Globalized development

The effect of economic globalization on human development in developing countries

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Abstract

The main purpose of this paper is to examine the relationship between economic globalization and human development in low to medium developed countries and to see if different aspects of economic globalization have different effects on human development. The theoretical starting point of this study assumes that an increased level of economic globalization will lead to increased human development as governments will create new regimes aimed to maximize economic growth and to increase the welfare of the citizens. This study uses a quantitative method where statistical testing is preferred in order to be able to examine how economic globalization affects human development. The results of this study indicate that economic globalization has a positive effect on human development and that it is mainly trade globalization that makes up that effect, while financial globalization has no significant effect. It also suggests that the effects of economic globalization are weaker for the countries with the lowest levels of human development compared to countries with higher development.

Key concepts

Economic globalization, Human development, Trade globalization, Financial globalization, Interdependence, Regimes
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1. Introduction

The world has perhaps never been as small as it is today. People, capital, goods, and information travel around the world at a speed that a few decades ago would have been unimaginable. These are some of the aspects often related to globalization. The exact definition of globalization is not entirely agreed upon, but most definitions in some way entail increased international interactions between people or other actors with geographical factors playing an increasingly smaller role. Gygli et al. (2019) do, for example, emphasize the different intra- or multi-continental flows of people, ideas, capital, goods, etc have when defining globalization. However what most scientists can agree upon is that globalization is a phenomenon that has a significant impact on all levels of society (James, & Steger. 2014).

Globalization has immensely increased the last decades (see figure 1), which among else, has meant that new globalized networks, organizations, and laws have emerged, often aimed to solve common global problems like AIDS or money-laundering. This has also meant the creation and expansion of many international or global forms of cooperation like the EU and the UN (Held, 2010). However as we have been able to see in 2018 with a more protectionist US who implements tariffs on both friend and foe, and on an ever more closing Europe, the idea that globalization will continue to increase as before is far from certain (Gygli et al. 2019).

However, it is not only the future growth of globalization that is being questioned. The questions of whether globalization is positive or not, or how it influences our daily life are controversial ones (Gygli et al. 2019). The UN, for example, in their 2016 Development report called globalization a double-edged sword, and pointed at both globalizations ability to create growth, but also that it does not create equal growth for different groups in society (Jahan, 2017).

Politically there is a large variation on how the term is used, and whether or not something is considered as part of globalization. These differences in how the term globalization is used often have an ideological source and is often used to further one's political goals (James & Steger, 2014). One other difference when it comes to globalization is in how it's viewed, where generally the public have a more negative view of globalization, while most of the scientific community have a more positive view (Dreher, 2006). One aspect that is often viewed as negative when it comes to globalization is that it can be seen to work in the opposite way from democracy. This is because
democracy is seen as a way of independent governing over a specific geographical area where the decisions and laws are made by and for the people living in that area. Globalization, on the other hand, is made up out of different processes that span countries and continent, and where things like decisions, rules, and accountability become more obscure (Held, 2010). However, while scientists are generally more positive towards globalization, it doesn't mean that there is no criticism against globalization in academic writing. A lot of that criticism is related to people and countries in the less developed parts of the world. Sankaran Krishna (2009) for example argues that globalization only is a way for the "imperialistic" west to assert dominance over the rest of the world, and feminist researcher Zillah Eisenstein (1996) argues that globalization together with privatization works against women as it establishes western hierarchical structures that devalue the needs of the woman.

Figure 1: Historical view of globalization

![Graph of globalization from 1970 to 2020]


However, leaving out the discussion on what constitutes good and bad when it comes to globalization, the empirical evidence seems to support the more positive views among many scientists. Several studies have found strong connections between international trade, flows of capital, investment, and economic growth (Dreher, 2006). In recent years, there has also been an
increased emphasis on studying the effects of different aspects of globalization. These aspects are often (but not exclusively) categorized in some form of economic, social/cultural, political and technological. This way of studying the different parts of globalization has led to an increased understanding of how globalization as a whole affects different aspects of society.

One of these aspects of society that have been one of the most researched is economic growth. And while the relationship between economic growth and globalization have been studied extensively, researchers are now able to more precisely try to predict how different kinds of globalization effects economic growth. Dreher (2006) shows that not only does economic globalization promotes economic growth, but also that cross-border flows of information promotes growth. Gygli et al. (2019) showed in their study that economic, social and political globalization all promotes economic growth, especially in developing countries.

As have been alluded to above, the effects of globalization on the less developed part of the world have been given an extra emphasis by many researchers, both those arguing for a more negative view on globalization (Krishna, 2009. & Eisenstein 1996) and those arguing for a more positive (Dreher, 2006 & Gygli et al. 2019). Following this trend, this paper will also focus on the developing world and how it's affected by globalization. Because understanding the effects on the developing world is important, which can be seen by the fact that many of the UN 2030 agenda goals are related to human development, like food, water, health, poverty and education (UN, 2015,).

It is important to understand the effector globalization on developing countries because, as Grindle (2000, 178-179) discusses, while there exist many possible advantages with globalization, from access to new technologies and markets, to a democratization of the governments and increased legitimacy. However, there also exist risks associated with globalization, especially for the poorest countries. In the worst cases globalization risks to cause accelerated environmental damages, weakening of social safety net, and other ways that risk hindering the countries ability to develop.

With this in mind, it becomes clear why it is so important to understand how different aspects of globalization effects developing countries ability to continue to develop. Because while some aspects of globalization may be hard to avoid, countries governments still play a vital role in embracing or resisting globalization, or in construction necessary institutions in order to best benefit
from globalization (Gygli et al. 2019). It is therefore vital that extensive research is done in order to understand the effect of globalization on developing countries so that policymakers have access to relevant and trustworthy information when making decisions. Because, as Keohane and Nye (1977, 4) put it, "Academic pens leave large marks on the minds on statesmen, and therefore also the policy process".

2. Aims

The aim of this paper is to examine the effects of economic globalization on human development in developing countries. This will partly be done by dividing up economic globalization into different parts. This is because it will hopefully increase the understanding of the different effects that economic globalization can have on human development. The aim for deciding up globalization into smaller parts, first economic globalization, then even smaller parts, is to increase the understanding on how globalization can have different effects on the same thing, and to encourage a more nuanced discussion around the economic effects of globalization, in which globalization is not viewed as one solid entity, but as several different parts that effects the world in different ways. The aim of this report is not however to present any specific policy suggestions, or to argue for or against globalization, This report aims only to examine the relationship between different aspects of economic globalization and development, and to discuss possible theoretical explanations regarding these relationships. With these aims in mind, two main questions have been formulated:

- How does economic globalization affect human development in developing countries?
- Is there any difference between how different aspects of economic globalization affect human development in developing countries?

The rest of the paper is structured as follows: First, there will be a theoretical chapter where the study's main theoretical frameworks will be explained and discussed. The second part will cover the method of this study. Here the study's different tests will be introduced and explained, and the different variables will also be explained and discussed. Third, there will be a result, where the statistical tests will be performed and analyzed. The paper will conclude with a short summary where the main findings of the study are recapped, and where the possibilities for future studies are discussed.
3. Theory

This paper will use the theoretical concept of interdependence. This concept is most frequently used in studies of international relations and is usually used to explain the actions of states. Interdependence is a well-used concept that has been used by several researchers representing different theoretical disciplines, from realists to constructivism. These different disciplines also have contrasting views on the development of interdependence and whether or not it is conflict creating. There are two main views where the first argues that interdependence is on the rise and have a pacifying effect on states and is usually associated whit a more liberal discipline. The second main view is associated with realists and argues that interdependence is declining and is also seen as conflictual (Vejdani, & Donnelly, 2000, 116-117). Perhaps one of the most known researchers using and developing the concept of interdependence, and the one this paper will use for its main theoretical inspiration source, is Robert O. Keohane.

3.1 The concept of interdependence and regimes

Dependence is when an actor is determined or significantly affected by external factors. Interdependence is then, simply put, mutual dependence where one actor effects and are affected by the actions or non-actions of other actors (Keohane & Nye, 1977, 8). Actors in this sense are often counties/governments but can also be private companies, non-governmental organizations, etc. In the world of international politics, interdependence is characterized by reciprocal effects between actors in different countries. These effects often involve some form of transactions or flows, for example, money, goods or people (Keohane & Nye, 1977, 8-9). Vejdani Hassan and Jack Donnelly (2000, 129) define interdependence as existing when "two or more actors is dependent upon at least one other for satisfactory outcomes on any issues of concern".

The theory of interdependence is mainly about explaining how and why regimes change. Regimes can be summarized as the rules of the game, and which determine how international decision making is done, and how the international system is organized on particular problems like for example international trade or other economic activities (Keohane & Nye, 1977). The largest regimes exist on the international level, however, regimes also exist on the national level. These national regimes are how the national level interacts and interdepend with the international level. Examples on national regimes can be tariffs, trade policies, monetary policies, etc.
Besides discussing what interdependence is, it's also important to discuss what it is not. Just because countries trade with each other or are connected through any other kind of relation, doesn't it mean that they are necessarily interdependent. Keohane and Nye (1977, 9) make the distinction between interdependence and interconnectedness. If an interaction is characterized by some amount of costs or constraints, it can typically be considered to be interdependency. If however, the interaction doesn't consist of any cost or constraints, it is only interconnectedness. An example of this difference can be seen in a country that imports all of its luxury jewelry, compared to a county that imports all of its oil. The first relationship is interconnectedness because it does not entail any significant costs. A change in that relationship would not cause significant effects for any major actor. A change in the relationship in where the country imports all of its oil, would most likely have large effects for the county and its economy, which would make it a case of interdependency.

It is also worth to note that interdependence does not always need to be mutually beneficial (Keohane & Nye, 1977, 9). Take for example the nuclear interdependence in the world. Few would argue that this relation is net-beneficial for anyone actor when there are low immediate gains for it, but where the potential cost could be extremely high. This kind of non-beneficial interdependence is also common when it comes to relations between developed and developing countries.

3.2 Symmetric and asymmetric interdependence

It is sometimes argued that in order for interdependence to occur, it needs to be symmetric, meaning that the amount of dependency needs to be equally balanced for all actors. Keohane and Nye (1977, 10-11) dismiss this notion, arguing that most interdependent relationships are asymmetric, meaning that it is not equal in the amount of dependency. This is an important distinction because widening the definition of interdependence to also include asymmetric relations means that the number of cases where the concept can be applied becomes much larger. It is especially important when studying developing countries, as they are more likely to be more dependent than other actors (especially developed countries). In asymmetric interdependence, the unequal level of dependency also works as a source of power, where the less dependent actor has a stronger negotiating position compared to someone that's more dependent and therefore have more to lose (Keohane & Nye, 1977, 11).
3.3 Model for economic regime change

For reasons described above, it's easy to understand that interdependence effect the behavior of states and governments. However, governments can also influence some aspects of interdependence. By creating or accepting rules, institutions, or procedures for certain kinds of activities, governments can to varying extent, regulate the international and transnational relations (Keohane & Nye, 1977, 5). However, the power relations that come with asymmetric interdependence also affects one's ability to influence the nature of the current regime. Countries like the USA and China that are less dependent, have more possibilities to influence the international regimes, while countries that are more dependent often only have the choice to accept or decline the current international regimes. While changing international regimes may be difficult, all countries still have control over the regimes inside their own county. Since regimes basically decide how a county is set up, and what welfare, infrastructure, or other public services are available to the citizens, it is important to understand how these regimes change if one is to understand how the development in that country changes. In their book, Keohane and Nye (1977, 40) created a model (see figure 2) on how economic regimes in counties change.

Figure 2: Keohane & Nye original model for regime change

Keohane and Nye’s original model on how increased economic transaction and interdependence leads to regime change.
This model is set up in three steps that explains why governments choose to change the regimes. First, the increased interdependence and technological change will make old regimes obsolete, when they no longer are capable to support the new increased level of transactions. Second, the governments will be highly responsive to public demands of higher living standards. This will make increased welfare one of the top political goals. Here increased economic performance (GDP) will be an important indicator for both politicians, and the public who will increase their demands for better welfare if they see the country's economy improve. Third, the increased economic benefits that come from the international movement of capital, goods, labor, etc. will provide the government with strong incentives to modify and/or reconstruct regimes to increase their effectiveness. Some governments will here publicly argue and complain over the reductions of autonomy that comes with economic interdependence, but because the costs of reduced welfare/economic growth will exceed the benefits of retained autonomy, governments will still allow economic interdependence to grow (Keohane, & Nye, 1977, 40). The assumption that regime changes that aim to support increased transaction also lead to increased economic growth is supported by Gygli et al (2019) who shows that countries that reduce restrictions on financial transactions and the flow of goods also enjoy a higher level of economic growth. Using the underlying factors for this model, it becomes possible to modify it to explain not only the relationship between interdependence and regime change but also between economic globalization and human development (see figure 3). This is done to make the model fit better with the aims of this report.

In this new model, the concepts of economic globalization have been added. As described above, one of the main goal of most governments is the increased welfare of its citizens. It is therefore assumed that there are two types of regime changes. The first is economic regime changes created for the purpose of increasing the welfare of the citizens which will lead to increased human development. Because increased economic globalization means that a larger percentage of a country's trade or other financial interaction is happening with actors in other countries, it should also mean an increased level of interdependence. This is also supported by the way that economic globalization is measured, where it has an extra focus on diversity in the economic transactions, which will be further discussed in the method chapter. As Dreher (2006) shows, economic globalization leads to increased economic growth. It is therefore assumed that an increase of economic globalization will both effect international economic transactions and economic growth in a positive way. The second type of regime change are ones that aim to better be able to handle the
increased transactions. These new regimes would therefore also make the country more economically globalized.

Figure 3: Keohane & Nye’s model with economic globalization and human development included

A modified vision of the original interdependence model where economic globalization and human development have been added.

Since we earlier described that all transactions are not necessarily interdependence, but rather a form of interconnectedness (see the example with jewelry), this model may not work on every individual case. It is instead meant to work more as a general model, applicable to a large number of countries.

3.4 Economic growth vs autonomy

Following the model shown above, one could be forgiven for thinking that the world is a simple place, where all you need to do to increase the development of a county is to make it more interdependent. However as Keohane and Nye (1977, 41) put it, the political reality rarely
completely agrees with theoretical predictions based on economic and technological factors. National governments continue to sacrifice economic growth for autonomy, security, or other political interest. A possible explanation for this is that rapid economic growth can cause fear in some groups that are politically important to the government, like labor unions or other important job sectors (Keohane, & Nye, 1977, 41).

3.5 Reflection on the theory

This paper's use of the independent theory has two areas where it's not an obvious fit. The first is that it's a quite old theory. Keohane and Nye's book that introduced the theory is from 1977 and was therefore written in a different time compared to today. For example, are there frequent references to the Soviet Union and to West and East Germany. However as Keohane himself has shown, the theory still works in more modern times. Together with Victor (2011), he uses the interdependence theory in order to explain the international regimes related to climate change. And while later research has done minor tweaks to the theory, often to better suit their study (like this paper did), the basic assumptions and concepts have stayed more or less the same.

The second issue with this theory in relation to this paper is that the original focus of the theory was to explain the action of states. This is perhaps not a perfect fit for this study as human development not only relies on the actions of the state, however, the concept of interdependence does not only cover the state but all actors. This also means that some parts of the original theory were not included as it was not deemed relevant.

3.6 Hypotheses

Using these theoretical perspectives described above, three hypotheses have been created. The first hypothesis is about the main aim of this paper, namely the relation between economic globalization and human development. As discussed above, a higher level of economic globalization should in most cases lead to more interdependence in that country, which if the interdependence theory is correct, should lead to a higher level of human development.

\[ H1A: \text{A correlation will exist where a higher level of economic globalization means a higher level of human development.} \]
The second hypothesis relates to the difference between countries with high or low development of economic globalization during the time period 2000-2016. This hypothesis follows a similar argumentation as the first one, where countries which during this time period have had a higher development of economic globalization should also have seen a higher level of human development compared to countries with a lower level of development in economic globalization.

\[ H1B: \text{Countries that have had a higher development of economic globalization will also have had a higher level of human development.} \]

The third and final hypothesis relates to the evident reluctance of some governments to sacrifice autonomy for economic growth. This could mean that when the level of economic globalization increases in a country, making it more independent, the government will not respond with new regimes needed to both fully utilize the increased transaction in order to further increase economic growth. New regimes are also needed to meet the citizens demands of higher living standards, better education, better healthcare, and other thing related to human development. So if enough governments don't respond to increased economic globalization by creating/evolving the necessary regimes, then there might not exist a correlation between economic globalization and human development.

\[ H2: \text{Countries with a higher level of economic globalization will not have a higher level of human development compared to countries with a lower level of economic globalization.} \]

4. Method

This study will use a quantitive method, meaning that a lot of focus will be on numbers, data and variables (Hjerm, 2014, 87). These numbers etc. will then be used in statistical testing in order to try and describe and discuss the relationship between economic globalization and human development.

When analyzing the data, two different tests will be performed in order to be able to answer the research questions and to test the hypotheses. The first one is a multivariate regression analysis meant to examine the main relation between economic globalization and a human development
index (HDI). Here the aim is to see how much of the variance in HDI can be explained by economic globalization and to try and get an estimation on how much economic globalization effects HDI. The second test will be a two-sided T-test that will compare the means of two groups to see if they are significantly different from each other. The aim of this second test will be to examine if there is any difference in the evolution of HDI between countries with a high or low evolution of economic globalization. This section of the paper will first discuss the sample and limitations of the empirical material, before explaining the two tests that will be performed. It will then finish with an examination of the different variables that will be used in the statistical testing.

4.1 Sample size and limitations of the empirical data

Since the aim of this report is to examine the role that economic globalization has on the evolution of human development among the developing countries, not all counties in the world will be counted for in the analysis. The first thing that needs to be done when aiming to analyze developing countries is to determine which counties are developing and which are developed. This paper has made the distinction between developed and developing countries based on the distinction made by the UN (UN, technical note, 2018). The UN groups countries into one of four categories based on their HDI score. These categories are very high human development (HDI \( \geq 0.800 \)), high human development (0.700–0.799), medium human development (0.550–0.699), and low human development (< 0.550).

Based on these categories this report has decided to make the distinction between developed and developing in where countries with an HDI score corresponding to medium or low in the UN categories are considered developing. Countries with an HDI score relative to the high or very high categories are considered developed and therefore not included in the testing. There are two main reasons why the distinction is made in this way. The first reason is simply that it splits the UN cauterization in two, with two categories representing developed countries and two representing developing countries. The second main reason for this particular distinction is to make sure that enough countries are covered by it to be able to make decently reliably tests that are not overly affected by outliers. If only a few countries where considered developing, the results of the statistical tests could be skewed by the effects in one country in a way that does not represent the other countries.
Beyond the distinction between developed and developing countries, some other factors had to be accounted for when selecting countries to include in the analysis. The most significant factor was that it needed to exist relatively complete and easily obtainable data material for each of the variables from each country and year. Countries that only were missing a single or a few cases were not considered a problem, as the missing cases were assumed not to have an impact on the overall result. However, countries that were missing a large number of cases, or where data was not available for entire variables, were not included in the analysis. This meant that some countries that would, according to the definition presented above, be classified as developing countries, did not get included in the analysis. This mainly affected countries which either are very closed off and hard to get reliable data from (ie. North Korea), or countries where it's not undisputed whether they are countries or not (ie. Taiwan and Palestine).

Because the aim of this paper is partly to study how economic globalization has affected developing countries human development over time, a time period over which to perform the study had to be decided. The time period that was chosen was the years 2000-2016. This decision was based on two things. The first was that this time period is relatively recent and the analysis would provide a more time relevant result. The second reason was that some of the data material for many of the selected countries did not stretch further back in time than the year 2000. So in order to achieve the most complete data set, the decision was made to limit the beginning of the time period to the year 2000. A similar reason was behind the decision to end the time period at the year 2016 as many countries did not have comprehensive data for the most recent years. In the end, the data material was made up of five variables covering 75 countries under the period 2000-2016. This meant that there were a total of 1243 cases.

One problem that comes out of selecting to study the least developed countries in the world, is that these countries also tend to have less available data. As discussed it had consequences when choosing what time period that would be analyzed. It also had an effect on what variables could be included in the testing. For example, was it planned to include a variable related to public spending, but all the data material available that consisted of, or included such a variable did not cover enough countries or years in order to include in the statistical analysis. This shows a weakness in this sort of study where the tests are relying on already existing data material, but it also shows the importance of just data, and that it's important to have organizations and institutions that collect and provide data.
4.2 Multivariate regression analysis

This study will use two types of statistical tests. The first will be a multivariate regression analysis. This test will show the correlation between one dependent variable ($y$) and one or more independent variables ($x$). This test also estimates the effect of the correlation by calculating how much of the variance in the dependent variable can be explained by the independent variables. This effect is shown by something called the regression coefficient, which is an estimation of how much a change in $x$ causes a change in $y$. In this paper, the independent variables will be two variables of economic globalization (trade and finance) and three control variables, and they will be used along with the dependable variable HDI.

When doing regression analysis, there are certain requirements needed from the data and some assumptions that are made. The first requirement is that the data is normally distributed, which is accounted for by using the Central limit theorem which says that the sum of a large number of independent variables with a limited mean and variance will be normally distributed (Hjerm, 2014, 112). It is also important to make sure that no outliers or other influential cases have an effect on the results. This is mostly neglected by a large number of cases that will be used in the tests, but beyond that, all variables were also turned into boxplots in order to be able to see any eventual outliers. If any outliers were found, separate tests were done without them to see if the result where changed. Another thing worth noticing is that this is linear regression which means that the relationship between the variables is assumed to be linear.

One problem that can occur in statistical testing is to ensure the signifying of the results. However, this is ensured in this study in two ways. First, the high number of cases which make the results of the tests more accurate and reliable (Field, 2018, 389). The second way that the significance of the tests is ensured is because the data includes almost the entire population that the aim is to study. With a few exceptions, almost all countries that are considered developing, are represented in the data material. This means that the results of the test most likely will reflect the population very accurately.

Another issue that can occur with regression analysis is that it assumes causation, so before conducting this sort of test one must be confident that the relationship between the variables is not
only correlated but also have causation. As has been shown with the independent theory, and the previous research supporting its different assumption, the causation between economic globalization and human development is established. The causation between the control variables and human development will be discussed further down in the paper, in their respective sections.

4.3 One sample t-test

The second statistical test that will be performed is a t-test. The aim of a t-test is to test whether there is a statistically significant difference between the means of two groups. This will be done by looking at the confidence interval. During the tests, two statistical hypotheses will be tested. The null hypothesis will be that there is no significant difference between the two groups and will be true if the confidence intervals of the two groups overlap. The alternative hypotheses will be that there is a significant difference between the means of the two groups and will be true if the confidence intervals do not overlap. In this study, this will be done in order to examine whether the average rate of human development differs between countries with the high development of economic globalization compared to countries with low development. The level of significance in the confidence intervals will be 0.05, meaning that we can say with 95% assurance that the true mean of that variable is within the interval (Blaikie, 2003, 182). This test will not aim to estimate how much the mean differs between the two groups in the test, but it will only aim to tell whether there exists any statistically significant difference.

4.4 Economic globalization

The economic globalization used in this paper is taken from the KOF Globalisation Index which is a larger globalization index that besides the economic part also consists of social and political globalization, and is measured using 43 different variables (Gygli et al, 2019). The KOF Globalization Index is based on an earlier version created by Axel Dreher (2006). Dreher was the one who made the distinction between economic, social and political globalization and argued that it was not obvious that all parts of globalization affected countries the same way, and that it, therefore, was important to be able to examine how different parts have different effects.

The economic globalization index itself is made up of two smaller indexes, namely trade globalization and financial globalization (see index 1). In the analysis, this paper will use this distinction between trade and financial globalization in order to examine if they affect human
development in different ways. The reason for this is because other studies have found that trade and financial globalization have a different effect. Kose et al. (2009) for example found that trade and financial globalization both have a positive effect on the nexus between output instability and growth, but that trade globalization tended to have a larger effect. Jaumotte, Lall, and Papageorgiou (2013) studied how trade and financial globalization affect income inequality. They found that trade globalization had a negative effect on inequality (meaning that increased trade globalization led to less inequality) while financial globalization had a positive effect on inequality. While there also exist studies in areas that show that trade and financial globalization have the same impacts, this paper finds it reasonable to suspect a difference in the effect on human development between trade and financial globalization.

The index also makes a difference between what it calls de jure and de facto globalization, which can be used to further study how different types of globalization have different effects. De facto globalization measures mainly actual flows and activities, while de jure is more focused on policies, institutions and other things that make it possible for flows and activities to take place (Gygli et al., 2019). However, because of the limited scope of this paper, the differences between de facto and de jure will not be included in the analysis and will be measured as one singular concept.

### 4.4.1 Trade globalization

The trade globalization index does, as the name suggests, consist of variables related to different aspects of a country's trade with other countries or with actors in other countries. The index does however not only measure the actual trade in goods and services but also things like how diverse a country's trade is, meaning how many different trading partners it has and how geographically spread they are (Gygli et al. 2019). It also measures things like trade regulations, tariffs and trade taxes. In order to make sure that the index actually measures globalism and not just regionalism different trade is weighted differently, meaning that greater trade distance will be considered more globalized than trade within a shorter distance (Gygli et al. 2019). So, for example, a country like Mexico which has 80% of its trade with the US is not considered as globalized as if that trade would have been with countries further away. One problem when constructing an index such as this is that some variables are in the risk of being influenced by exogenous or country-specific factors. One such factor is country size, where larger countries have larger volumes of trade in absolute terms. This is accounted for in this index by dividing those variables with the country's population or GDP (Gygli...
et al. 2019). More on how the different variables in the trade globalization index are measured and where the data are taken from can be seen in the appendix (Appendix 1).

4.4.2 Financial globalization

The financial globalization index consists of variables related to international flows of currency and other financial transactions. As was the case with trade globalization, does also the financial globalization index account for the different sizes of countries where some variables are divided with the GDP of the country. The index does however not only measure the actual flows of transactions like direct foreign investments or a country's international debt, but it also measures how open a county is to foreign flows and transactions (see appendix 1). Openness regarding flows of capital is measured by using one of the most widely used indexes which are based on data from the International Monetary Fund (IMF) (Gygli et al. 2019). When measuring economic globalization the financial globalization variables have not traditionally been given as much attention compared to the variables measured in trade globalization. However, studies have shown that financial variables are relevant in many cases. For example, did Quinn, Schindler, and Toyoda (2011) in their study show that not only do financial openness affect economic growth, but they also showed that it's important what variables one uses in the statistical testing.

4.5 Human development

Human development can be seen as how good the average person's life is and how the odds look for a newborn child to have a healthy and free life. The UN describes human development as the "freedom to realize the full potential of human life" and considers human development as a central area of the 2030 agenda (Jahan, 2017). Even though billions of people in the past 25 years have seen major improvements in their life situation, there are still countries that compared to others are very underdeveloped (Jahan, 2017). So understanding what effects human development is very important, especially in low developed countries.

Human development will in this paper be operationalized through the Human Development Index (HDI). This index has been retrieved from the UN Development Programme which has compiled a dataset using data from many different sources. However, they also have a set of principles when collecting data which in this papers view, gives it high legitimacy and trustworthiness (UN Development Programme). The HDI is an index measured using three different dimensions of
human development: *a long and healthy life, knowledge, and standard of living* (UN, Technical notes, 2018). The three dimensions are measured using a number of indicators and are calculated using the formula in figure 4.

**Figure 4: How HDI is calculated**

\[ HDI = (I_{Health} \cdot I_{Education} \cdot I_{Income})^{1/3} \]

*Source: UN, 2018*

The first dimension, "a long and healthy life", is calculated by using life expectancy at birth as indicator, and have a minimum value of 20 and a maximum of 85. The reason for the specific minimum and maximum values is because no country in the world has a life expectancy lower than 20 or higher than 85 (UN, Technical note, 2018). The second dimension, "knowledge", is calculated using two indicators: expected years of schooling, and mean years of schooling. These indicators are measured on a scale from 0 years of schooling to 18 years which in most countries is equivalent to a masters degree (UN, Technical notes, 2018). The third and final dimension, "standard of living", is calculated using Gross National Income (GNI) per capita as indicator. This indicator is measured on a scale from 100$ to 75.000$. The reason why the lowest value is 100$ is to make up for the considerable amount of unmeasured production in economies close to the minimum, which is not found in official data (UN, Technical note, 2018). The reason for setting the maximum value at 75.000$ per capita even though there are counties with a higher GNI per capita (ie Lichtenstein, Qatar, Singapore, etc.) is based on research by Kahneman and Deaton (2010) who found that there is basically no gain in human development from annual income above 75.000$. Using the minimum and maximum values of each variable, the indexes are calculated according to the formula in figure 5.

**Figure 5: How the HDI dimension indexes are calculated**

\[ \text{Dimensional index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}} \]

*Source: UN, 2018*
4.5.1 HDI Time series
When conducting the t-test the aim is to examine if the rate of human development differs between countries with high and low levels of economic globalization development. In order to do this a new variable that measured the changes in HDI needed to be created. This was done by creating a time series variable out of the HDI variable. This means that the value of a case in the time series variable is calculated as the difference between that case and the previous one. This was done for each country and within the time period 2000-2016. So if for example between the years 2005 and 2006 country Xs HDI score had gone from 300 in 2005 to 307 in 2006, the value of the time series variable in 2006 would be 7, and if the country had gone from 307 to 300, the value had been -7. This then also made it possible to calculate the average change that a country had during this time period.

4.6 Other variables
The following section will briefly explain and discuss the variables that will serve as control variables in the regression analysis.

4.6.1 Corruption
Many studies have found that corruption has a negative effect on several different aspects related to human development. Sanjeev, Davoodi, and Tiongson (2000) does, for example, show that the level of corruption has a negative effect on both healthcare and education. Both of which are central aspects of human development. There have been arguments that corruption in some instances could be beneficial to the development, the so-called "greaser theory". However, in his research, Aidt (2009) found no evidence that corruption could be considered beneficial on neither macro or micro level. He also found that besides the possible cost to the average GDP growth, corruption also has a negative effect on sustainable development.

The corruption indicator used in this paper is a part of a larger dataset consisting of six different indicators related to different aspects of governance. These six indicators are in turn based on over 30 underlying data sources (Kaufmann, Kraay and Mastruzzi, 2010). The corruption indicator measures the perceived extent of which official power is used for private gain, and includes both
petty and grand corruption (Kaufmann, Kraay and Mastruzzi, 2010). The indicator is measured on a scale of -2.5 to +2.5.

4.6.2 Regulatory Quality

In his statistical analysis, Dao (2011) shows that official institutions in developing economies have a significant effect on economic development. He shows that the government's ability to pass legal frameworks and regulations that streamline the interaction with private businesses have a positive effect on economic development. Granville and Leonard (2010) do in their case study of Russia between 1998 to 2004 show that the ability of the government to create an environment of effective official institutions is positively related to economic and technological development.

The regulatory quality indicator used in this paper is from the same dataset as the corruption indicator described above. This indicator, however, measures the perceived ability of the government to create and implement a good policy aimed to improve private sector development (Kaufmann, Kraay and Mastruzzi, 2010). The indicator is measured on a scale of -2.5 to +2.5.

4.6.3 Net official aid received

Because of the increase in economic growth is one of the ways that economic globalization is suspected to affect human development, it could be good to account for eventual aid that the countries received. Bermeo (2017) shows in her research that aid targeting development has become the new standard since the end of the Cold War. This aid is usually earmarked for different projects often related to development even tho it is not caused by economic globalization. Addison, Niño-Zarazúa, and Tarp (2015) show in their research that, while not perfect in its implementation, aid has a positive effect on for example areas like social protection and health care.

The net official aid indicator used in this paper consists of two types of support. The first one is development assistance, which are loans that are specifically targeted to promote economic development and welfare. These loans are conditional and are given to countries and territories based on their per capita GNI score (The World Bank). The second type of support is more traditional aid and refers to aid flows from donors to certain countries and territories. Both loans and aid are given to countries that are on the Development Assistance Committees (DAC) list of
countries that are in need of development assistance (The World Bank). The data is taken from the World Bank database and is measured in current US$.

5. Resultat

In order to study the correlation between economic globalization and human development, this paper will first use multiple regression analysis and then a t-test. The dependent variable will be Human Development Index (HDI) and is measured on a scale of 1 - 1000, where a higher score means higher development. In total between 1171 and 1243 cases from 75 countries spanning 17 years, will be examined. The average HDI score is 510 with a standard deviation of 100. Niger in the year 2000 has the lowest score of 252, and Gabon in 2016 has the highest with 698.

5.1 Regression analysis

Using multiple regression means that more than one independent variable will be included in the analysis. The two independent variables that represent economic globalization, and whose correlation to the dependent variable will be most relevant to this paper is trade globalization and financial globalization. There will also be three control variables, which will be used to increase the accuracy of the correlation between the economic globalization variables and the dependent variable (see figure 6). The control variables are assumed to have an effect on the correlation between economic globalization and HDI and are therefore used to examine how that correlation is effected by the control variables.

This paper will conduct three separate tests in order to expose how the different variables affect each other. The first test will measure the correlation between the economic globalization variables and HDI. This is the most central correlation in the paper, and it will mainly be changes to this correlation that will be examined in the coming tests.

The second test will introduce the economic related control variables: Corruption and Net official aid received. In this test, the focus will be on how these variables affect the main correlation between the economic globalization variables and HDI. The aim here is to examine how much these control variables affect the main correlation.
The third test will introduce the politically related control variable: *Regulatory quality*. The purpose of this test is the same as test 2, in that the aim is to see how the inclusion of this control variable affects the main correlation.

Table 1: Regression analysis with HDI as dependable variable

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>B-coefficients (standard error)</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial globalization</td>
<td></td>
<td>0,054</td>
<td>0,052</td>
<td>0,051</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0,230)</td>
<td>(0,236)</td>
<td>(0,235)</td>
</tr>
<tr>
<td>Trade globalization</td>
<td></td>
<td>0,593</td>
<td>0,574</td>
<td>0,570</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0,205)</td>
<td>(0,207)</td>
<td>(0,207)</td>
</tr>
<tr>
<td>Net official aid received</td>
<td></td>
<td>0,114</td>
<td>0,114</td>
<td>0,114</td>
</tr>
</tbody>
</table>
Corruption $0,126$ $0,085$  
\hspace{1cm} \text{(4,545)} \hspace{1cm} \text{(5,237)}$

Regulatory quality $0,078$  
\hspace{1cm} \text{(0,156)}$

| Adjusted R2 | 0,389 | 0,410 | 0,414 |
| N           | 1243  | 1171  | 1171  |

In the first test, we get a first look at the correlation between economic globalization and HDI. The test shows that both financial and trade globalization has a positive effect on HDI. Trade globalization seems to have the largest effect of the two, in that HDI would increase $0,574$ standard deviations (sd) if trade globalization would increase by 1 sd. The first test also shows that financial globalization has significantly less effect on HDI than trade globalization. 1 sd increase of financial globalization would result in an increase of HDI of $0,052$ sd.

The second test includes the first two control variables, net official aid received, and Corruption. Both of the control variables show to have a positive effect on HDI. An increase of 1 sd in the net official aid a country receives will according to this test lead to an increase in HDI of $0,114$ sd. A decrease in corruption will similarly lead to an increase in HDI of $0,126$ sd. The second test also shows a change in the main correlation. According to the second test, an increase of trade globalization now results in an increase in HDI of $0,574$ sd, which is a slight decline compared to the first test. A similar effect can be seen in financial globalization, where the beta coefficient has declined from $0,054$ to $0,052$. The number of observations in test 2 declines compared to test 1 from 1243 to 1171. This is due to some incomplete data in the two control variables, but because of the relatively small number of missing cases compared to the total number, it is assumed not to have any significant impact on the results.
The final third test includes the regulatory quality variable, and show that also this has a positive effect on HDI. For every increase of 1 sd in regulatory quality, HDI would increase by 0.078 sd. There have also been some small changes to the effects of trade globalization, where now an increase of 1 sd leads to an increased HDI of 0.57 sd. The effect of financial globalization has only declined from 0.052 to 0.051. The effect of net official aid received has remained unchanged, while the effect of corruption has in the test been reduced so that a decrease in corruption leads to an increase in HDI of 0.085 sd. The third test is also the test that achieves the highest level of explanation, where it explains 41.4 percent of the total variance of the dependable variable.

After accounting for all the variables, the main conclusions that can be drawn from the third and final test is that the correlation between economic globalization and HDI is positive. It is also clear that it is mainly "trade globalization" that has a larger effect on HDI, whereas changes in "financial globalization" have at best a relatively small impact. Since the standard deviation is so much larger than the beta-coefficient we can't confidently say that there is a positive relationship between financial globalization and HDI.

**Figure 7:** Model for regression analysis with relationships included

Another interesting result from the test is that compared to the control variables, trade globalization seems to be an effective way of increasing a country's human development. Given that all else remains equal, an increase of one standard deviation in economic globalization is five times more effective than a standard deviation increase in official aid received, and almost seven times more
effective than a comparable improvement of corruption. However, as the test shows, an increase in financial globalization has the lowest effect on human development out of all the variables included in the test.

5.2 T-test

When performing a t-test, two groups are tested in order to see if there is a statistically significant difference between the means of the two groups. Here the aim is to examine if the average increase in human development is different between countries that have had a high increase in economic globalization, compared to countries that have had a low increase or decrease, in economic globalization. As discussed in a previous chapter, the idea is to categorize the countries into groups depending on their average development of economic globalization during the time period 2000-2016. However, because there is a large difference between the level of human development between the countries (ie Niger HDI = 252 and Gabon HDI =633, in the year 2000) the groups will also be divided based on HDI score in the year 2000. This means that the countries will be divided into four different groups based on their HDI score and their average economic globalization development. There will be two groups with a high HDI score and two groups with a low HDI score, where one of each will have lower than average development of economic globalization and one of each have higher than average economic globalization development (see figure 8).

Countries with a lower than average (458,8) HDI score were categorized as having low HDI and countries with an HDI score above the average were categorized as having high HDI. Worth noticing here is that high in this case is relative to the population and not countries in general. Countries were divided by the level of economic globalization by whether they had an average development that was higher than the total average (.1514) development. So, for example, Rwanda which had an HDI score of 335 and an average development of economic globalization of 1,151 were placed in group C because it has a lower than average HDI score and higher than average development of economic globalization. There is some difference in the number of countries in each group, but because these differences are not too large and because there still are enough cases in each group (ie. 231 in group A), there should not be any problem when performing the tests.

The test will be performed by first calculating the average HDI development of each country during the time period 2000-2016. These averages will then be put into the different groups described
above. Because the aim is to examine whether a different level of development in economic globalization have any effect on the progress of human development, there will only be tests done between group A and B, and between group C and D. A confidence interval with a significance level of 95% will be used in order to see if there is a statistically significant difference in the means between the two groups averages. If our H1B hypothesis is correct, then both group A and C should have a higher average HDI development than group B and D. When looking at the boxplot over the different groups some outliers where spotted, most notably in group C and D, however after running the test both with and without these outliers, it was clear that they did not influence the result in any significant way.

**Figure 8:** The group categorization of the two t-tests

The first test was conducted between the two groups with high HDI (A & B) and it showed that with a significant level of 95%, the countries that have had a higher average development of economic globalization also had higher average progress of human development. This means that we can reject the null hypothesis in favor of the alternative hypothesis. However, the second test between the two groups with low HDI (C & D) showed no statistical evidence that any of the two groups had higher or lower progress of human development than the other. This means that in this test we cannot reject the null hypothesis which says that there is no difference in the means between the two groups. So what we can say is that within the current population, countries with a higher than average HDI have seen a higher progression of HDI if they also have had a higher than average development of economic globalization, compared to those countries with a higher than average HDI but with lower development of economic globalization.
5.3 Test of hypotheses

In this section, a discussion around the results of the regression analysis and the t-test will be done. This will in part be done by applying the results of the two test to the three hypotheses that was created in a previous chapter.

\[ H1A: \text{A correlation will exist where a higher level of economic globalization means a higher level of human development.} \]

This hypothesis is connected to the main purpose of the paper which is to examine the relationship between economic globalization and human development. Drawing on Keohane and Nye's theoretical framework of interdependence, this hypothesis was created by the assumption that an increase in economic globalization would mean an increase in international and cross-continental flows and transaction of capital, goods, etc, which by definition would lead to more interdependency between countries. Following the theoretical model on regime change, and supported by previous research linking economic globalization with economic growth, this increased interdependence tighter with the economic growth was assumed to create means and incentives for governments to create/update regimes in order to both further increase economic growth, but more importantly to increase the living standards and education of the population, meaning an increase in human development.

Looking at the results of the regression analysis in table 1 it seems that the data support this hypothesis. The test results show that both aspects of economic globalization have a positive relation to the dependent variable HDI. What the result also shows is that there is a significant difference on how much the different aspects affect HDI, with financial globalization, with a beta confident of 0.051, having a very marginal effect on the overall human development. This can be compared to trade globalization which has a much more significant effect on human development. This result leads to the conclusion that, if one's aim is to increase the human development in a low/medium HDI country by making it more economically globalized, the most effective way is most likely to focus on increasing the country's trade on the global market.
Putting this in a more theoretical perspective, it seems to support the model based on Keohane and Nye's theory of interdependence. It seems that when countries get more economically globalized meaning an increased economically flows and transactions, it does lead to human development. While this test does not show whether or not an actual regime change has taken place, it's clear that the increased economic globalization, and the economic activity that comes with it, have had a beneficial effect on the general human population. And while it may seem like a flaw in the test design in not be able to know whether an actual regime change has taken place, especially as it has a relatively large role in the theoretical model, it is worth recalling that regimes can be quite different in their constitution. This means that measuring regime change becomes very difficult. So while we can't say with any form of certainty that regime change has happened, we can at least say that there exist regimes good enough to transfer the effects of increased globalization into increased human development.

\textit{H1B: Countries which have had a higher development of economic globalization will also have had a higher rate of human development}

This hypothesis is constructed as a logical continuation from the first one. If economic globalization has a positive effect on human development, then countries that have had a higher development of economic globalization should also have experienced a higher rate of human development. However, because it's not obvious that countries on different "levels" of human development have had identical types of development in regard to their development of economic globalization, the countries were divided into groups based on their HDI score and their average development of economic globalization. This meant that countries with a (relatively) high HDI score were tested separately from the countries with a low HDI score. So for this hypothesis to be accepted, both tests would need to show a statistically significant difference in the average rate of human development between the countries with a high development of economic globalization, and the countries with a low level of development.

The results of the two tests, however, did both provide evidence for and against this hypothesis. The first test showed that in the group with a higher average HDI score, countries that had experienced a higher rate of economic globalization development also had experienced a higher rate of human development. So within this group of countries, the hypothesis holds up. However as we saw in the second test, this was not the case in the countries with lower HDI. This test showed no statistically
significant evidence that the rate of economic globalization development had any effect on the rate of human development. So with these countries, the hypothesis does not hold up and should be rejected.

While the tests do not say anything on why or why not there where a difference in the rate of HDI between groups with different rate of economic globalization development, a conclusion could be drawn that there is a difference between how different groups of countries react on changes in their level of economic globalization. It would seem that for the least developed countries, the effects of economic globalization on human development is not as strong as for the more developed countries.

\[ H2: \text{There will be no significant difference in human development between countries with high economic globalization compared to countries with low levels of economic globalization.} \]

This hypothesis was created based on the theory that governments would not want to give up the autonomy required in order to implement the regime changes necessary to fully reap the economic benefits of increased economic transactions. It also saves as a complete opposite to the H1A hypothesis. As were shown in the regression analysis, there exists a positive relationship between both trade and financial globalization, so the evidence for this hypothesis is fairly weak.

This, however, does not prove the underlying theory about governments sacrificing economic growth and human development for autonomy wrong. This test only shows that there are still enough gains from economic globalization to result in a higher level of human development. It is however still possible that some governments choose to sacrifice some of the economic and human development gains in order to keep more autonomy.

6. Conclusion

The aim of this paper has been to study the relationship between economic globalization and human development in the context of developing countries. Too precise this aim, two questions where asked related to economic globalization and human development. These question where:

- How does economic globalization affect human development in developing countries?
• Is there any difference between how different aspects of economic globalization affect human development in developing countries?

In addition to these questions and in order to explain any eventual relation between economic globalization and human development, the interdependence theoretical framework developed by Keohane and Nye (1977) was used. This theory concerned interdependence and how an increased interdependence leads to regime changes aimed to facilitate economic growth and increase the welfare of the citizens. This theory was then further developed with the inclusion of economic globalization and human development.

Based on the interdependent theory three hypotheses were constructed. The H1A and H1B hypothesis were based on the assumption that if a country has increased economic globalization, that would lead to increased international economic transactions, which would mean that the country became more interdependent with those countries on the "other side" of the economic transaction. Based on the assumption that governments will want to maximize the economic growth, and that one of the top priorities is to increase the welfare of its citizens, new regimes will be created to both optimize the gains from the economic transactions, and to increase the welfare of the citizens. The H2 hypothesis where created based on the notion that governments often are reluctant to give up the autonomy that follows increased interdependence, and may choose to sacrifice the economic growth in favor of continued autonomy.

These hypotheses were tested by conducting two different types of statistical tests, regression analysis, and single sample t-test. The regression analysis showed that there is a positive relationship between economic globalization and human development. It also showed that is was mainly trade globalization that had the largest effect on human development, while financial globalization had only marginal effect if any at all. The first t-test showed that with countries that had a higher than average HDI score (among low/medium countries) there where a higher rate of human development in countries where the rate of economic globalization growth was higher than average compared to countries with lower than average rate of economic globalization growth. However, the second t-test did not show the same relationship when it came to the least developed countries, suggesting that the effect of economic globalization is stronger in more developed countries (at least in the targeted population).
6.1 Future research

This study did only conclude that economic globalization has a positive effect on human development, so there exists much room for future research. Similar studies could be conducted but where different aspects of globalization, like social or political, is studied to examine how they affect human development (or any other aspects of developing countries). Based on this studies findings, it would be interesting to more closely study the effect of economic globalization on groups of countries with different levels of human development to further understand which factors are important in order to take full advantage of increased economic globalization. It could also be desirable to include more variables that aim to understand how different groups are affected by economic globalization. Such groups could, for example, be women, low-income households, immigrants, etc.
Reference list


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Appendixes

Appendix 1:
The components of economic globalization

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<th>Definitions</th>
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<td>World Bank WDI (2017)</td>
<td>Sum of exports and imports in goods as share of GDP.</td>
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<tr>
<td>Economic Globalisation, de facto (KOFcGiff)</td>
<td>World Bank WDI (2017)</td>
<td>Sum of exports and imports in services as share of GDP.</td>
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<td>Trade in goods</td>
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<tr>
<td>Trade in services</td>
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<td>Trade partner diversification</td>
<td>Own calculations based on IMF DOTS (2017)</td>
<td>Herfindahl-Hirschman concentration index for trade in goods. Constructed as the average of the sum of squares of trade partner shares in total exports and imports (inverted).</td>
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<td>IMF IIP (2017) / Notional data from EWN</td>
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<td>Income from taxes on international trade as percentage of revenue (inverted).</td>
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