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Effectiveness of Globalization and Human Capital on Market & Net Income Inequality in NEXT11 Countries: A Panel Data Analysis

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ABSTRACT

This study scrutinizes the impact of defacto and dejure GLOB (KOF GLOB index 2018) on Income inequality on economically emerging countries; NEXT11 countries. The defacto GLOB indicates the estimate of GLOB including variables representing activities and flows; de jure estimate includes variables which show policies representing enable flows and activities. Our analysis separates the impact of globalization on net and market income inequalities. Pretax/transfer and the post-tax/transfer GINI indices were employed as the measures of income inequality. This analysis used balanced panel for NEXT11 countries for the period 1990-2015. Economic globalization both defacto and dejure showed positive sign that depicts a significant relationship with dependent variable. It explains that defacto political has positive sign and dejure political globalization decreases inequality while economic globalizations in both divisions have positive sign and significant impact on inequality. Interestingly, defacto social globalization has positive sign but dejure social has positive sign. Moreover, the purchasing power parity and age dependency both have negative sign and significant influence on inequality. These conclusions point out that social and political globalization may be a hindering factor for governance in these countries.

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1. Introduction

Wright Mills almost sixty years ago stated that freedom is dependent upon power and power comes from money. A historical study based on 136 countries between 1981 and 2011 demonstrates that power benefits from income increase with the increase in inequality are biased in favor of rich class as compared to poor. As the level of globalization increases the more inequality raises. The great blessing of the globalization is forming trade cartels among countries which theoretically ensure economic growth.

Income inequalities within developed and developing countries are on the rise since 1980s. Researchers have been trying to come up with explanations of this income inequality. Out of many reasons put forward by research, economic globalization is one of the prominent one. This has led to a major debate in the domain of social science about the impact of

international market integration. Researchers are concerned to know how this market integration at international level impacts trade and finance globally (Atif & Mohazzam, 2010; Burstein, Cravino, & Vogel, 2013; Milanovic, 1999).

Since early 80s income inequality between richest 10% and poorest 10% has increased from 7 to 9.5 times (Cutler & Katz, 1992). The NEXT 11, EAGLE & BRICS are the combat of emerging economies which are basically following the footsteps of countries following the SDGs. According to economic theory when any country goes through rapid development the cost it pays is inequality and environmental changes. In this thesis I will try to explain globalization by these emerging economies and will try to see how it impacts the level of inequality in these countries and how that effects the environment in these cartels. By this study I will try to explore the unavoidable outcomes of globalization in the form of inequality and environmental changes. Another widespread fact maybe the economic and social disparities among these countries. My focus will be to find out how come these disparities play role in increasing inequality and bringing out harmful effects of globalization.

Likewise, an increasing trend was observed in the GINI coefficient since 1980s. It has increased from 0.29 to 0.32 in average value (OECD, 2008). On the contrary, global share of trade in GDP and share of FDI in total liabilities have sharply increased from (36 to 55) % and (17 to 38) % respectively since 1980s (IMF, 2007).

Researchers like, Sethi, Bhattacharjee, Chakrabarti, and Tiwari (2021) who have found a negative impact of globalization on income inequalities argue that trade liberalization and interconnected international economy creates this income inequality. Nevertheless, finding conclusive empirical evidence regarding this claim is yet to be achieved.

Due to globalization, there may be increase in comes but how these incomes are distributed truly determines the benefit drawn from globalization in economy. It appears that disproportionately rich are getting benefits from growth of economy due to globalization, which in turn leads to increase in income inequality.

Despite multiple studies investigating impact of globalization on income inequality within and across countries, results have been inconclusive. This is because due to change in methodology based on weighted average of population or comparison on the basis of same unit, results differ. Therefore, divergent conclusions are drawn from the finding overall. Several studies have been conducted at both within and between country levels. For example, Dorn (2016) explained that China and India showed decrease in inequality in the past decades because of their large populations their weight is relatively bigger, and thus, it is easier to see a reduction in global inequality.

2. Literature Review

Difference in income distribution between different groups within an economy is depicted in the construct of income inequality. (Milanovic & Ersado, 2012) classified income inequality into three categories depending upon the scale of measurement. According to him these categories include within country income inequality, across-countries income inequality and global individual income inequality.

Literature discussed here focuses on the question of how is this income inequality, be it of any category, impacted by globalization. Global economic integration is a necessary ingredient for trade openness, competitiveness, technology transfer and increased business freedom (Bergh & Nilsson, 2010; Francois & Nelson, 1998). This global economic amalgamation also attracts foreign direct investment (Arkolakis, Costinot, & Rodríguez-Clare, 2012). We know that FDI inflows result in economic growth in turn via initiating private investment, technology transfer and enhanced management skills (Jaumotte, Lall, & Papageorgiou, 2013; Meinhard & Potrafke,

2012; Persson & Tabellini, 1994; Torres, 2001). Furthermore, global integration of economies leads to peripheral benefits including increased business potentials, lower per unit costs, fewer trade barriers and more accessible market ideas (Hennighausen, 2014).

Bhagwati and MacMillan (2004) finds it interesting how globalization is hailed as a hero for bringing economic growth and increased business potentials worldwide but at the same time treated as a villain for increasing income inequalities and environmental degradation.

If we look at the changes in the global trends of across countries inequalities we notice that for a long period since 1820 till end of 1900 almost for two centuries, world saw growing inequalities across countries of the world (Atansava,2021). First decade of 2000 saw these inequalities on the decline and thus this period is known as the Great Leveling in the rich world. However, from second decade of 2000s inequalities across the rich world have started increasing again and this time picture looks really grim (Solt, 2016).

Researchers like Borjas and Ramey (1994); Cornia (2004); Marjit, Beladi, and Chakrabarti (2004); Stiglitz (2002) and Bergh and Nilsson (2010) argue that due to globalization insecurities in economies increase, in turn increasing income inequalities both in developed and developing countries. Most shocking is the fact that rich are getting richer and poor are getting poorer both at individual and national levels (Stiglitz, 2006). He further shows that this phenomenon of inequality has increased even in most developed countries. Ways to investigate the causal effect of globalization on income inequality include Cointegration techniques and globalization indices (Borjas & Ramey, 1994; Zhou, Biswas, Bowles, & Saunders, 2011).

3. Data, Model and Methodology

Current study focuses on the impact of globalization on inequality (market and net inequality) in Next 11 countries (Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, Philippines, South Korea, Turkey, and Vietnam) as per categorized by World Bank from the time period of 1990-2015. For the measurement of globalization, it uses the improved version of KOF globalization index introduced by Gygli, Haelg, Potrafke, and Sturm (2018). This revised version of the KOF Globalization Index introduces a clear difference between defacto and dejure measures of globalization. Within defacto and dejure classification this index measures social, economic and political globalization. Economic globalization has two categories including financial and trade globalization whereas interpersonal, information and cultural globalization define social globalization. In our analysis we distinguish between the impact of globalization on market income inequality and net income inequality. As measures of income inequality, we will employ the pretax/transfer and the post-tax/transfer GINI indices taken from Solt (2016) most recent version of the Standardized World Income Inequality Database (V 5.1).

3.1. Model and Methodology

The globalization is multicountry phenomenon and this study focusses on the nexus of this factor with inequality and environmental degradation. So in the present scenerio, the cross sectional regression is commonly used to capture the relationship among above mentioned variables at one point of time. But in order to consider the impact of time series data along with cross sections, panel data techniques are more appropriate as they utilize both cross sectional and time data for the analysis (Roy-Mukherjee & Udeogu, 2021). These techniques enhances the strength and size of the data sets, leading to reorganization of the analysis (Helpman, Itskhoki, Muendler, & Redding, 2017). Moreover, the panel data methods have more leaverage for more hetrogeniety, variablility, efficiency and degree of freedom so, the models which are analyszed by these methods, have lesser restrictions (Epinger, 2016).

3.1.1. Definitions of Variables

Kof Globalization

Our definition of globalisation stems from Dreher (2006) and is based on Clark (2004). The definition states that globalisation describes the process of creating networks of connections among actors at intra- or multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods. Globalisation is a process that erodes national boundaries, integrates national economies, cultures, technologies and governance, and produces complex relations of mutual interdependence.

The revised version of the KOF Globalisation Index is based on 42 individual variables, which are aggregated to a de facto and a de jure index of five sub-dimensions (trade, financial, interpersonal, informational and cultural globalisation), three dimensions (economic, social and political globalisation) and one total index. We can thus differentiate between as many as eighteen different indices if we maintain the distinction between de facto and de jure. We also report an overall index for the total and each of the three dimensions, which is calculated as the average of the de facto and the de jure index. This increases the total number of indices to twenty-two (Gygli et al., 2018).

Gini Market

The SWIID recently incorporates comparable Gini indices of disposable and market income inequality for 198 countries for as many years as possible from 1960 to the present; it also includes information on absolute and relative redistribution. Therefore according to Solt (2016) Gini market reflect the inequality of market income. The market income os the pre tax,pre transfer income.

Gini Net

The SWIID recently incorporates comparable Gini indices of disposable and market income inequality for 198 countries for as many years as possible from 1960 to the present; it also includes information on absolute and relative redistribution. Therefore according to Solt (2016) Gini market reflect the inequality of Net disposable income income. Net disposable income reflects posttax, post tranfer net income.

3.2. Model

So, the present study has utilized the panel data from year 1990 to 2015 for the analysis and hence, the study is divided into two sections. In the first section, the effect of globalization is checked on inequality. The functional panel data models which have analyzed are three basic model. First is for economic globalization, second is for political globalization and third is for social globalization as follows:

$$\boldsymbol{Ineq(M)} = \boldsymbol{a_1} + \boldsymbol{\beta_2}\,\boldsymbol{DfEG_{it}} + \boldsymbol{\beta_3 DjEG}_{it} + \boldsymbol{\beta_4}\,\boldsymbol{PPP_{it}} + \boldsymbol{\beta_5 HC_{it}} + \boldsymbol{\beta_6 AD_{it}} + \mu_{it} \quad (1)$$

$$\boldsymbol{Ineq(M)} = \boldsymbol{a_1} + \boldsymbol{\beta_2 DfPG_{it}} + \boldsymbol{\beta_3 DjPG}_{it} + \boldsymbol{\beta_4 PPP_{it}} + \boldsymbol{\beta_5 HC_{it}} + \boldsymbol{\beta_6 AD_{it}} + \mu_{it} \quad (2)$$

$$\boldsymbol{Ineq(M)} = \boldsymbol{a_1} + \boldsymbol{\beta_2}\,\boldsymbol{DfSG_{it}} + \boldsymbol{\beta_3 DjSG_{it}} + \boldsymbol{\beta_4}\,\boldsymbol{PPPit} + \boldsymbol{\beta_5 HCit} + \boldsymbol{\beta_6 AD_{it}} + \mu_{it} \quad (3)$$

$$\boldsymbol{Ineq(N)} = \boldsymbol{a_1} + \boldsymbol{\beta_2 DfEGt} + \boldsymbol{\beta_3 DjEG_{it}} + \boldsymbol{\beta_4}\,\boldsymbol{PPP_{it}} + \boldsymbol{\beta_5 HC_{it}} + \boldsymbol{\beta_6 AD_{it}} + \mu_{it} \quad (4)$$

$$\boldsymbol{Ineq(N)} = \boldsymbol{a_1} + \boldsymbol{\beta_2 DfPG_{it}} + \boldsymbol{\beta_3 DjPG_{it}} + \boldsymbol{\beta_4}\,\boldsymbol{PPP_{it}} + \boldsymbol{\beta_5 HC_{it}} + \boldsymbol{\beta_6}\,\boldsymbol{AD_{it}} + \mu_{it} \quad (5)$$

$$\boldsymbol{Ineq(N)} = \boldsymbol{a_1} + \boldsymbol{\beta_2 DfSG_{it}} + \boldsymbol{\beta_3 DjSG_{it}} + \boldsymbol{\beta_5 PPP_{it}} + \boldsymbol{\beta_5 HC_{it}} + \boldsymbol{\beta_6 AD_{it}} + \mu_{it} \quad (6)$$

Where Ineq(M) is market inequality, Ineq(N) is net inequality, DfEG and DJEG are defacto and dejure KOF economic globalization index, DfPG and DJPG are defacto and dejure KOF political globalization index, DfSG and DJSG are defacto and dejure KOF social globalization index, PPP is

purchasing power parity, HC is human capital index and AD is age dependency, μ is error term, 'it' is panel data ('i' for cross section 't' for time series).

For the analysis of panel data models, three basic techniques are pooled ordinary least square (OLS), fixed effects and random effects. The pooled OLS model assumes homogeneity among cross sections. But if the specification of model requires the heterogeneity, fixed and random effects methods are applied. The fixed effects model assumes the heterogeneity among cross sections and time with the help of varying intercept whereas random effects model allows for random distribution in error variances. This study applies both fixed and random effects methods on different models. The decision of application of either in a specific model is done on the rejection and acceptance of null hypothesis in Hausman test (Hausman, 1978).

4. Preliminary Data Analysis

To apply fixed effect model, we first have to check the properties of ordinary least square tests (Table 1, 2, 3, 4, 5 and 6). So, based on Hausman model specification test, the results reveal that the null hypothesis of no difference between fixed effects and random effects model is rejected against the alternative hypothesis stating that the fixed effects model is preferable in some cases and random effects in others. Random effects are more reliable in case of GINI market for economic globalization model and fixed effect in case of Gini net. Fixed effects are more reliable for political model estimation and random effects are more reliable for social model of NEXT11.

Table 1
Hausman Test for Model Specification (Equation 1)

Hausman GINIMARKET	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFECGLDF	-0.1621309	-0.1709069	0.0087759
KOFECGLDJ	-0.4333006	-0.3839475	-0.0493531
PPP	-0.5923294	-0.4349059	-0.1574235
AGEDEPEND	-0.6097972	-0.4826598	-0.1271374
HCI	0.5511436	0.3261027	0.225041
CHI-SQ	1.18	PROB	0.9468

Table 2
Hausman Test for Model Specification (Equation 2)

Hausman GININET	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFECGLDF	-0.2545627	-0.2334636	-0.0210991
KOFECGLDJ	-0.4103515	-0.2694582	-0.1408933
PPP	-0.541696	-0.1713887	-0.3703073
AGEDEPEND	-0.8113193	-0.5557715	-0.2555478
HCI	0.4928683	-0.0785852	0.5714535
CHI-SQ	44.37	Prob	0.000

Table 3
Hausman Test for Model Specification (Equation 3)

Hausman GINImarket	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFPOGLDF	0.1488993	0.3675606	-0.2186612
KOFPOGLDJ	-0.3087231	-0.1871121	-0.121611
PPP	-0.4594396	-0.3282936	-0.131146
AGEDEPEND	-0.3112768	-0.1211063	-0.1901704
HCI	0.4858114	0.2431513	0.2426601
CHI-SQ	-11.24	Prob	0.000

Table 4
Hausman Test for Model Specification (Equation 4)

Hausman GINInet	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFPOGLDF	0.1057664	0.3431932	-0.2374268
KOFPOGLDJ	-0.1840431	-0.0147723	-0.1692708
PPP	-0.4590479	-0.2329553	-0.2260926
AGEDEPEND	-0.4924738	-0.2734486	-0.2190252
HCI	0.4577333	0.0254182	0.4323151
CHI-SQ	-8.71	**Prob**	0.000

Table 5
Hausman Test for Model Specification (Equation 5)

Hausman GINImarket	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFSOGLDF	-0.4898091	-0.4445411	-0.045268
KOFSOGLDJ	0.7796444	0.7759932	0.0036513
PPP	-1.014012	-0.9059198	-0.1080927
AGEDEPEND	-0.1461178	-0.0607455	-0.0853723
HCI	0.8703152	0.6893933	0.1809219
CHI-SQ	5.91	**Prob**	0.3151

Table 6
Hausman Test for Model Specification (Equation 6)

Hausman GINInet	Coefficient (b) FE	Coefficient (B) RE	Difference (b-B)
KOFSOGLDF	-0.3568177	-0.2579944	-0.0988234
KOFSOGLDJ	0.6687323	0.6890444	-0.0203121
PPP	-0.926348	-0.6273404	-0.2990076
AGEDEPEND	-0.3291561	-0.1304578	-0.1986983
HCI	0.7751956	0.2372872	0.5379085
CHI-SQ	-53.910	**Prob**	0.151

In the next step, we apply Breusch Pagan test to check Heteroscedasticity. The results are given in the below table 7 and table 8.

Table 7
Heteroscedasticity NEXT11

Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity	gini_mk
Chibar2	0.44
Prob	0.5094

In the next step, we apply Breusch and Pagan Lagrangian multiplier test to check autocorrelation of BRICS, NEXT11, EAGLE and EUROPEAN UNIONS in the model.

Table 8
Wooldridge test NEXT11

Wooldridge test	gini_mk
Chibar2	5.81
Prob	0.050

Wooldridge test has applied to check the autocorrelation in the model and the results showed that chi-square statistics accept the null hypothesis. Wooldridge test conclude that results of model are free from problems of serial correlation as in all cases, probability value is greater than 0.05. Here, the null hypotheses of Homoscedasticity and no serial correlation are

accepted. In table 9, VIF test has applied to check Multicollinearity among variables and the mean VIF shows that there is no Multicollinearity among the variables.

Table 9
Variance Inflation Factor (NEXT11)

Variables	VIF	1/VIF
KOFSoGIdflog	12.35	0.080970
KOFSoGIdjlog	10.85	0.092133
KOFPoGIdflog	6.48	0.154396
KOFPoGIdjlog	5.81	0.172212
KOFEcGIdflog	2.33	0.429866
KOFEcGIdjlog	5.10	0.196055
Agedepend	3.32	0.300851
PPPlog	75.43	0.013257
HumanCapit	72.44	0.013805
Mean VIF	21.57	

The table 9 reveals that mean VIF value is 21.57 that shows there is no Multicollinearity in the variables of the model. To check Multicollinearity among variables, VIF test has applied and the mean VIF shows that there is no Multicollinearity among the variables. The results for Eagle panel are given below;

5. Empirical Analysis

This chapter provides the results of the specified models for four above mentioned regional cooperation and also analyzes these results based on previous literature. Table 4.1(a) depicts the effects of defacto and dejure economic, political and social globalization on Gini market by taking the data of countries cooperated in EAGLE by three separate models; economic globalization, political globalization and social globalization.

In table 10, the results revealed that economic globalization both defacto and dejure has positive sign that show significant relationship with dependent variable. It explains that defacto political has positive sign and dejure political globalization decreases inequality while economic globalizations in both divisions have positive sign and significant impact on inequality. Interestingly, defacto social globalization has positive sign but dejure social has positive sign. Moreover, the purchasing power parity and age dependency both have negative sign and significant influence on inequality. These results suggest that political and social globalization may cause hurdle for the government of the countries. Furthermore, the impact of economic globalization on inequality is positive and significant in case of dejure economic globalization. The results imply that economic globalization can affect inequality level of countries. Political integration, moreover, may well set minimum standards and therefore enhance equality within countries (Dreher, 2006).

Table 10
Gini market and KOF Globalization index (NEXT11 cooperation)

Variables	Gini market log		
Models	**(1)**	**(2)**	**(3)**
Constant	6.865867	2.370664	2.553178
	0.000	0.168	0.042
Log of KOF defacto	0.1709069		
economic Gloablization	0.056		
Log of KOF dejure economic	0.3839475		
Gloablization	0.003		
Log of KOF defacto Political		0.3675606	
Gloablization		0.043	
Log of KOF dejure Political		0.1871121	
Gloablization		0.158	

Log of KOF defacto Social Gloablization			0.4445411 0.000
Log of KOF dejure Social Gloablization			0.7759932 0.000
Log of Purchasing power parity	-0.4349059 0.019	-0.3282936 0.084	-0.9059198 0.000
Log of agedependancy ratio	-0.4826598 0.011	-0.1211063 0.524	-0.0607455 0.730
Log of human capital index	0.3261027 0.203	0.2431513 0.336	0.6893933 0.007
R^2	0.1256	0.315	0.175
Selected model	**Random Effects**	**Fixed Effects**	**Random Effects**
Included cross sections	11	11	11
Included observations	286	286	286

Table 11

GINI net and KOF Globalization index (NEXT11 cooperation)

Variables		**Gini net log**	
Models	**(1)**	**(2)**	**(3)**
Constant	7.809375 0.0000	3.96233 0.015	2.915187 0.008
Log of KOF defacto economic Gloablization	0.2545627 0.001		
Log of KOF dejure economic Gloablization	0.4103515 0.000		
Log of KOF defacto Political Gloablization		0.1057664 0.560	
Log of KOF dejure Political Gloablization		0.1840431 0.142	
Log of KOF defacto Social Gloablization			0.3568177 0.000
Log of KOF dejure Social Gloablization			0.6687323 0.000
Log of Purchasing power parity	-0.541696 0.001	-0.4590479 0.008	-0.926348 0.000
Log of agedependancy ratio	-0.8113193 0.0000	-0.4924738 0.006	-0.3291561 0.030
Log of human capital index	0.4928683 0.039	0.4577333 0.062	0.7751956 0.001
R^2	0.161	0.569	0.662
Selected Model	Fixed Effects	Fixed Effects	Random Effects
Included cross sections	11	11	11
Included observations	286	286	286

In table 11, on the basis of findings, we infer that both defacto and dejure economic and social globalization has a significant impact on inequality with the exception of dejure social gloablization which has positive sign on dependant variable. Economic globalization has significant positive impact on inequality which shows that with increasing globalization, inequality also decreases.

6. Conclusion

The objective of this study is to find out the impact of defacto and dejure globalization (as in explained in KOF globalization index 2018) on inequality and in NEXT11 countries. The defacto globalization indicate the measures of globalization include variables that represent flows and activities, de jure measures include variables that represent policies that, in principle, enable flows and activities.

The empirical evidences show that dejure economic and social globalization has significant impact on environmental degradation in NEXT 11 countries which indicates that the favorable trade & financial globalization policies in these countries enabled more economic globalization led to more industrialization which increased inequality in these countries. While Increased Social globalization also increased the inequality in NEXT11 countries. As a result of limited convergence process and increasing inequality in all these countries people are more unequal today than before.

During this study I have observed that though free trade and liberalization have expanded the canvas for free markets but it could not break the panorama of developed and developing. In my view after conducting this study is that small size economies could not be benefitted more by regional co-operations as their big size economies' counter parts did. Maybe lifting all trade barriers did not support the small size economies and more defacto economic and social globalization increased income inequality and environmental degradation increased in these countries.

By taking the GINI MARKET and GINI NET indices (Solt, 2016) enabled the deep lenses observation on inequality in NEXT 11 countries. These emerging economies made big collaterals which helped more to developed countries rather than developing countries. Another interesting observation came from this study is that dejure globalization did not significantly impact all emerging countries. By going through the literature and observing socio and geo political changing canvas, we can say that the governments within these countries tried to protect their economies from harsh side effects of increasing globalization by applying protection policies, though active variables based on free trade policies narrated deepened and increased in equality and environmental degradation.

6.1. Recommendations & Limitations

For policy recommendations I would suggest that small size economies need to protect their infant industries, so they should make policies which could protect their domestic market but at the same time they should invest in technology and modern infrastructure in order to take part in open competition. The big size economies should invest in small size economies in order to strengthen their future regional bond. Another important factor behind increasing inequality in this regional cooperation is that developed countries use small economies as consumer market mostly which create imbalance in their trade and fiscal parameters. Such policies should be made within countries which not only encourage healthy competitive trade but counterfeiting inequalities within economies.

Governments should religiously follow the environmental laws in order to avoid the increasing environmental degradation. The super powers in world should obey these rules at first. Recycling, less use of plastic and opposition of deforestation should be mandatory. The ethical codes of conducts in trade are no more effective in this rapidly globalized capitalistic world therefore the accountability and implication of law should be the priority of states and world trade institutions. The only limitation on my behalf was the lack of resources and in some cases the data availability.

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