,49
16	United Kingdom	2.491,1101	2.719,1583	3.087,1656	2.722,8520	2.900,7914	2.784,22	5,6682	5,6596	5,5645	5,3753	5,1680	5,49
17	Germany	3.399,6678	3.527,1432	3.889,0931	3.469,8535	3.977,2895	3.652,61	4,9437	4,9566	4,9210	4,8392	4,9758	4,93
18	Japan	5.759,0718	6.272,3630	4.896,9944	5.003,6776	5.037,8354	5.393,99	3,5995	3,6474	3,5516	3,1464	3,0778	3,40
19	China	6.087,1639	8.532,2300	10.475,6829	11.233,2765	13.894,8175	10.044,63	3,7500	4,0774	3,7266	3,7936	3,5425	3,78
20	United States	15.048,9644	16.253,9722	17.550,6802	18.695,1108	20.527,1560	17.615,18	6,7200	6,2759	6,1374	4,7982	4,9123	5,77

The country with the lowest gross domestic product is Norway and the country with the lowest educations is Indonesia. While the country with the highest gross domestic product is the United States and the country with the highest educations is Saudi Arabia. Therefore, it

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can be concluded that there is no correlation between a country's high education and per capita income/ gross domestic product.

H15: The Influence Of Urban Population On Social Sustainability Performance

Based on the results of statistical testing, it is known that the coefficient of urban population is 0.016730, which means that if the urban population increases by one unit, the performance of social sustainability will increase by 0.016730 units. The test results showed a Pvalue value of 0.1898 > 0.05 (alpha 5%) then decided H15 rejected. Statistically, there is no influence of urban population on the performance of social sustainability.

Table 18 comparison of Urban pop education and education in G20 countries

No	Country	URBANPOP %						Educations					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	India	30,9300	31,6340	32,3840	33,1820	34,0300	32,43	3,3777	3,8675	3,8675	4,2541	4,3637	3,95
2	Indonesia	49,9140	51,2760	52,6350	53,9890	55,3250	52,63	2,8123	3,4075	3,2880	3,5000	3,0000	3,20
3	China	49,2260	51,7650	54,2590	56,7360	59,1520	54,23	3,7500	4,0774	3,7266	3,7936	3,5425	3,78
4	Italy	68,3270	68,6840	69,2720	69,8550	70,4380	69,32	4,3341	4,0560	4,0613	3,8158	4,2561	4,10
5	Turkey	70,8250	71,9740	73,0770	74,1340	75,1430	73,03	3,7870	4,3872	4,4126	4,6277	4,2941	4,30
6	Russian Federation	73,6870	73,7910	73,9500	74,1640	74,4330	74,01	3,8805	3,7931	4,0139	3,7604	4,6782	4,03
7	Germany	76,9660	77,1700	77,1900	77,2240	77,3120	77,17	4,9437	4,9566	4,9210	4,8392	4,9758	4,93
8	Mexico	77,8150	78,4050	78,9930	79,5770	80,1560	78,99	5,1592	5,1031	5,2575	4,9068	4,2542	4,94
9	Spain	78,4420	78,9020	79,3660	79,8400	80,3210	79,37	4,8561	4,4693	4,3034	4,2276	4,1816	4,41
10	France	78,3690	78,8780	79,3940	79,9170	80,4440	79,40	5,6586	5,4565	5,5121	5,4191	5,4072	5,49
11	Norway	79,1020	79,8740	80,6920	81,4850	82,2480	80,68	6,7463	7,3747	7,6950	8,0306	7,6441	7,50
12	Canada	80,9370	81,1370	81,2180	81,3000	81,4110	81,20	5,3564	4,6926	4,8436	4,8164	4,8890	4,92
13	United States	80,7720	81,1190	81,4830	81,8620	82,2560	81,50	6,7200	6,2759	6,1374	4,7982	4,9123	5,77
14	Korea, Rep.	81,9360	81,8510	81,7070	81,5620	81,4590	81,70	2,8400	2,8400	4,3331	4,3331	4,4581	3,76
15	United Kingdom	81,3020	81,8370	82,3650	82,8860	83,3980	82,36	5,6682	5,6596	5,5645	5,3753	5,1680	5,49
16	Saudi Arabia	82,0840	82,5200	82,9600	83,4010	83,8440	82,96	8,5105	8,5105	8,5105	8,5105	7,0858	8,23
17	Brazil	84,3350	84,9230	85,4920	86,0420	86,5690	85,47	5,6488	5,8551	5,9485	6,3140	6,0885	5,97
18	Australia	85,1820	85,4020	85,6020	85,8000	86,0120	85,60	5,5430	4,8679	5,1647	5,2862	5,1234	5,20
19	Japan	90,8120	91,1480	91,3040	91,4570	91,6160	91,27	3,5995	3,6474	3,5516	3,1464	3,0778	3,40
20	Argentina	90,8490	91,1210	91,3770	91,6270	91,8700	91,37	5,0197	5,3458	5,3614	5,5455	4,8777	5,23

H16: There Is An Influence Of Inttrade On The Performance Of Social Sustainability

Based on the results of statistical testing, it is known that the coefficient of inttrade is 0.012623, meaning that if inttrade increases by one unit, the performance of social sustainability will increase by 0.012623 units. The test results showed a Pvalue value of 0.0456 < 0.05 (alpha 5%) then it was decided that H16 was accepted. Statistically concluded at 95% confidence level there is a positive influence of Inttrade on the performance of social sustainability.

From the results of the analysis obtained a correlation between the value of inttrade and social, meaning that the value of exports and imports of a country related to the level of education of the country. This is because, the higher the value of exports and imports of a country, it takes personnel who have a high level of education to run the export and import process. This is because the export and import process requires an understanding of English, taxes and shipping processes to facilitate communication and coordination.

H17: there is an influence of INDVA on the performance of social sustainability

Based on the results of statistical testing, it is known that the coefficient of INDVA is -0.033294, which means that if indiva increases by one unit, the performance of social sustainability will decrease by 0.033294 units. The test results showed a Pvalue value of 0.0103 < 0.05 (alpha 5%) then it was decided that H17 was accepted. Statistically concluded at 95% confidence level there is a negative influence of indiva on the performance of social sustainability.

From the results of the analysis obtained a correlation between the value of indiva and social, meaning that the added value of a country's industry is related to the level of education

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of the country. This is because, the higher the technology used in an industry, it certainly requires a workforce that has a specific higher education as well.

H18: The Effect Of Purchasing Power Parity On Social Sustainability Performance

Based on the results of statistical testing, it is known that the coefficient of purchasing power parity is -1.04 E-05, which means that if purchasing power parity increases by one unit, the performance of social sustainability will decrease by 1.04 E-05 units. The test results showed a Pvalue value of 0.6355 > 0.05 (alpha 5%) then decided H18 rejected. It is concluded that statistically there is no effect of purchasing power parity on the performance of social sustainability.

Table 19 comparison of purchasing Power Parity and education correlations in G20 countries

No	Country	PPP						Educations					
		2010	2012	2014	2016	2018	Rata Rata	2010	2012	2014	2016	2018	Rata Rata
1	Norway	283,1838	327,9877	338,5060	308,5221	370,8160	325,80	6,7463	7,3747	7,6950	8,0306	7,6441	7,50
2	Argentina	736,7991	819,6979	839,8967	885,2275	1.036,3070	863,59	5,0197	5,3458	5,3614	5,5455	4,8777	5,23
3	Australia	866,6555	973,8260	1.100,5612	1.143,1487	1.253,3612	1.067,51	5,5430	4,8679	5,1647	5,2862	5,1234	5,20
4	Saudi Arabia	1.413,1782	1.672,4707	1.722,8618	1.475,6721	1.643,6105	1.585,56	8,5105	8,5105	8,5105	8,5105	7,0858	8,23
5	Canada	1.363,5773	1.468,0980	1.621,3956	1.678,0924	1.852,9859	1.596,83	5,3564	4,6926	4,8436	4,8164	4,8890	4,92
6	Spain	1.475,6825	1.483,6469	1.558,3060	1.733,2147	1.904,4995	1.631,07	4,8561	4,4693	4,3034	4,2276	4,1816	4,41
7	Turkey	1.268,7744	1.550,6888	1.860,4712	2.116,3978	2.302,3096	1.819,73	3,7870	4,3872	4,4126	4,6277	4,2941	4,30
8	Korea, Rep.	1.572,6804	1.684,5629	1.792,6002	2.026,9678	2.220,4423	1.859,45	2,8400	2,8400	4,3331	4,3331	4,4581	3,76
9	Mexico	1.740,4903	2.012,7678	2.173,2274	2.383,2530	2.535,9497	2.169,14	5,1592	5,1031	5,2575	4,9068	4,2542	4,94
10	Italy	2.084,1016	2.172,3838	2.200,2553	2.420,6714	2.600,3256	2.295,55	4,3341	4,0560	4,0613	3,8158	4,2561	4,10
11	Indonesia	2.057,2065	2.413,4352	2.622,2516	2.744,8966	3.116,5946	2.590,88	2,8123	3,4075	3,2880	3,5000	3,0000	3,20
12	France	2.334,6762	2.474,0039	2.662,0334	2.864,1064	3.125,3799	2.692,04	5,6586	5,4565	5,5121	5,4191	5,4072	5,49
13	United Kingdom	2.295,7794	2.453,3517	2.686,2025	2.928,5931	3.161,7504	2.705,14	5,6682	5,6596	5,5645	5,3753	5,1680	5,49
14	Brazil	2.798,9247	2.998,5344	3.187,1551	2.939,0942	3.145,9532	3.013,93	5,6488	5,8551	5,9485	6,3140	6,0885	5,97
15	Russian Federation	2.927,0037	3.480,2992	3.763,5350	3.538,9760	4.231,8423	3.588,33	3,8805	3,7931	4,0139	3,7604	4,6782	4,03
16	Germany	3.185,4318	3.487,2327	3.807,1129	4.165,1697	4.579,3312	3.844,86	4,9437	4,9566	4,9210	4,8392	4,9758	4,93
17	Japan	4.525,4013	4.799,6129	5.034,4546	5.158,9004	5.340,8322	4.971,84	3,5995	3,6474	3,5516	3,1464	3,0778	3,40
18	India	5.229,9070	6.153,1554	6.781,0220	7.735,0017	9.021,6138	6.984,14	3,3777	3,8675	3,8675	4,2541	4,3637	3,95
19	China	12.380,1649	15.124,5382	17.121,2772	18.712,0961	21.736,5355	17.014,92	3,7500	4,0774	3,7266	3,7936	3,5425	3,78
20	United States	15.048,9644	16.253,9722	17.550,6802	18.695,1108	20.527,1560	17.615,18	6,7200	6,2759	6,1374	4,7982	4,9123	5,77

The lowest purchasing power parity value is Norway, while the lowest educations value is Indonesia. Purchasing power parity is highest in the United States, while education is highest in Saudi Arabia. There is no correlation between purchasing power parity and education.

CONCLUSION

Based on the results of research that has been conducted to analyze the effect of logistics performance index, gross domestic product, urban population, inttrade, indva, purchasing power parity on sustainability performance (environmental, financial and social) by using Model Selection Test 1 (environmental), 2 (financial), and 3 (Social) proved to have differences in data behavior both individually and in time. From these results, the following conclusions can be drawn:

1. Logistics performance index effect on environmental sustainability performance (lnCO2)
2. Gross domestic product has no effect on environmental sustainability performance (lnCO2)
3. Urban population effect on environmental sustainability performance (lnCO2)
4. Inttrade has no effect on environmental sustainability performance (lnCO2)
5. Indva effect on environmental sustainability performance (lnCO2)
6. Purchasing power parity has no effect on environmental sustainability performance (lnCO2)
7. Logistics performance index effect on economic sustainability performance (Nex Export)

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8. Gross domestic product affects the performance of economic sustainability (Nex Export)
9. Urban population influence on economic sustainability performance (Nex Export)
10. Inttrade has no effect on economic sustainability performance (Nex Export)
11. Indva has no effect on economic sustainability performance (Nex Export)
12. Purchasing power parity affects the performance of economic sustainability (Nex Export)
13. Logistics performance index has no effect on the performance of social sustainability
14. Gross domestic product has no effect on the performance of social sustainability
15. Urban population has no effect on social sustainability performance
16. Inttrade affects the performance of social sustainability.
17. Indva affects the performance of social sustainability.
18. Purchasing power parity has no effect on the performance of social sustainability.

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