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COVID-19 and Globalization – An Analysis of the Degrees of Globalization and their Impact on the Trajectory of the Pandemic

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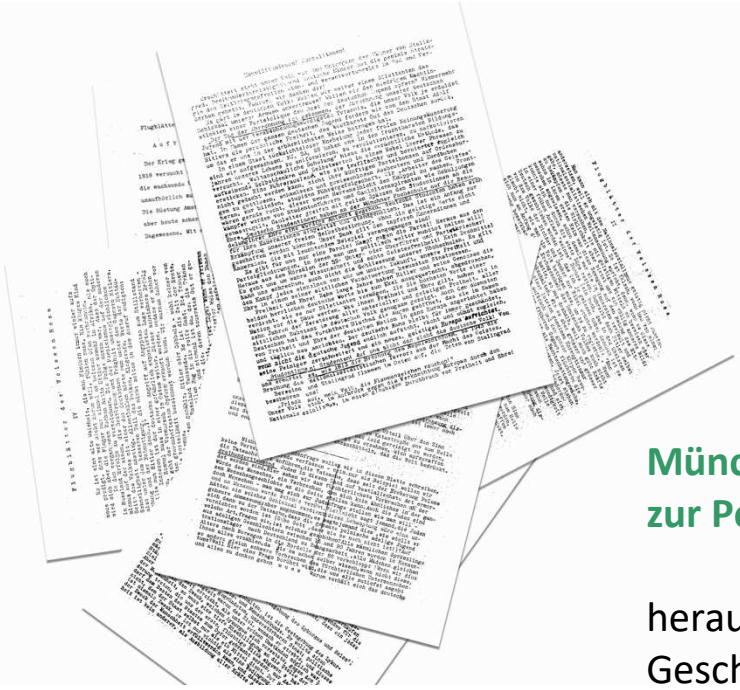

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Roman Sidig

COVID-19 and Globalization – An Analysis of the Degrees of Globalization and their Impact on the Trajectory of the Pandemic

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Bachelorarbeit bei
Dr. Lars Colschen
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Abbreviations

2019-nCoV	2019 novel Coronavirus strain
ACT	Access to COVID-19 Tools
CEPI	Coalition for Epidemic Preparedness Innovations
COVAX	COVID-19 Vaccines Global Access
COVID-19	Coronavirus
CSV	Comma-separated values
CWHO	Constitution of the World Health Organization
DONs	Disease outbreak news
EOUs	Epidemiological and operational updates
Fig.	Figure
GHD	Global health diplomacy
GPH	Global public health
IPE	International political economy
IR	International relations
KOFGI	KOF Globalization Index by Gygli et al.
KOFIG	KOF Index on Globalization by Dreher (et al.)
LOESS	Locally weighted polynomial best fit lines
PHSM	Public health and social measures
R&D	Research and development
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
STVs	Solidarity trial vaccines
UN	United Nations
UNICEF	United Nations Children's Fund
VOC(s)	Variant(s) of concern
WHO	World Health Organization
WHO-DG	World Health Organization Director-General

Preface

"All countries must strike a fine balance between protecting health, minimizing economic and social disruption, and respecting human rights."

- *Dr Tedros on the economic, social, and political dimensions of the pandemic*[1]

- **Abstract**

Ever since the World Health Organization's official declaration of COVID-19 as a pandemic on March 11, 2020, on account of the alarming spread and severity of the novel virus strain of Coronavirus, the world has been facing severe difficulties in what scholars refer to as a pandemic trajectory of unprecedented scale. As globalization and its various dimensions constitute the international political economy, so too has the pandemic presented itself as a global public health crisis in the context of globalization. This thesis puts a focus on the various forms of globalization on an economic, political, and social level with a de facto and de jure distinction. As such, COVID-19 with regards to the total cumulative case and death rates in the pandemic trajectory of respective countries, territories and areas is presented in a theory of globalization to showcase how the phenomenon of globalization and its distinct degrees correlates with the outcome of COVID-19, aided by the latest available data on the KOF Globalization Index as well as public health data to gain insights that future research could further build on.

[1]See remarks by WHO Director-General Dr Tedros at the media briefing on CIVID-19 (State as July 13, 2022): https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

1. Introduction

Two years ago, on March 11, 2020[2], the World Health Organization (WHO) held a media briefing that marked the official declaration of the Coronavirus (COVID-19), first detected in 2019[3], as a pandemic due to the alarming spread and severity of the then novel virus strain of the contagious infection induced by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). At the time of the announcement, there had been more than 118,000 cases reported in 114 countries with expectations of drastically impending aggravation of the outbreak on a global scale[4]. While simultaneously cautioning against a mere perspective on the number of cases and countries affected to date for further assessment of respective governments in their public health and social as well as safety measures to limit the spread of COVID-19 at the time, WHO Director-General (WHO-DG) Dr Tedros Adhanom Ghebreyesus seized the opportunity in his opening remarks to urge countries to take "urgent and aggressive action" in order to "change the course of this pandemic"[5].

Exactly two years later, on March 11, 2022, there had been 440,807,756 confirmed cumulative cases of COVID-19, including 5,978,096 deaths reported to WHO[6], with the international political economy (IPE) and world having been forced to adapt to something not many states had quiet been able to comprehend to its full extent then, having faced severe difficulties in this pandemic trajectory of unprecedented scale (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3). With the surge of the Omicron-variant of concern due to its grave facility in transmissibility and apprehension regarding developments in the severity of disease[7] accompanying the vaccination race on a global scale, case rates in March 2022 had been higher than ever. In the same vein, the problems faced by states within the United Nations (UN) system have, thus far, been highly diverse, correspondingly affecting all sectors of the international political system (Gupta et al. 2021: 1-2), and have, as such, been accompanied by debates regarding the performance of the health organization (Hanrieder 2020a: 1-3; Hanrieder 2020b: 534-535; Lee/Piper 2020: 1-2).

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[2] State as of July 14, 2022: https://twitter.com/WHO/status/1237777021742338049?s=20&t=fj_G8rXssqj_YByTm2y1AQ
[3] State as of July 10, 2022: https://twitter.com/WHO/status/1213523866703814656?s=20
[4] WHO Director-General's opening remarks at the media briefing on the virus from March 11, 2020 (State as of July 10, 2022): https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020
[5] WHO Director-General's opening remarks at the media briefing on the virus from March 11, 2020 (State as of July 10, 2022): https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020
[6] Data retrieved by the WHO COVID-19 Dashboard (State as of March 4, 2022): https://covid19.who.int
[7] Update on Omicron by the WHO on November 27, November 2021 (State as of July 10, 2022): https://www.who.int/news/item/28-11-2021-update-on-omicron

"The UN […] is always a mirror reflecting the world without. As the world changes, so too does the reflection in the mirror." (Gunter 1984: 93). Ever since the establishment of the peacekeeping organization by a total of 51 countries in 1945 (Müller 2016: 86), the world without has undergone distinct changes, having been subjected to further shifts with the ongoing COVID-19 pandemic. From within, since its foundation, the intergovernmental organization has seen an incremental expansion to a total of 193 member states[8] in the pursuit of multilateralism in an increasingly globalizing world. Additionally, in the following of the WHO's inaugural and the signing of the Constitution of the World Health Organization (CWHO) on July 22, 1946, the global health organization was presented as an institution that is not solely an ambassador of global public health (GPH) as a universal goal but, as an enthusiastic advocate and "cornerstone of peace" (Parran/Boudreau 1946: 1272), also determinedly and emphatically based upon and committed to upholding said universal target (Parran/Boudreau 1946: 1270-1272; Ip 2021: 335-336). In international relations theory and "the constitutional economics of the WHO" (Ip 2021), the mere acknowledgement of the guiding principles and foundational values, laid down in Art. 1 and 2 CWHO and its foregoing preamble, is one aspect. The practical execution of its objective and functions with GPH recommendations and compliance to them on a domestic level, however, is another, vastly contested in a pandemic IPE (Lee/Piper 2020: 1; Paddeu/Waibel 2020: 702-706, Ip 2021: 333).

The thesis at hand focuses on the ongoing COVID-19 pandemic as not just a global health crisis but a crisis across all sectors in the context of globalization in a highly globalized international political system (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3), as projected by Dr Tedros in early 2020[9]. With public health transcending international borders as the WHO's mandate, so as well has the pandemic transcended said international borders and, thus, transformed itself into a crisis that faced states with a challenge that, especially in the context of international relations (IR), is extraordinarily difficult – managing the impact of the COVID-19 pandemic, paralleled by a "backlash against multilateralism […] against the backdrop of crisis nationalism" (Hanrieder 2020b: 536). With the commemoration of the 75th anniversary of the UN in 2020 under the theme "The Future We Want, the UN We Need: Reaffirming Our Collective Commitment to Multilateralism"[10], laid down in a pre-pandemic IPE, the COVID-

[8] State as of July 14, 2022: https://www.un.org/en/sections/member-states/growth-united-nations-membership-1945-present/index.html

[9] WHO Director-General's opening remarks at the media briefing on the virus from March 11, 2020 (State as of July 11, 2022): https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

[10] State as of July 11 2022: https://enb.iisd.org/events/75th-anniversary-un-future-we-want-un-we-need-reaffirming-our-collective-commitment

19 pandemic has coincidentally collided with a milestone in the peacekeeping organization's history, resulting in a sharp test of multilateralism in a world that is facing a complex conjunction of difficult circumstances and crises.

A cross-sectional analysis of the impact of the COVID-19 pandemic regarding confirmed case rates and death rates around the world is aided by disclosing the following research question for the thesis with respect to different driving forces of globalization:

How does the degree of globalization and its distinct dimensions affect the trajectory of the ongoing COVID-19 pandemic within a country?

The author of this bachelor's thesis aims to shine light upon the impact of the COVID-19 pandemic across the globe in the further analysis of the research question by utilizing data on the distinct dimensions of globalization, that will be laid out later on, as well as globalization in general. The raising of the question of what driving forces there might have been behind the different trajectory of the pandemic across countries is furthermore aided by scholars referring to the coronavirus pandemic as marking a new era of globalization, internationalization, and interaction among states (Figus/de Serio 2020: 1; Figus 2021; Gründler et al. 2021: 1-5).

The remainder of the given thesis aims to highlight a theoretical framework for the thesis, aided by a preceding literature review of the key papers and research selected that are relevant to the research question at hand. Followed by a presentation of the empirical research design and included methodology, the author will shine light upon the conceptualization and operationalization of utilized data within the thesis. Concluding the thesis is an extensive empirical analysis featuring visualizations and interpretation of descriptive statistics on the conditional relationship between the degrees of globalization and the respective pandemic trajectory that ultimately puts COVID-19 in a theory of globalization.

2. Literature review

The following section will first reiterate the research question that the author aims to disclose in the research. As a following, necessary citations for the theoretical framework will be outlined with relevant key literature being summarized, thus concluding the literature review with a thoroughly curated presentation of the current state of research, including a clear ventilation of the utilized index as well as a general overview on the global trajectory of the pandemic.

This subsection helps to further answer the given research question at hand. Furthermore, the literature review helps better understand the connection of globalization with the trajectory of the ongoing COVID-19 pandemic.

An analysis of the literature that is of aid regarding globalization in IPE research aims to disclose the effects of globalization and its distinct dimensions on the general outcome of the pandemic within a state with the research question as follows:

How does the degree of globalization and its distinct dimensions affect the trajectory of the ongoing COVID-19 pandemic within a country?

For the pursuance of the given research question at hand within the thesis, it was necessary to find literature that assists a better understanding of the concept of globalization within IPE research and the connection of globalization in international relations in the era of COVID-19 in order to shine a light upon influences on the trajectory of the pandemic. With regards to the distinct forms of globalization and variety of taken measures within a state and the observed powers they possessed in constraining or facilitating the pandemic impact, the interaction of said driving forces needs to be properly highlighted. Finally, a breakdown of the interconnection of relevant key literature on globalization as well as relevant literature on COVID-19 in international relations was essential as well.

2.1 The concept of globalization

Recent studies have aimed not only to bring the aggregate concept of globalization into the foreground but to highlight the different dimensions that are essential in better understanding the impact of the multifaceted concept, the utilization of it as well as the measurement of globalization and the effects of it on distinct issue-areas. The concept of globalization is being presented by researchers as an omnipresent force that has, in the past, been prone to only being analyzed in a monolithic point of departure prevalent in conventional globalization research that has primarily focused on state positions in economic sub-dimensions such as trade in the IPE as well as capital flows (Potrafke 2015: 509-10; Gygli et al. 2019: 544-546; Haelg 2020: 691-692). The overarching concept of globalization, however, is multifaceted and represents more of a fortification of the recognition and need for the non-monolithic in IPE research as scholars decidedly position globalization as encompassing a variety of distinct components within economic, political, and social dimensions, representing a departure from monolithic principles that transcend from merely economic subdimensions (Potrafke 2015: 509; Gygli et al. 2019: 544; Haelg 2020: 691). As such, the aggregate concept of globalization is one that embodies economic, political, and social indicators that can further be broken down into a considerable number of distinct sub-indicators and that shine a light upon the three mentioned dimensions (Potrafke 2015: 510; Gygli et al. 2019: 544).

The general definition of globalization itself by Gygli et al. is one that is predicated on the definition of the original index it is based upon, shortly being mentioned in the upcoming subchapter, as well as widely publicized research by political and economic scientists that harness a more general view such as Nye's and Keohane's in 2000 that further support the distinction of economic, social, and political dimensions of what is being referred to as globalism (Nye/Keohane 2000: 3-7; Gygli et al. 2019: 546). As such, Gygli et al. condense distinct scholarly rationales of globalization as "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" (Gygli et al. 546), further transcending international boundaries, incorporating international economies, cultures, as well as forms of governance, and simultaneously contributing to the production of mutually interdependent relations of unequivocally evident complexity between countries (Clark 2000: 86-87; Norris 2000: 155-156; Nye/Keohane 2000: 4-7, 29-30; Gygli et al. 546). The definition of globalization utilized within the presented thesis decidedly utilizes this scholarly concise summary and thus serves as a repeated recapitulation of the aforementioned definition of globalization, further motivated by the parochial peripheries that do not allow for a further decryption of the general phenomenon of globalization in IR theories.

2.1.1 The composite KOF Globalization Index

In their 2019 study of the KOF Globalization Index (KOFGI)[11] and accompanying revision of previous research by Axel Dreher that will only merely be touched upon due to the restrictive scope of this thesis, the foursome of scholars, comprised of Savina Gygli, Florian Haelg, Niklas Potrafke and Jan-Egbert Sturm, touch upon the contrast of dimensions in globalization and the underlying information they in turn provide for issue-areas in the conceptualization and measurement of it, not just with an individual look at every section and its sub-indices but also in their interaction with each other and how their interplay can properly be assessed (Gygli et al. 2019: 551-558; Haelg 2020: 691-692). This approach exceeds a sparse definition with a plurality-reinforcing view on globalization through the introduction of additional variables to overcome shortcomings of previous research and its deficiencies in terms

[11] Throughout the course of the thesis at hand and in an attempt to avoid misunderstandings, the author will use the presented abbreviation KOFGI to denote the revised KOF Globalization Index by Gygli et al. 2019 and use the term KOF Index for Globalization (KOFIG) to separate itself from the 2019 revisitation of the aforementioned researchers to denote the original index and the variants the KOFGI is based upon

of underlying contortion due to the omission of relevant factors within a highly globalized IPE (Caselli 2013: 2-3; Potrafke 2015: 511-512; Gygli et al. 571-572).

In his 2015 study, Niklas Potrafke further highlights "The Evidence on Globalization", as put in the title of the scientific endeavor, by conducting research on over 100 different empirical papers and studies on the measurement of globalization indices with a focus on the use of KOF indices (Potrafke 2015: 510-511; Haelg 2020: 695-696) and the main objective of highlighting the consequences of globalization, simultaneously paving the way for researchers and their scientific endeavors by providing an overview on the distinct advantages as well as disadvantages of different measurements of globalization as well as the unrevised KOF Index. In one of the main findings, Potrafke concludes that the effect of globalization as an explanatory variable on outcomes on an economic, social, and political level is varying in both statistical significance on a quantitative level as well as undetermined qualitive explanations in terms of different levels of correlation between the index at hand and the observed outcomes (Potrafke 2015: 511-512; Gygli et al. 2015: 547-548; Haelg 2020: 696).

Shortly touching upon the original KOF Index for Globalization (KOFIG) by Alex Dreher that the revised KOF Globalization Index, previously abbreviated within this thesis as "KOFGI", is based upon, which was further contradistinguished from one another in the scope of the aforementioned ventilation of the index by Potrafke, the main difference between the two composite indices is the list of ingredients in the concoction of the indices and their sub-indicators (Potrafke 2015: 511-512; Haelg 2020: 691). KOFIG bases itself upon the globalization index by the Swiss Economic Institute[12] of the Swiss Institute of Technology in the city of Zürich, Switzerland, first released in 2002 (Dreher 2006: 3-4; Dreher et al. 2008: 43; Potrafke 2015: 511). The predecessor of the within this thesis focused on KOFGI consists of only 23 variables with readily available and annually updated data for, throughout the past decades, an increasing number of countries, thus transforming the KOFIG into one of the most popularly and scholarly utilized measurements of globalization in theories of IR and the global political economy (Dreher 2006: 3-6; Dreher et al. 2008: 44-45; Caselli 2013: 2-3; Gygli et al. 2019: 457). The main advantage of the succeeding KOFGI is not only a differentiation between de facto and de jure measures and therefore focus of measurement[13], aided by scholarly efforts highlighting the substantial differences in significance regarding measures in theory and in practice, but also the higher number of indicators included through sub-indicators that correlate

[12] The abbreviation KOF refers to the official German translated name of the Swiss Economic Institute, "Konjunkturforschungsstelle", of ETH Zürich that is monitoring the economy (State as of July 7, 2022: https://kof.ethz.ch/en/the-institute.html)

[13] See Chapter *2.1.2 The de facto and de jure degrees of globalization*

with the explanatory variable and unit of measurement (Gygli et al. 2019: 547-551). While both indices have been used to showcase the relationship of globalization and economic growth, the shortcomings of the predecessor allow for a more general use of the revised model with globalization as an explanatory variable in quantitative research focusing on the consequences of globalization and the impact of the degree to which countries are globalized (Dreher 2006: 1-2; Potrafke 2015: 513).

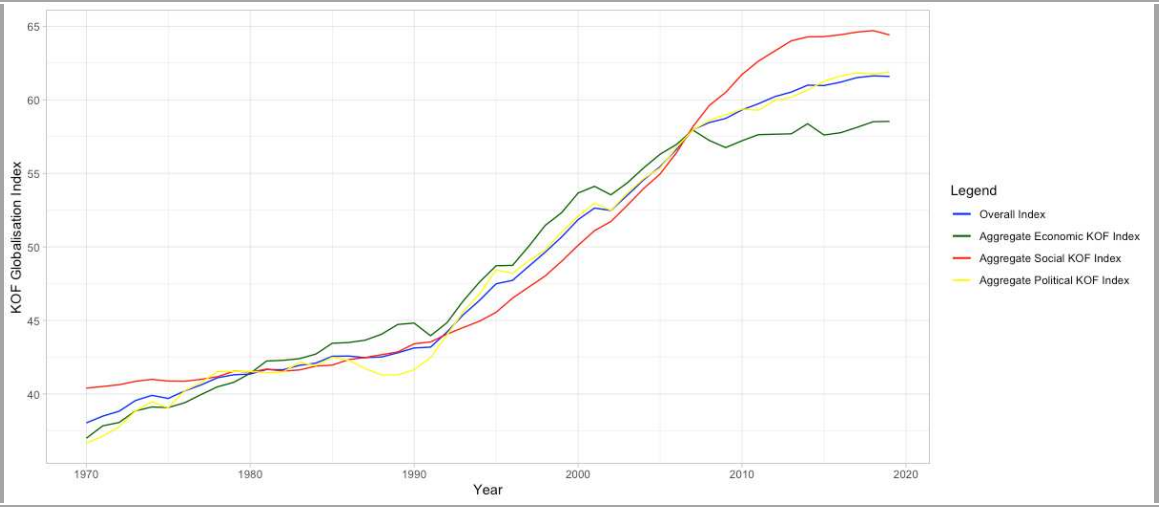
Amidst the adoption of the revisited index within this thesis, the author strongly aligns themself with the revisited KOFGI by Gygli et al. and their pursuit to overcome shortcomings of previous measures of globalization that, despite their best efforts, "have shortcomings by definition" (Potrafke 2015: 512). Said shortcoming is prone to falling victim to its carefully curated choice of components and characteristics in the designing process and measurement of globalization per se as both, the inclusion of and exclusion of individual data, dependent on accessibility and availability as well as quality and parameters, is invariably influencing the aimed for index in its construction and, as such, its measuring abilities (Potrafke 2015: 512-513; Gygli et al. 2019: 547). Epistemologically, one also ought to highlight that, at all times, measurements of globalization are committed to allowing for mere positive interpretations that grant utilizations of them in an empirical context and are in no way to be interpreted normatively in forms of qualitative ideals, as neither lower nor higher scores of globalization serve as certification marks that imply a seal of quality, or lack thereof (Potrafke 2015: 513; Gygli et al. 2019: 547-548). For all its intents and purposes, however, the revisited KOFGI can be resumed as a measurement of globalization that, through its focus and unit of measurement as well as its differentiation between distinct dimensions, is the most suitable as well as attractive choice of measurement of the multifaceted concept with its continuous updates on a yearly basis as well as its broad encompassment of countries and territories (Potrafke 2015: 511-513; Gygli et al. 2019: 547-551).

To properly observe the role of globalization, guiding the formulation of the hypothesis in the theoretical framework[14], the author will first present a time series of the general development of overall globalization as computed with the statistical software R via the help of the data available on the aggregate forms of general globalization as well as its distinct dimensions – economic, social as well as political globalization throughout the years, computed with the unweighted averages across all countries for the overall index as well as the aggregate indices for the distinct dimensions presented in the analysis. The aim is to provide a general

[14] See Chapter *3.2 Scientific relevance and hypothesis*

overview and thus provide a better perception on the phenomenon of globalization as one of the pillars of the theoretical framework before it is being presented as key in deriving results in the empirical analysis[15]. It is not the goal, however, to utilize the thus presented time series as an indicator to showcase anything other than the development of globalization and its distinct dimensions throughout the years. As such, the reasons being behind different points of departure in the progression of globalization and its distinct dimensions will not further be elucidated, as they are not of interest for the research question and are intensively analyzed as subjects of interest in other scholarly efforts in IPE research.

Figure 1:



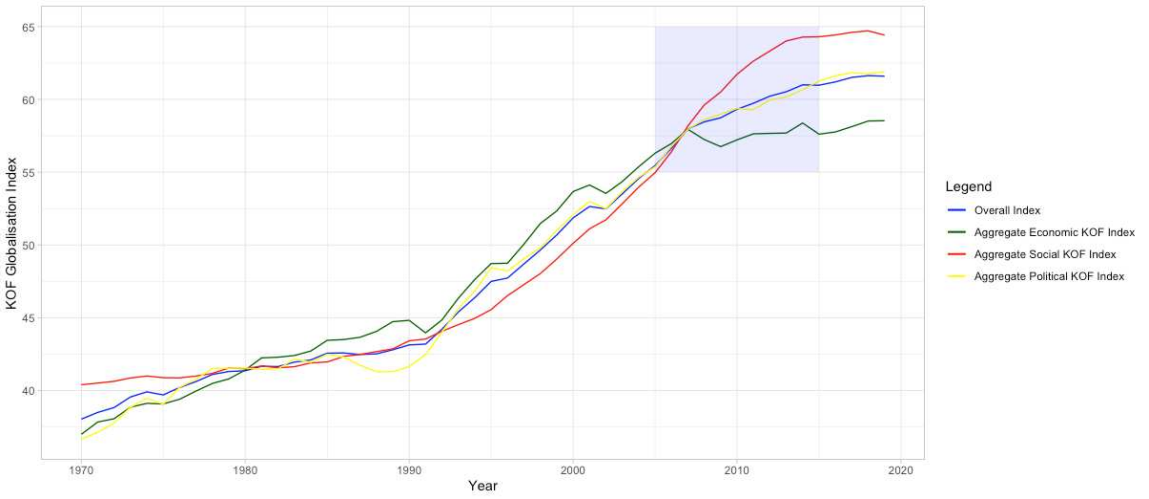
KOF Globalization Index and its dimensions throughout the years – General Aggregate

The measurement of globalization provided by Gygli et al. suggests that globalization has steadily increased throughout the years, with globalization as presented within Figure (Fig.) 1 having developed intensely, throughout the 1990s in particular, boosted by the end of the Cold War, and early 2000s, up until the initiation phase of the financial crisis in the year 2007, putting a halt on the steady rise of globalization and its dimensional development (Gygli et al. 2019: 560, Haelg 2020: 692-693). Generally, the phenomenon of overall globalization encapsulating all its different dimensions and their respective sub-indicators has with little exceptions increased in its score with minor exemptions in the years 1987, 2002 and most recently, 2019. Economic development has long been the most dominant strand of globalization

[15] See Chapter *4.2 Empirical analysis*

but has stagnated in the past decade while its social and political counterparts have drastically increased in comparison (Haelg 2020: 692-693).

Figure 2:



KOF Globalization Index and its dimensions throughout the years – Aggregate Points of Inflection

Most prominently, the different strands of globalization as well as overall globalization per se have showcased mostly similar developments overlapping up until the financial crisis, serving as an inflection point that presents a clearly differentiated evolution in the distinct dimensions of globalization. As can be seen in the highlighted area in blue presented in Fig. 2, economic, social, and political globalization have since developed at different rates, with economic globalization plummeting. However, social globalization in particular has picked up pace and has, after decades below the other dimensions of globalizations, drastically turned into the most dominant of the three strands, exceeding its economic and political counterparts by far, despite a slight decrease in the most recent available score presented in the year 2019 due to different policies and measures taken by countries that have increasingly forced countries in the international landscape as well as international organizations to adapt to what, at the time of the latest available data in 2019, presented itself to be a new era of globalization for different reasons than a pandemic with changes in interaction among states (Figus/de Serio 2020: 1; Haelg 2020: 693; Figus 2021; Gründler et al. 2021: 1-5).

2.1.2 The de facto and de jure degrees of globalization

Recursive definition through backward induction helps better understand the revisited KOFGI. The index itself is comprised of 43 different variables, representing different sub-indicators that can be subsumed in indicators for the different sub-dimensions that can further be aggregated into economic, social, and political globalization (Haelg 2020: 693-694). Finally, a distinction of the individual components and as such different dimensions of globalization on a *de facto* and *de jure* level helps distinguish between carried out activities per se and policies that affect, i.e., facilitate or inhibit mentioned activities in their execution (Gygli et al. 2019: 551-552; Haelg 2020: 691). The within this thesis presented KOFIG is exceptional in its focus of measurement with a distinction between de facto globalization in activities and globalization policies on a de jure-level with the authors of the KOF reissue intently proposing a distinction between not only overall globalization in its actual flows and activities in contrast to the policies facilitating or inhibiting those, but also across all its dimensions and sub-dimensions (Gygli et al. 2019: 549), further supported by scholarly efforts that highlight the need for a distinction in the dimensions of measurement for input on globalization and the outputs it produces (Kose et al. 2006: 4-5; 12-14; Martens et al. 2015: 4-5; Gygli et al. 2019: 549; Haelg 2020: 695).

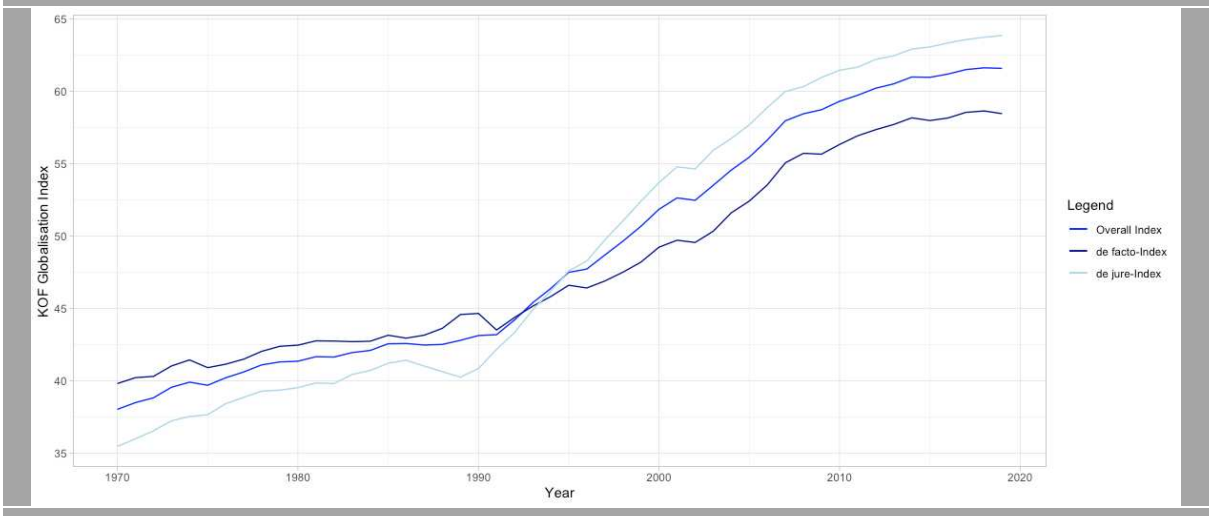
As such, the de facto and the de jure sub-indices vary for the respective economic, social, and political dimensions mentioned before with a, nonetheless, specifically highlighted choice of indicators with trade as well as financial globalization, components of the general dimension of economic globalization, varying in conceptually close sub-indicators such as, for instance, exchange of goods and services between countries on a de facto level in contrast to policies such as regulations and tariff rates on a de jure level (Gygli et al. 2019: 552-559; Haelg 2020: 694). The same approach is applied to social globalization de facto and de jure, comprising of interpersonal, informational, and cultural globalization with a similarly conceptually close choice of sub-indicators as well as political globalization that is distinguishable in the level of diffusion of state-specific policies and policies related to intergovernmental organizations on a de facto level as well as the de jure realm of possibilities and ability in engaging cooperation within the international political system (Gygli et al. 2019: 553-557; Haelg 2020: 694).

Further ventilation of the focus of measurement on both, de facto globalization and de jure globalization policies is, as the role of globalization itself, directive in the formulation of the hypothesis in theoretical framework[16], with the author presenting a time series of the general

[16] See Chapter *3.2 Scientific relevance and hypothesis*

development of overall globalization in comparison to de facto globalization and the de jure policies on globalization, also computed with the statistical software R in the same manner. Accordingly, the provision of a general emphasis on the distinction of measurement and, consequently, further help in highlighting the ambidexterity of the multifarious concept of globalization as part of the theoretical framework is essential in the empirical analysis[17]. Similarly, the objective is not to present the following time series as indication for anything other than the general development of de facto globalization and de jure policies on globalization in the following overlap statistics. It is, however, designated to help in comprehending the importance of the different forms of measurement and the distinction of de facto and de jure globalization throughout the course of the herein presented thesis. Further causes of the different points of departure in the development of globalization and its distinct dimensions will not be further highlighted, as they as well are not of interest for the research question and are intensively analyzed as subjects of interest in other scholarly efforts in IPE research that the author hereby refers to.

Figure 3:



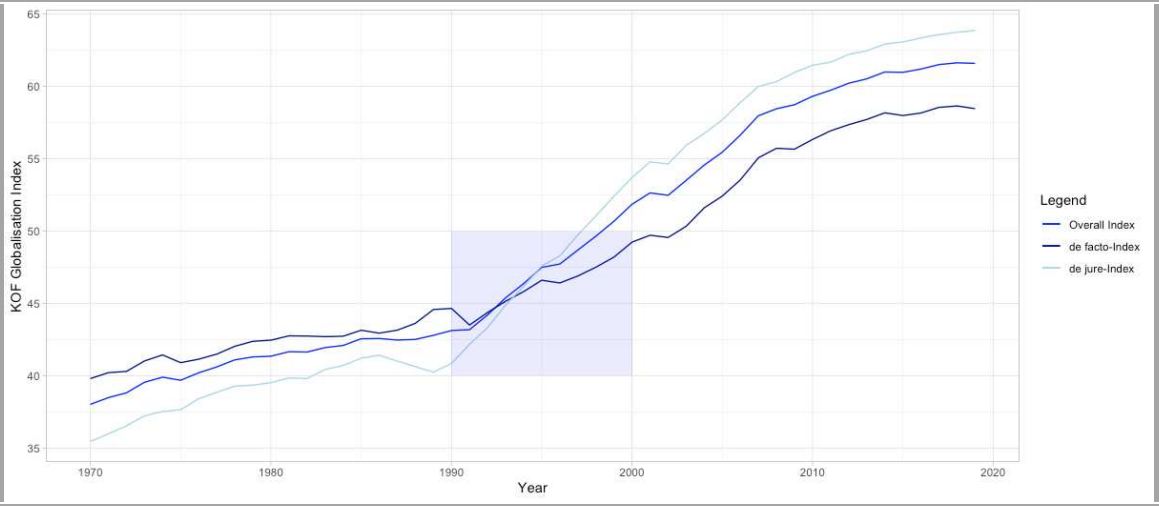
KOF Globalization Index (de facto and de jure) throughout the years – General

Fig. 3 reiterates the steady increase in overall globalization as provided with the help of the data in the measurement provided by Gygli et al. in their revisited KOFGI. The graph is also of aid in showcasing an indication of similarity, particularly, generally similar developments in both de facto globalization with activities that have taken place and come into force and de jure globalization with different policies affecting the activities. With overall

[17] See Chapter *4.2 Empirical analysis*

globalization comprised of the averages in development of both de facto- and de jure-index on globalization, the overall development is conditional on the respective progression, or lack thereof, of its respective de facto and de jure component units. Up until the 1990s and the aftermath of the end of the of the Cold War, de facto globalization has presented itself to be the ruling form of globalization while its de jure-counterpart with policies on globalization has since overtaken it, also due to the rise in different forms of policies facilitating or inhibiting the actual performance of globalization in practice (Haelg 2020: 693).

Figure 4:



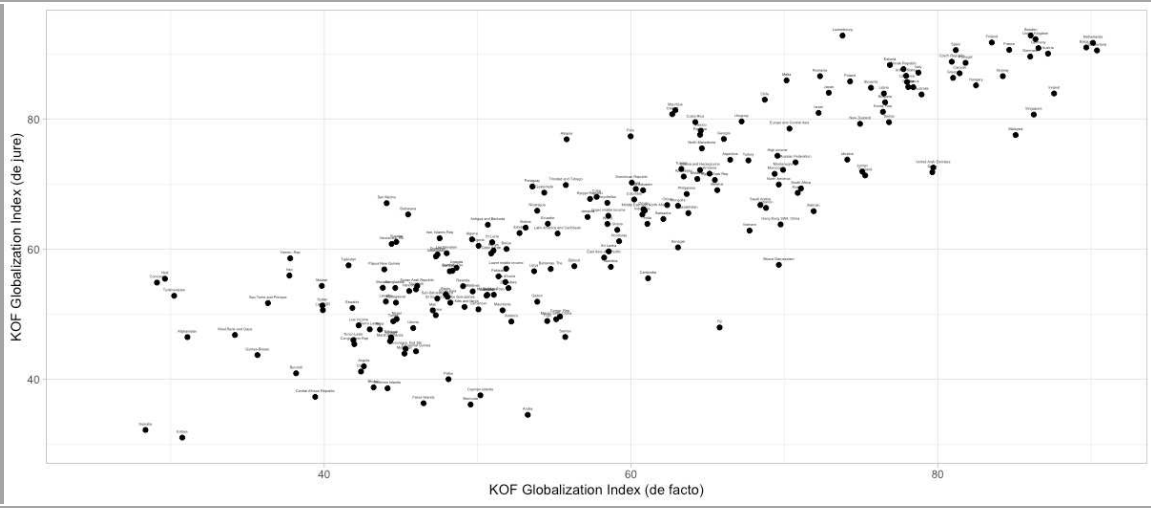
KOF Globalization Index (de facto and de jure) throughout the years – Points of Inflection

Evidently, as mentioned, the different strands of globalization have demonstrated mostly similar progress with de jure-policies on globalization not overlapping with de facto-activities of globalization up until the mid-1990s, conducive to presenting a pivot point that reveals the overly growing importance of policies that facilitate or inhibit the production of outputs through globalization, as can be derived from Fig. 4. As it appears in the highlighted area in blue presented in Fig. 4, de facto and de jure have since developed at different rates, with de jure forms of policies obtaining the lead after decades of trailing behind globalization in practice. Due to the surge in a variety of policies taken by countries on a global scale that facilitate or inhibit the overall performance of globalization put into practice, the highlighted area in Fig. 4 further marks the beginning of a rewired age of globalization, preceding the reinforcement of country-specific measures in policy- and decision-making, further strengthened by the pandemic and further developments in globalization (Figus/de Serio 2020: 1; Haelg 2020: 693; Figus 2021; Gründler et al. 2021: 1-5).

Finally, a proper comparison of the de facto and de jure dimensions of overall globalization and its economic, social, and political dimensions concludes the role of globalization in the formulation of the theoretical framework[18] as the author presents scatter plots that contrapose the de facto and de jure differences for countries and territories on a global level, similarly computed with the statistical software R and aided by the data available on the aggregate forms of general globalization as well as its distinct dimensions – economic, social as well as political globalization throughout the years, once again computed with the unweighted averages across all countries for the overall index as well as the aggregate indices for the distinct dimensions presented in the analysis with the clear difference that only the most recent available data for the year 2019 is being used to showcase the current state of globalization in the world. Correspondingly, for this final section on globalization per se, the limited objective for the conduction of the research within this thesis is to not merely highlight the current state of globalization in its various forms and, accordingly, dimensions, but, in the same vein, provide a better understanding of the differences in the dimensions of economic, social, and political globalization – limited, as the latest available data for the around 200 units of observation, including countries and territories, dates back to 2021 and, due to the (lack of) availability of data regarding the different variables and indicators in the research process and suitable presentation of said data, therefore analyses the components of the index with retrieved information for two years prior the release date, in this case with data for the year 2019 serving as the most current look into the state of globalization across the world. It should be of interest, however, to (keep) revisit(-ing) the research provided within this thesis as new data is available, particularly with an update in the year 2022 that provides data for the actual year 2020 that marks the beginning of the COVID-19 pandemic of unprecedented scale. It is not the goal, however, to utilize the thus presented time series as an indicator to showcase anything other than the development of globalization and its distinct dimensions throughout the years. The author would like to decidedly communicate and hereby acknowledge that it is not the goal of this section to illustrate anything other than further insight into the distinction of de facto globalization and its de jure policies on it as well as the respective composition of the different dimensions on an economic, social, and political level. Reasons behind the different scores in either de facto or de jure forms and dimensions of globalization cannot be further highlighted due to the limited extent of the thesis and may further be analyzed in different publications in IR and IPE research.

[18] See Chapter *3.2 Scientific relevance and hypothesis*

Figure 5:

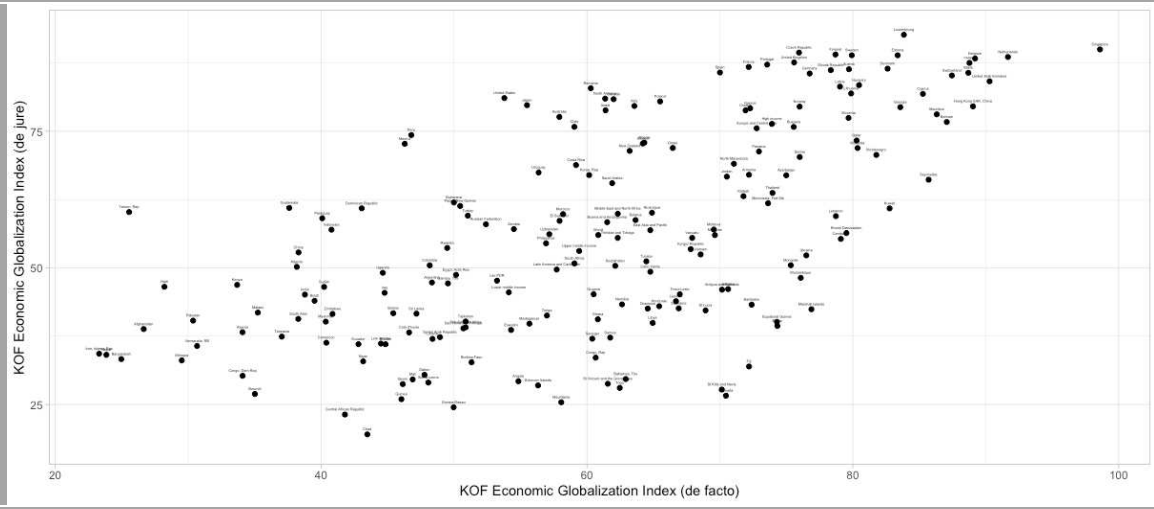


KOF Globalization Index – de facto and de jure

Notably, Fig. 5 featuring the visualization of the data on the level of de facto and de jure globalization given for respective countries and territories across the globe showcases that, prevalently, countries present similarly high scores in their levels of de facto globalization and the policies on globalization, i.e., de jure globalization, with the exemption of minor outliers, particularly found on the left-hand side of the graph. On the left-hand side, one can observe both, relatively low levels of de facto globalization for a respective country corresponding with saliently higher levels in the scores of de jure globalization as well as relatively low scores of globalization in practice similarly going hand in hand with analogically low scores of de jure globalization. Prominently, on the right-hand side, however, an observation of relatively high levels of de facto globalization corresponding with saliently lower scores of de jure globalization cannot be made in resemblance to the left-hand side of data presented in Fig. 5, indicating that generally high(-er) scores of globalization in theory tend to align themselves with high scores of globalization put into practice. This ability to distinguish between the dimensions of de facto and de jure globalization will further present itself throughout the course of this thesis when taken into consideration with the trajectory of the pandemic. It is necessary to mention that further descriptive statistics and data sources on the contrast of both dimensions of globalization can be derived from the thorough analysis presented by Gygli et al. in their 2019 rendition of the KOFGI in its various forms. The referred to paper includes a meticulous description and analysis on the calculation of the data, the given scores as well as the weights put onto the distinct (sub-)indicators and variables that will not further be reiterated in this thesis as it is not key in the ventilation of the research question and it is not the aim of the author to

further contribute to the calculation of the empirical model behind the index but, instead, utilize it as clearly communicated throughout this thesis.

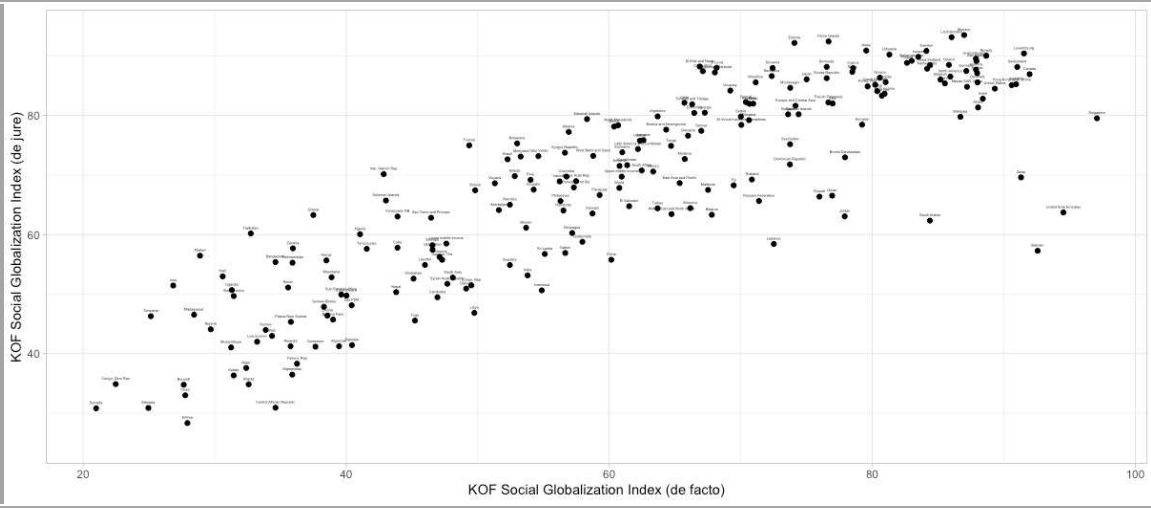
Figure 6:



Economic KOF Globalization Index – de facto and de jure

As mentioned, the de facto and the de jure sub-indices vary for the within Fig. 6 represented economic dimensions of globalization on a de facto and de jure level, including a carefully curated choice of indicators with both, trade as well as financial globalization as constituent parts of the general dimension of economic globalization that differ in conceptually close sub-indicators (Gygli et al. 2019: 552-559; Haelg 2020: 694). For trade globalization as a sub-dimension to the dimension of economic globalization, Gygli et al. include the exchange of goods and services between countries on a de facto level as well as partner diversity in trade in contrast to policies such as trade regulations, trade taxes and trade agreements as well as tariff rates on a de jure level (Gygli et al. 2019: 552-559; Haelg 2020: 694). For financial globalization as the second of two sub-dimensions to the economic dimension of globalization, the researchers include foreign direct investments, international debt, and reserves as well as income payments and country-specific portfolio investments in contrast to de jure restrictions and agreements on (international) investment as well as capital account openness (Gygli et al. 2019: 552-559; Haelg 2020: 694).

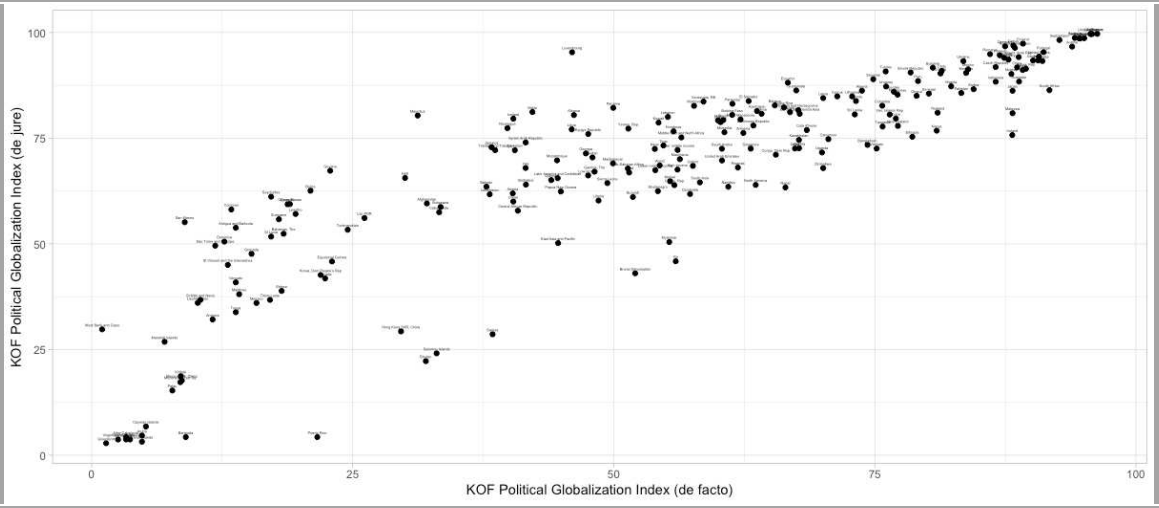
Figure 7:



Social KOF Globalization Index – de facto and de jure

The same approach as in the economic dimension is similarly applied to social globalization on a de facto and de jure scale in Fig. 7, comprising interpersonal, informational, and cultural globalization with a similarly conceptually close choice of sub-indicators (Gygli et al. 2019: 553-557; Haelg 2020: 694). For interpersonal globalization as one of three sub-dimensions to the dimension of social globalization, Gygli et al. put different weights in percent on transfers as well as international voice traffic, tourism and the amount of students with the inclusion of migration in the calculation, correspondingly in contrast to the amount of international airports within a country and region, the freedom to visit said country and region as well as the numbers of telephone subscriptions within the population in an effort to capture "direct interactions among citizens living in different countries" (Gygli et al. 2019: 552-559; Haelg 2020: 694). For informational globalization as the second of three sub-dimensions to the social dimension of globalization, de facto outputs of globalization with used internet bandwidth, the density in international patents as well as high technology exports are put into contrast to de jure access to television and internet as well as the freedom of the press (Gygli et al. 2019: 552-559; Haelg 2020: 694). The third and final sub-dimension of social globalization contrasts de facto and de jure globalization on a cultural scale, measuring trade in cultural goods and personal services, international trademarks and even the point of presence of McDonald's restaurants and IKEA stores as indicators of openness to increasingly globalized westernized strands of globalization on a de facto level which is to be distinguished from de jure levels of gender parity, human capital as well as civil liberties on a de jure level of cultural globalization (Gygli et al. 2019: 552-559; Haelg 2020: 694).

Figure 8:



Political KOF Globalization Index – de facto and de jure

Finally, political globalization is the only of the three dimensions of globalizations that is not further separated into certain sub-dimensions but is, nonetheless, distinguishable in the level of diffusion of state-specific policies and policies related to intergovernmental organizations on a de facto level as well as the de jure realm of possibilities and ability in engaging cooperation within the international political system (Gygli et al. 2019: 553-557; Haelg 2020: 694). With de facto political globalization capturing the actual "diffusion of government policies" (Gygli et al. 2019: 555), political globalization in action is measured with the presence of embassies within a country, the participation of countries and member states in UN peacekeeping missions as well as the presence of international non-governmental organizations present and also active within a country (Gygli et al. 2019: 553-557; Haelg 2020: 694). On a de jure scale of political globalization, referring to the "ability to engage in international political cooperation" (Gygli et al. 2019: 557) in the first place, memberships of a country in international organizations as well as their participation, or lack thereof, are included as (sub-)indicators with a special mention of treaty partner diversity included in the political de jure dimension as the amount and variety of countries that are being partnered and cooperated with are key in the level of globalization of a member state (Gygli et al. 2019: 553-557; Haelg 2020: 694).

2.2 The COVID-19 pandemic

Contemporary scholars have, in the wake of the Corona pandemic, been faced with the difficult task to adjust to a shift that has not only struck the world but the landscape of a variety of different strands of research from IR and its distinct dimensions, such as global health diplomacy (GHD), to different areas of IPE research, further leading to an immense rise of publications as researchers were working on effectively and thoroughly comprehending the multifaceted impact of the ongoing pandemic of unprecedented scale (Brown/Horton 2020: 1099; Correia et al 2020: 15-16; Li 2020: 1-2; Gupta et al. 2021: 1-3). As mentioned, in the same vein, the difficulties UN member states have been confronted with have presented themselves to be highly diverse, furthermore affecting all sectors of the international political system (Gupta et al. 2021: 1-2), and have, as such, been accompanied by debates regarding the performance of the health organization (Hanrieder 2020b: 534-535; Lee/Piper 2020: 1-2). Following a call for more interdisciplinary research to understand the widespread effect of the pandemic on an economic, social, and political scale (Brown/Horton 2020: 1099, Li 2020: 2), this particular section of the herein presented thesis will first give an overview on the variety of situation reports with the help of data by the WHO and secondly, highlight carefully chosen milestones of the global trajectory within the ongoing pandemic to properly elucidate the wide-ranging effects of it across all sectors, before concluding the literature review for a progressive junction into the theoretical framework of the thesis with a summary of COVID-19 in the context of globalization.

Even before the spherical outbreak of SARS-CoV-2 across all sectors, the WHO has, in clear alignment with its mandate as an ambassador of universally targeted health on a global scale as a universal goal, decidedly based upon and dedicated to upholding said universal target (Parran/Boudreau 1946: 1270-1272; Ip 2021: 335-336), committed to providing the general public with the necessary information regarding disease outbreak news (DONs) and, correspondingly, epidemiological updates to combat threats to GPH (Hanrieder 2015: 204-205). The practical execution of said directive target has long been vastly contested, not only, but especially in a pandemic IPE (Hanrieder 2015: 206-207; Lee/Piper 2020: 1; Paddeu/Waibel 2020: 702-706, Ip 2021: 333). While it is not possible to provide a more detailed look into the development of the WHO and their ability to provide said DONs in clear dependence on country-specific permission as well as state-consent on a global scale due to the restrictive scope of the thesis, the author mentions the importance of the journey of legitimacy of the WHO on a global scale throughout the decades as well as the (non-)compliance of UN member states

to enabling the WHO in their global containment efforts of disease outbreaks (Hanrieder 2015: 205; Hanrieder 2020a: 1-2; Hanrieder 2020b: 542).

2.2.1 Overview of situation report

In the time since the emergence of the novel SARS-CoV-2 strain in late 2019 and early 2020, the WHO has released DONs in order to provide information on confirmed acute public health events or potential events of concern[19]. Consequential to the rapid spread of the novel Coronavirus strain due to the COVID-19 outbreak on a global scale (Li 2020: 1-2), the WHO moved on to reporting epidemiological and operational updates (EOUs) in order to provide "an overview of the global, regional and country-level COVID-19 cases and deaths, highlighting key data and trends as well as other pertinent epidemiological information concerning the COVID-19 pandemic"[20], further providing an overview of actions in response to the COVID-19 pandemic by the WHO as well as its partners on a weekly and monthly basis. As the thesis at hand focuses on the ongoing COVID-19 pandemic as a global health crisis across all sectors in the context of globalization in a highly globalized international political system (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3), this section aims to provide a better overview on the trajectory of the pandemic by contrasting the early stage of the pandemic with the very first DONs as well as weekly and monthly EOUs, with the latest available EOUs dating back to July 6, 2022[21], to better grasp the trajectory of the pandemic. After this comparison of state reports early in the trajectory of the pandemic as well as of recent, the author concludes the section with a transition to milestones in the trajectory of the pandemic that includes an overview of actions taken in it. It is necessary to mention that the contrast with edition 98 of the weekly EOUs on COVID-19, published on June 29, 2022, is putting an end to the observation period of COVID-19, starting early 2020 up until in mid-2022 exactly, as the number of weekly COVID-19 cases has increased for the third consecutive week after a declining trend ever since the two year anniversary of the WHO declaring COVID-19 as a pandemic in March 2022.

On January 5, 2020, the WHO released the very first round of DONs on what was then referred to as rising cases of pneumonia of unknown etiology in the Hubei Province of China,

[19] Overview of latest Disease Outbreak News by the World Health Organization (State as of July 11, 2022): https://www.who.int/emergencies/disease-outbreak-news/8
[20] Overview of latest epidemiological and operational updates on COVID-19 by the World Health Organization (State as of July 11, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports
[21] Edition 98 - weekly EOUs update on COVID-19 from June 29, 2022 (State as of July 14, 2022): https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---29-june-2022

specifically the city of Wuhan[22], with another batch of DONs in the following week confirming the genetic sequence of a novel coronavirus strain[23] (Li 2020: 1-2). With 282 cumulative confirmed cases of the 2019 novel Coronavirus strain (2019-nCoV) outbreak as of January 20, 2020[24], since confirmed to derive from Wuhan and further spreading throughout the city at a slow, yet alarming pace, the strain was later retitled with the release of the 23rd situation report on the virus and has, hence, been referred to as the Coronavirus disease COVID-19[25] with 45,171 confirmed cumulative cases as of February 12, 2020. After weeks of WHO risk assessment on high global alert with recommendations on public health response, March 11, 2020, marked the official declaration of COVID-19 as a pandemic due to the alarming spread and severity of the then novel virus strain SARS-CoV-2 with the release of the 51st situation report on COVID-19 including highlights, pandemic surveillance as well as information on preparedness and response[26]. At the time of the announcement, with COVID-19 nonetheless still being declared as a controllable pandemic with the included disclaimer of expectations of drastically impending aggravation of the outbreak on a global scale[27], there had been a total of 125,260 confirmed cumulative cases as well as 4,613 confirmed cumulative deaths associated with COVID-19 of which 4,627 and 280 were new, respectively. WHO risk assessment has been put on the alert level "very high" in not only China, but a regional and global level, with WHO-DG Dr Tedros going as far as to cautioning against a sole view on the number of cases and countries affected to date for further assessment of respective governments in their public health and social as well as safety measures to limit the spread of COVID-19. After all, while 80,955 confirmed cumulative cases and 3,162 confirmed cumulative deaths have been reported in China, only 31 and 22 were new, respectively – in contrast, however, of the 37,471 confirmed cumulative cases and 1,130 deaths outside of China across 113 countries, a total of 4,596 and 248 cases and deaths were reported in the past 24 hours, respectively, further indicating a change in the trajectory of the pandemic on a global scale.

[22] COVID-19 DONs from January 5, 2020 (State as of July 11, 2022: https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON229
[23] COVID-19 DONs from January 12, 2022 (State as of July 12, 2022): https://www.who.int/emergencies/disease-outbreak-news/item/2020-DON233
[24] First classified as 2019-nCoV in the first COVID-19 situation report from January 20, 2020 (State as of July 12, 2020): https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200121-sitrep-1-2019-ncov.pdf?sfvrsn=20a99c10_4
[25] Dated February 12, 2020 (State as of July 14, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it
[26] 51st situation report on COVID-19 from March 11, 2020 (State as of July 11, 2020): https://reliefweb.int/report/china/coronavirus-disease-2019-covid-19-situation-report-51-11-march-2020
[27] WHO Director-General's opening remarks at the media briefing on the virus from March 11, 2020 (State as of July 14, 2022): https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Over two years later, at the time of the release of the 98th edition of the weekly EOUs on COVID-19, there had been over 541 million confirmed cumulative cases and over 6.3 million confirmed cumulative deaths reported in association with COVID-19, a huge increase since 440,807,756 confirmed cumulative cases of COVID-19, including 5,978,096 deaths reported to WHO on the two year anniversary since the WHO's declaration of COVID-19 as a pandemic on March 11, 2022[28], with the IPE and world across all sectors having been exposed to severe difficulties in this pandemic trajectory of unprecedented scale as COVID-19 has more than merely transcended international borders (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3). With the rise of a variety of different variants of concern (VOCs) in the years since the outbreak as well as their comparatively graver facility in transmission accompanying the vaccination race on a global scale, case rates have increased for the third consecutive week, whereas death rates have proven to be significantly lower due to different effects of the VOCs in combination with relative vaccine effectiveness[29]. Globally, the Omicron variant of concern (VOC) itself, first documented in November 2021[30], with its particular increase in transmissibility as well as virulence, sparking a heightened decrease in effectiveness of public health and social measures, continues to be the most dominant VOC of COVID-19, as can be derived from the special focus section of the latest weekly EOUs. In sum, the problems faced across the world on an economic, social, and political scale have been highly diverse, correspondingly affecting all sectors of the international political system (Gupta et al. 2021: 1-2), further triggering a variety of different milestones within the global trajectory of the pandemic, as can be derived in the following section.

2.2.2 Milestones within the global trajectory of the pandemic

To further grasp the global trajectory of the pandemic in the context of globalization, the author of the thesis at hand aims to utilize the following section to provide an overview of carefully chosen and curated milestones of the past two years in the pandemic IPE that are of particular interest in the later process of the empirical analysis and key in putting COVID-19 in a directive context of globalization, thus concluding the final section of the literature review on COVID-19. With the WHO moving on to not only provide DONs as well as situation reports

[28] Data retrieved by the WHO COVID-19 Dashboard from March 11, 2022 (State as of July 4, 2022): https://covid19.who.int
[29] Dated June 29, 2022 (State as of July 12, 2022): https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---29-june-2022
[30] Tracking SARS-CoV-2 variants (State as of July 11, 2022): https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/

throughout the course of the pandemic, but also responding to COVID-19 with strategy and planning, international appeals for increases in funding by UN member states as well as continuing to provide COVID-19 related recommendations and technical guidance to countries and regions throughout the world to fulfil its responsibilities as part of it not entirely uncontested mandate (Hanrieder 2020a: 1-2; Hanrieder 2020b: 535-536), there is a variety of pandemic milestones to present for further understanding of COVID-19 in a globalized context.

With the spread of COVID-19 and the declaration of it as a pandemic already serving as a milestone of COVID-19 on a globalized scale, so too does the variety of public health and social measures (PHSM) in the context of COVID-19, with public health interventions (PHIs) of such scale having last been encountered during 1918 flu pandemic (Correia et al. 2020: 2-3, 6-14). PHSM in the context of COVID-19 have not only been recommended by the WHO but also actively been executed in the collective goal for all countries to slow down the pandemic and the transmission of the virus in its early stages through PHIs. More comprehensive country and technical guidance by the WHO on COVID-19 was particularly provided with information on critical preparedness, readiness and response actions for COVID-19, country-level coordination, planning, and monitoring, risk communication and community engagement, guidance for schools, workplaces and institutions as well as maintaining essential health services and systems, among others[31]. The WHO's comprehensive strategy to control COVID-19 particularly focused on providing PHSM that range from personal, physical, and social distancing measures to movement measures as well as special protection measures for immunocompromised and vulnerable groups of people[32]. Finally, in the context of PHSM to limit the spread of COVID-19, the WHO categorized steps taken by countries and territories with the ability to enforce rules or guidelines in the wake of the pandemic with country-, territory- and area-specific data available in order to track the strategies and policies taken while simultaneously balancing the benefits and risks on a global scale[33]. As such, mandates on facial coverings such as masks, the adaption or closure of schools and business, limits and restrictions on public and private gathering and restrictions on domestic movement, public transport and stay at home orders have been implemented variously across all sectors, therefore encompassing economic, social, and political measures taken to limit the spread of COVID-19.

[31] WHO's country & technical guidance on COVID-19 (State as of July 12, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance

[32] Interim guidance and overview of PHSM in the context of COVID-19 as interim guidance from May 18, 2020 (State as of July 13, 2022): https://www.who.int/publications/i/item/overview-of-public-health-and-social-measures-in-the-context-of-covid-19

[33] Overview of PHSM taken by countries, territories, and areas to limit the spread of COVID-19 (State as of July 12, 2022): https://covid19.who.int/measures

Additionally, international travel and entry restrictions, quarantining and testing measures have been tracked globally and, along with the different categories, been included in a composite measure of PHSM severity measuring the average of the previously mentioned categorial measures taken across the globe. While the restrictive scope of the thesis does not allow for an inclusion of the PHSM severity index in the empirical analysis, the context of PHSM taken by individuals, institutions, communities as well as local and international organizations in response to COVID-19 are of particular interest of COVID-19 and its trajectory, further helping in the analysis with indications deriving from the to be presented results[34].

Global research on COVID-19 has accelerated throughout the course of the pandemic with the WHO, as part of its universal mandate on ensuring GPH, bringing together the contributions of state-specific health representatives and actors, independent organizations and research institutions on public health as well as a vast variety of laboratories featuring global health professionals in a collaborative and cooperative way to ensure properly containing the spread of COVID-19 across all sectors (Hanrieder 2015: 205-211; Hanrieder 2020b: 535-537; Sell 2020: 153-155). With COVID-19 presenting itself as pandemic of unprecedented scale (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3), the WHO and its partners have released a research and development (R&D) blueprint in response of the spread of the then novel disease and decidedly communicated goal of continuously drawing lessons in the course of the pandemic[35] (Haque/Pant 2020: 7-12; Sell 2020: 152). Part of this goal has been to gather the expertise in R&D to provide countries with a blueprint that aims to facilitate advancements and their appropriate provision on a global level with special foci being put on diagnostics, therapeutics, and vaccines as part of the global response (Haque/Pant 2020: 9-12; Sell 2020: 153). A detailed timeline of the WHO's response in R&D can be extracted with special sections provided for actions on information, leadership, and advice as well as science, further providing the information of the first convention featuring country-experts and funders from countries coming together for assessment of the pandemic as early as February 11, already[36]. In search of potent treatments for COVID-19, the WHO and partners have launched international clinical trials on the development of vaccines through a solidarity trial representing the largest global

[34] According to the WHO, the PHSM severity index "is not intended for, nor should it be interpreted as, assessing the appropriateness or impact of PHSM responses", therefore backing up the choice of not including it in the analysis (State as of July 12, 2022): https://covid19.who.int/data
[35] R&D blueprint and COVID-19 (State as of July 12, 2022): https://www.who.int/teams/blueprint/covid-19
[36] See comprehensive timeline on WHO's COVID-19 response (State as of July 12, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/interactive-timeline

collaboration among WHO and UN member states to date[37] and further serving as trailblazing to Solidarity Trial Vaccines (STVs)[38]. Said STVs have gone on to provide conclusive evidence on potential efficacy of drugs, specifically, vaccines, as early as October 2020[39] with WHO and partners, including Gavi, the Coalition for Epidemic Preparedness Innovations (CEPI) as well as the United Nations Children's Fund (UNICEF) co-leading the establishment of the Access to COVID-19 Tools (ACT) with the formulated objective to ensure equitable access to COVID-19 vaccinations across the world in their COVID-19 Vaccines Global Access effort (COVAX)[40] in an increasingly dependent globalizing state of the world (Garfinkel et al. 2020: 1-3; Jecker et al. 2020: 5-9; Legge 2020: 383-385; Sell 2020: 153; Hassoun 2021; 1-2). As such, partners and UN as well as WHO member states have been called on for support of the COVAX initiative to succeed in raising a total of $2 billion in aid of the ACT in order for the WHO and Gavi to focus further R&D on vaccines with financial assistance of CEPI and UNICEF in the production as well as distribution of vaccines, properly rolled out on February 24, 2021[41] (Garfinkel et al. 2020: 2-3; Jecker et al. 2020: 7-9; Legge 2020: 384-385; Hassoun 2021; 1-2). In an effort to counter vaccine nationalism and further ensure the "just allocation of COVID-19 vaccines" (Herlitz et al. 2021), partners of the COVAX initiative have formulated problems in their set targets of over two thirds of global vaccination coverage by mid-2022 through proposed solutions of incremental improvements in multilateral approaches of cooperative degrees to accelerate COVID-19 vaccinations in a spatially inclusive and comprehensive way (Garfinkel et al. 2020: 1-3; Jecker et al. 2020: 5-9; Legge 2020: 383-385; Sell 2020: 153; Hassoun 2021; 1-2). Due to the limited scope of the thesis, an extensive look into vaccination rates per se as well as different forms of vaccination with different distributors and producers cannot be provided. However, response and advice regarding global vaccine distribution are key in properly understanding the WHO's response on a global scale as well as the different trajectories of the pandemic on a country-specific level in the empirical analysis, further aided by the following theoretical framework putting the information provided in the literature review together with COVID-19 in the context of globalization theories.

[37] Dated March 18, 2020 (State as of July 13, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/solidarity-clinical-trial-for-covid-19-treatments
[38] Information on STVs (State as of July 12, 2022): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov/solidarity-trial-of-covid-19-vaccines
[39] Dated October 15, 2020 (State as of July 12, 2022): https://www.who.int/news/item/15-10-2020-solidarity-therapeutics-trial-produces-conclusive-evidence-on-the-effectiveness-of-repurposed-drugs-for-covid-19-in-record-time
[40] COVAX vaccines pilar of the ACT (State as of July 13, 2022): https://www.gavi.org/covax-facility
[41] Dated February 24, 2021 (State as of July 14): https://www.who.int/news/item/24-02-2021-covid-19-vaccine-doses-shipped-by-the-covax-facility-head-to-ghana-marking-beginning-of-global-rollout

3. Theoretical framework

In assistance of the concluded literature review within the second chapter of the presented thesis at hand, this following chapter combines the strands of literature presented on globalization as well as COVID-19 in order to facilitate in the comprehension of COVID-19 in a theory of globalization. With the extensive analysis of the concept of globalization as presented with the composite KOFGI and its de facto and de jure degrees of globalization on an economic, social, and political scale, as well as the overview on the trajectory of the pandemic and its accompanying milestones of interest for the thesis, the following section is indispensable for the empirical analysis as the author puts COVID-19 into the context of globalization. With this being done, the chapter concludes in the presentation of the underlying scientific relevance of the topic as well as a formulation of the directive hypothesis for the empirical analysis in the paper.

3.1 COVID-19 in a theory of globalization

Further harnessing the literature concerning itself with the ongoing COVID-19 pandemic, the researchers Nippun Gupra, Bawa Singh, Jaspal Kaur, Sandeep Singh and Vijay Kumar Chattu have drawn results from the pandemic development on a global scale in their 2021 study "COVID-19 Pandemic and Reimagination through Global Health Diplomacy". Contrasting the nature of globalization per se, globalization is paralleled by the impact of the COVID-19 on all sectors of the international system due to globalization and the accompanying degree of state vulnerability as one of the many consequences of globalization leaving the impact of country-specific crises in general susceptible to affecting the rest of the world (Gupta et al. 2021: 1-2; 9). Despite varying degrees of globalization resulting in state-specific handling of the pandemic by respective governments worldwide, COVID-19 infections on a global scale have increased rapidly, turning the global health crisis into an all-encompassing, cross-sectoral crisis, including on an economic, social, and political scale (Gupta et al. 2021: 9-10).

Most interestingly, put into the context of international cooperation between states in the collective containment of the pandemic and, correspondingly, attempted curbing of case and death rates, the pandemic gave rise to increasing debates on multilateralism and the role of intergovernmental organizations within GHD due to COVID-19 as a matter of GPH (Gupta et al. 2021: 2-5). The authors highlight the connection of global health crises to dimensions of political globalization and multilateral approaches on the topic of GHD, as derived by the 2007

study on “the need for new perspectives, strategic approaches and skills in global health” (Kickbusch 2007). GHD in IR theory clearly aligns itself with objectives shared by intergovernmental organizations and their agencies, thus predominantly taking place within the framework of political globalization and therefore the UN system as well as the objective of the WHO in prioritising public health across national borders, further treating health as an international goal in collaborative efforts instead of state-individual pursuance (Kickbusch 2007: 230-231; Chattu 2017: 134-135). A connection between multilateralism and global health, including GHD efforts, is being realised through the main goals of aligning health with IR with a decidedly communicated interconnection of health in globalized terms to economic, social, and political consequences (Chattu 2017: 135-136; Chattu et al. 2019: 2-3). The author of this thesis aims to capitalise on the topic of health in IR as this connection of health matters, especially in times COVID-19 and a pandemic world, to determinants of globalization on the previously mentioned dimensions to gain more insights in the analysis.

Further research on the impact of “COVID-19 between globalization” as well as in IR shines light on different dimensions of global internationalization across sectors and their interaction with each other with studies by Alessandro Figus and Ludovico de Serio (Figus/de Serio 2020/Figus 2021). In a comprehensive ventilation of the limits and possibilities that walk hand in hand with globalization, the trajectory of the pandemic on a global scale thus far as well as the possible future outcomes of it resulting throughout time is being highlighted with changing degrees of globalization, including a focus on trade relations as well as collaborative efforts of cooperation in the name of multilateralism, or, as a result of the pandemic, the lack thereof (Figus/de Serio 2020: 2-3; Figus 2021: 1-2, 9, 13). In clear alignment with the pursuance of the stated research question for the thesis at hand, the given state of research highlights the impact of COVID-19 as consequential to globalization per se (Figus/de Serio: 12-13; Figus 2021: 3), thus showcasing the need to properly highlight the correlation between the different degrees of globalization with the impact of the ongoing pandemic.

Finally, a proper look into COVID-19 in the context of globalization within the handling period and accompanying vaccination race, as elucidated in the literature review, is necessary to be made in order to formulate the hypothesis by the inclined towards end of the theoretical framework. With the success, or lack thereof, of the COVAX initiative in its targeted security of equitable vaccination distribution being dependent on the trajectory of the pandemic on a global scale, the pandemic development accompanied varying levels of multilateral engagement between member states and their cooperation with the overarching UN body as well as its organs and agencies such as the WHO (Garfinkel et al. 2020: 2-3; Jecker et al. 2020:

7-9; Legge 2020: 384-385; Hassoun 2021; 1-2). One of the difficulties underlying the growing relevance of fathoming COVID-19 in a theory of globalization lies in the change in attitudes of countries due to economic, social, and political shifts in the course of the pandemic trajectory beyond pre-pandemic abilities of countries to be privileged or fortunate enough to be able to decide on their degree of cooperation with other countries and territories in their logic of collaboration in the first place (Ajana 2021: 24-26; Bump et al. 2021: 1-2; Ferguson/Caplan 2021: 2-4; Gostin et al. 2021: 623-624; Sekalala 2021: 6-7). Different political responses throughout countries should further be analyzed with the release of future editions of the KOFGI updated throughout the years to highlight the vast variety of PHSM taken by countries in their pandemic management with a contrast of more within-country containment measures and attitudes of countries both, implicitly and explicitly demonstrating rather amenable approaches towards collaborative efforts of limiting the spread of the pandemic (Garfinkel et al. 2020: 2-3; Jecker et al. 2020: 7-9; Legge 2020: 384-385; Ajana 2021: 20-23; Bump et al. 2021: 1-2; Ferguson/Caplan 2021: 1-2; Gostin et al. 2021: 622-625; Sekalala 2021: 4-5).

3.2 Scientific relevance and preliminary hypotheses

Embracing globalization in the international political system with the state-as-actors' incentives to change different degrees of globalization as well as their orientation in tackling the outcome of the pandemic within the country, the author aims to provide an indispensable analysis of the current-day IPE with extensive research on the correlation between globalization as well as its degrees and underlying dimensions with pandemic-related indications with case and death rates around the world on a comparative basis. To properly elucidate the different forms of globalization as a driving force in the trajectory of the COVID-19 pandemic, the author sought with the underlying literature review and theoretical framework of the thesis to combine relevant literature on globalization as well as relevant literature to COVID-19 and the connection of the outcomes to globalization for the final formulation of the accompanying hypothesis at hand.

Keeping in mind the review of the literature gathered thus far, the author builds upon the scientific methods of the presented research by re-examining the consequences of globalization in the context of an international political system that finds itself amidst an ongoing pandemic and global health crisis to highlight the driving forces between different developments in case as well as death rates due to a variety of factors (Gründler/Potrafke 2020: 2-4; Roope et al. 2020: 587-559; Wang et al. 2020: 7-10; Gründler et al. 2021: 2-4), furthermore

contributing to research on the role of globalization on the outbreak of SARS-CoV-2 (Correia et al 2020: 15-16; Gupta et al. 2021: 1-3).

As such, the core hypothesis in this paper reads as follows:

The higher the degree of overall globalization as well as its respective dimensions, the more severe the impact of the COVID-19 pandemic in comparison, i.e., the higher the confirmed case rates and death rates.

If the hypothesis cannot be rejected, broken down into its dimensions of de facto and de jure realization as well as its dimensions, indication would be provided on the significance of the degree of globalization on the trajectory of the pandemic within a country. However, on the event that the stated hypotheses can demonstrably be rejected in the presentation of the empirical analysis, strong indication would be provided that there is no significant correlation between the direction of the state in the context of globalization within the IPE and the respective repercussions of the pandemic at hand.

The formulation of the given hypothesis is strengthened scholarly, further noting that globalization is paralleled by the impact of the Coronavirus on all sectors of the international system, as globalization and the accompanying degree of state vulnerability as one of the many consequences of globalization leaves the impact of country-specific crises susceptible to affecting the rest of the world and vice-versa (Gupta et al. 2021: 1-2; 9).

4. Empirical analysis

Built upon the potential theoretical framework and literature review, the consequent segment presents the research design in accordance and reference to the listed literature and data that serves as the fundament of the research within this thesis. As will be laid out, the variety of distinct dimensions of globalization with the degree of overall globalization as measured by the composite KOFGI is key in analyzing the impact of the COVID-19 pandemic within a country throughout the empirical analysis. The scope of analysis will be followed by an introduction of the methodology and variables already at hand before leading into the interplay and presentation of the given data and thereout derived results.

4.1 Research design

Keeping the literature review in mind and capitalizing on further extensive research throughout the thesis itself, the author aims to provide empirical insights on the intercorrelation of globalization and indicators of pandemic outcomes across the globe. Mindful of the vast

variety of strands of globalization, yet decidedly focusing on the thus far presented review of relevant literature and the theoretical framework, the author aims to condense the scholarly efforts with their own contribution in the presentation of indications on the intercorrelation of the independent X-variable *degree of globalization* that domestically fuels the dependent phenomenon and Y-variable *outcome of the COVID-19 pandemic* of a respective state with regards to their confirmed case and death rates per 100,000 population at the time of the latest available 98th situation report presented in the pandemic overview.

4.1.1 Conceptualization

A mixed-methodological approach is utilized in the empirical analysis, combining the qualitative insights from further research on the effects of globalization and its distinct levels of dimensions with a focus on overall globalization as an aggregate for the average levels of economic, social, and political globalization, de facto and de jure, within a state. Quantitative aspects will be looked after by utilizing the data available to gain statistical insights into the intercorrelation of the given variables at hand to showcase whether and to what extent indications for statistically (un-)significant results as a contribution to future research can be derived on the effect of globalization on the trajectory of the pandemic through descriptive statistics. The limited scope of the thesis presented herein does not allow for the observation of statistical significance in the form of tests that will, therefore, not be provided. Nonetheless, spotlight will be given to the correlation between globalization and its various forms with the momentarily latest available observation of the state of the pandemic across the globe to, at the very least, gain valuable insights on the connection between the two. The author is aware that identified patterns in the accompanying graphs in the descriptive statistics do neither warrant causality nor infer any sort of causal relationship. It is, howbeit, helpful in signifying correlation in the relationship between the factors that future research could build upon.

Data on the respectively chosen variables is freely and readily accessible for download online. The composite KOFGI, based on 43 distinct indicators for the dimensions of economic, social, and political globalization in theory and in practice, is measuring globalization on a scale of "1" to "100", with "1" denoting the lowest attainable degree of globalization and a score of "100" representing the most globalized state of globalization in various forms (Haelg 2020: 691-692). The KOFGI is available on the website[42] of the Swiss Economic Institute that is part of the Swiss Institute of Technology, based in the city of Zürich, Switzerland. Additionally, the

[42] KOF Globalization Index as derived from the website of KOF Swiss Economic Institute of ETH Zürich (State as of July 7, 2022): https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html

website itself provides the most current data set in the year 2021 for the year 2019 in different formats. Also accessible on the page is further information on the composite KOFGI regarding the choice of variables, indicators as well as sub-indicators, a structural overview and methodology and even a ranking of countries regarding their assigned KOFGI score that the author will not be able to shine further light on in this very thesis.

Data measuring the impact of the COVID-19 pandemic with regards to (cumulative) confirmed cases of COVID-19 as well deaths related to COVID-19 per 100,000 of population as a comparative signifier to further gain insights is also freely accessible for download on the official site for the online COVID-19 dashboard by the WHO[43]. The WHO provides data displayed in the interactive dashboard for download in comma-separated values (CSV) files[44]. As such, CSV files are available for daily cases and deaths by date reported to WHO, latest reported counts, consisting of newly reported data in the last seven days as well as the past 24 hours. As a bonus, vaccination data by country and region is available, consisting of data on administered vaccine doses of various production, which could also be utilized in further research building upon the results of this thesis in future publications. Additionally, an interactive COVID-19 situation board provides even more detailed information on not only a global scale but in country-specific levels with daily updates on total cases and deaths, cases and deaths in the last seven days for weekly analyses as well as crude estimations on the cumulative incidence per a population of 100,000 population as well as a crude cumulative death toll per a population of even up to 1,000,000 within certain regions[45].

4.1.2 Operationalization

This ensuing section directs to provide information on the statistical analysis the author has conducted for the presentation of the empirical results in the analysis. With the help of the theoretically derived hypothesis as well as the given choice of variables provided, the individual data sets will be put into separate spreadsheets and files in order to be imported on the statistical and free-to-use statistical program R. The main goal remains and follows the empirical analysis to highlight how the various degrees of globalization and globalization per se affected the outcome of the COVID-19 pandemic with regards to its state-specific and global trajectory in terms of case and death rates per certain levels of population.

[43] WHO COVID-19 Dashboard, dated March 11, 2022 (State as of July 11, 2022): https://covid19.who.int
[44] Information on given Data, Data Overview and Visualizations, Data Sources and Data Download (State as of June 29, 2022): https://covid19.who.int/info?openIndex=2
[45] COVID-19 data in specific WHO regions (State as of July 12, 2022): https://who.maps.arcgis.com/apps/dashboards/ead3c6475654481ca51c248d52ab9c61

To properly observe the relationship between the independent and dependent variable at hand, guided by the previously noted hypothesis in the theoretical framework, the author will first conduct descriptive statistics in order to test the relationship between the degrees of globalization of countries within the UN system and the pandemic status. Through a scatterplot including the observation for the different values of the KOFGI assigned to a country, the independent variable will be put into relation with the latest available data on the (cumulative) outcome of the pandemic in two categories of graphs – more explicitly, these graphs provide observations on the relationship with confirmed cases of a country as well as deaths in association to COVID-19 within a country. As stated before, the overall KOFGI is an aggregate of 43 distinct variables and sub-indicators for the subdimensions, further aggregated into the previously mentioned dimensions of economic, social, as well as political globalization (Haelg 2020: 693-694). A specific line examining the slope of the relationship between the variables will be put into the graph to give further insights on the data at hand. This best fit line in aid of the examination of the slope of the relationship between the variables is included in each graph. The strength of the effect of overall globalization, encapsulating the dimensions of economic, social, and political globalization, is illustrated in respective scatter plots of the two variables including a fitted model of locally weighted polynomials (LOESS). This LOESS fit is of particular aid in identifying certain patterns provided in the visualization of the relationship between globalization and COVID-19.

The author hereby repeats that the empirical analysis will not feature a significance test to observe whether a statistically significant relationship is resulting from the steps mentioned due to the limited scope of the thesis. Choices of additional coefficients and control variables could be made throughout future contributions to the field for further observation of the connection between globalization and COVID-19. Despite said limitation, additional remarks from qualitative research and the current state of research are included in the description of the graphs before concluding the empirical analysis for mixed-methodological insights.

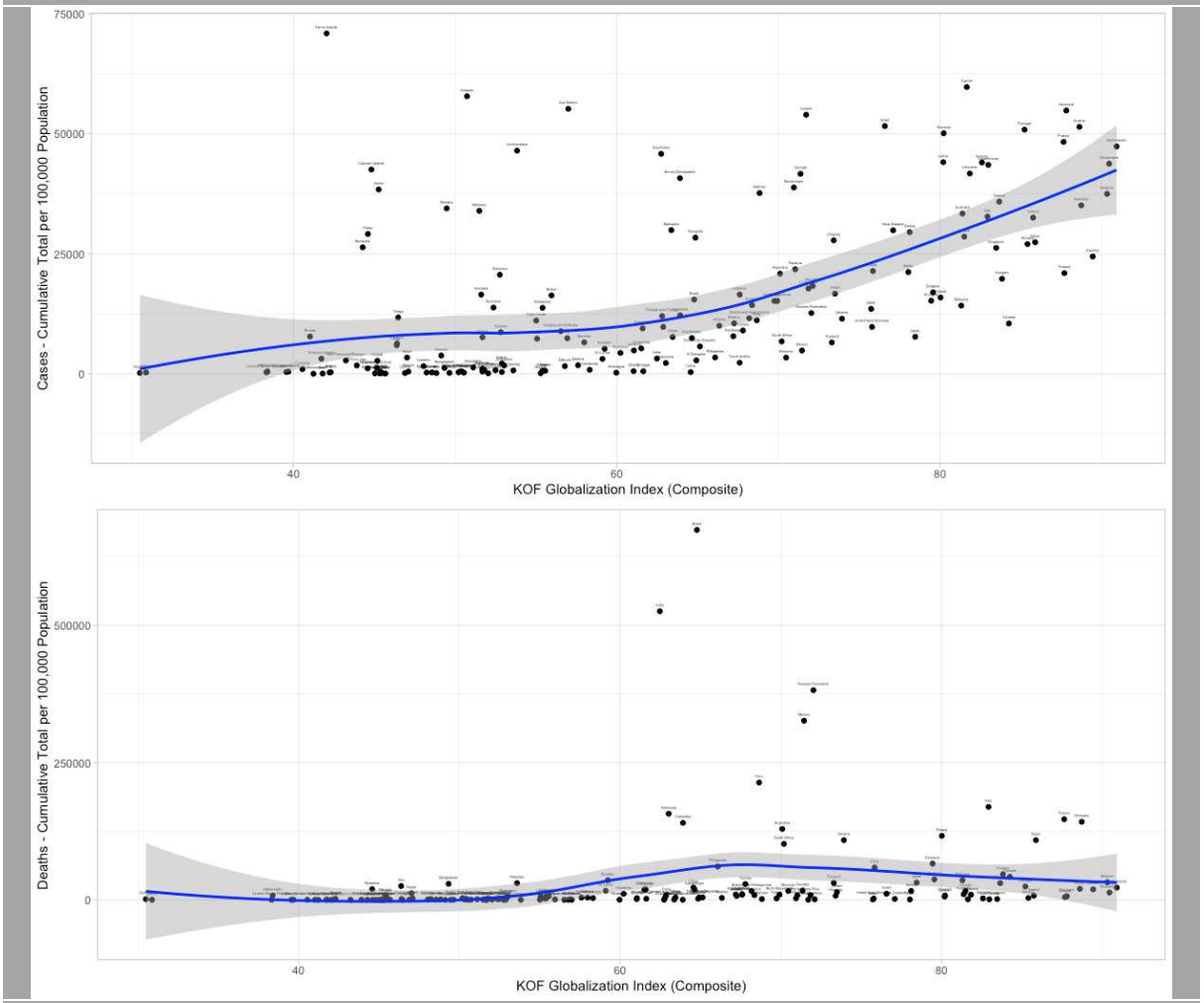
4.2 Empirical research

To commence the empirical research in the first place, it was indispensable to compare the given data sets providing the necessary information on the latest available data on the KOFGI for the year 2019 as an indicator for the most current state of globalization for a country with the latest available data on COVID-19 as provided with a summary of distinct pandemic indicators. The by the author of this thesis independently computed data subset for KOFGI for 2019 provides information for a total of 215 countries, territories, and areas around the world

with regards to their scores on overall globalization as well as economic, social, and political globalization, separated from the data set by Gygli et al. featuring data from 1970 up to 2019 – all dimensions can further be broken down into their respective sub-dimensions as well as a differentiation into de facto globalization in practice and de jure policies affecting globalization. For the computation of the following graphs, only the composite overall KOFGI as well as its composite economic, social, and political dimensions with a distinction compared to de facto and de jure globalization have been utilized. A further differentiation of economic and social globalization into their respective sub-dimensions has decidedly not been made in the following empirical analysis due to the limited scope of the analysis. The latest available data set for COVID-19 as part of the 98th situation report within the EOUs, in comparison, provides information for a total of 239 countries, territories, WHO-specific regions and areas around the world with regards to their cumulative total cases and deaths, cumulative cases and deaths with the analysis utilizing the cumulative total case and death rates per 100,000 population – data on newly reported cases and deaths, total as well as total per 100,000 population, within the last seven days and 24 hours respectively, has intentionally been excluded from the analysis, not just due to the limited scope of the thesis but also due to their irrelevance on the comprehension of this specific research question. With the difference in length of the respective data sets due to diverging numbers of observations, the author independently merged the data sets with respect to observations for countries for which data can be provided on both, globalization as well as COVID-19, with countries that do not have information on both being excluded in the computation, leading to a reduction of the observations to a total of 173 countries of interest in the newly created merged data set. Accordingly, the necessary prerequisites have been taken for the visualization of respective conditional relationships between overall, economic, social, and political globalization on a de facto and de jure level and cumulative total cases and deaths per 100,000 population of a given country.

4.2.1 COVID-19 in the context of overall globalization

Figure 9:

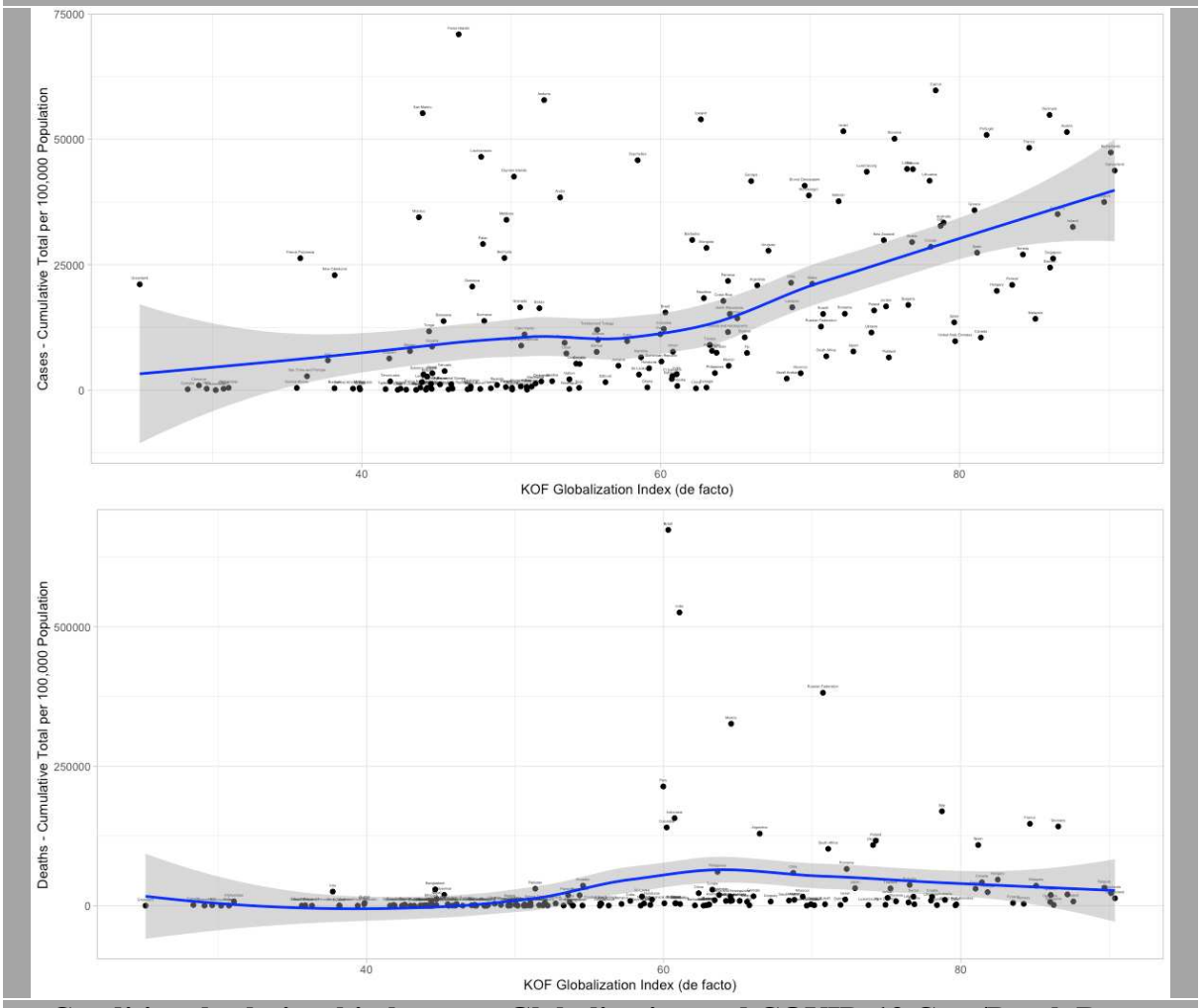


Conditional relationship between Globalization and COVID-19 Case/Death Rates

In the process of computing Fig. 9, representing the conditional relationship between the composite index on overall globalization and the total cumulative case and death rates per 100,000 population, a total of five rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 9 presents the conditional relationship between globalization and COVID-19 case and death incidence rates for a total of 168 available observations. With regards to total cumulative cases per 100,000 population, a pattern of scaled correlation is noticeable, as, seemingly, with the exemption of a few rogue results, higher scores of overall composite globalization tend to align themselves with comparatively higher cumulative case rates. This empirical observation indicates inclined disposition towards the hypothesis that higher degrees of globalization go hand in hand with higher confirmed case rates, as can be derived from Fig. 9 above. After all, scholars have referred to country's rising

vulnerability to global crises in their scholarly efforts putting COVID-19 in a theory of globalization (Gupta et al. 2021: 1-2, 9). A tendency towards possible reassurance of the presented hypothesis cannot be as clearly observed, however, when it comes to total cumulative death rates per 100,000 population as the presented scatterplot does not appear to showcase a distinctly as clear pattern of countries with a higher score in overall globalization in alignment with necessarily higher death rates. In said case, it is important to mention that, generally, total cumulative death rates in the context of GPH are evidently lower than the confirmed cases within the population, with further reference to health regulation and state-specific medicinal standards in internal public health management as well as the reception of external help shining further light on the given observation through research on GHD (Chattu 2017; Chattu et al. 2019; Gupta et al. 2021: 5-6). In sum, however, the hypothesis can only be accordingly corroborated with regards to confirmed cases rates, not with death rates.

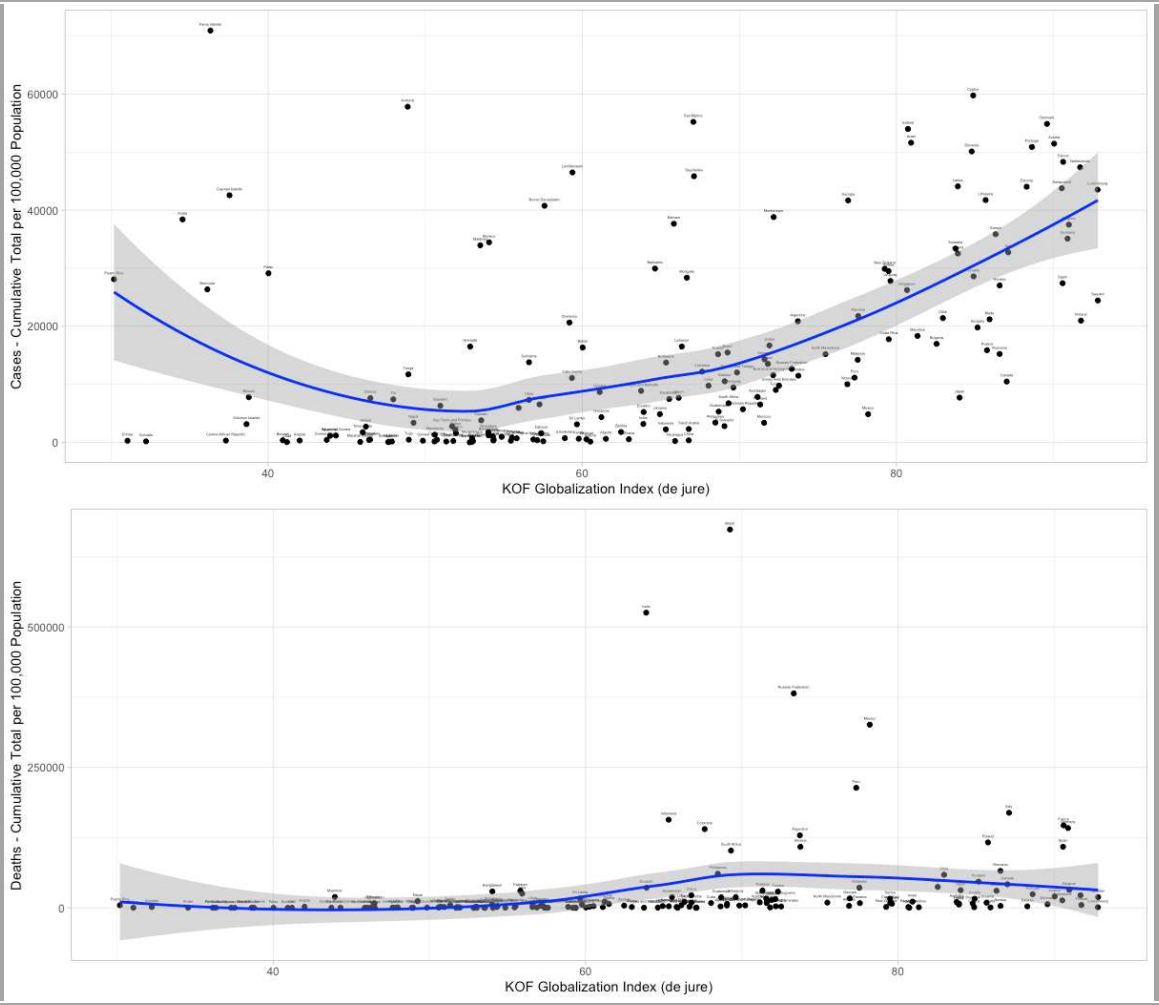
Figure 10:



Conditional relationship between Globalization and COVID-19 Case/Death Rates (de facto)

In the process of computing Fig. 10, representing the conditional relationship between the composite index on overall globalization on a de facto level and the total cumulative case and death rates per 100,000 population, a total of two rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 10 presents the conditional relationship between globalization and COVID-19 case and death incidence rates for a total of 171 available observations. Fig. 9 presents the de facto distinction of the individual components and dimensions of overall globalization in practice, therefore focusing on carried out activities per se across all sectors (Gygli et al. 2019: 551-552; Haelg 2020: 691). In resemblance to the composite KOFGI, a pattern of scaled correlation is, again, highly apparent with higher scores of overall composite de facto globalization similarly aligning themselves with higher rates in cumulative case rates, leaning towards encouragement of the hypothesis at hand. Broadly similar again is the evident inability to comprehensively strengthen the hypothesis as strong correlation in terms of total cumulative death rates per 100,000 population cannot be as clearly observed, with the LOESS fit line not accordingly showcasing a pattern of countries with a higher score in overall globalization in alignment with necessarily higher death rates. As such, the hypothesis cannot be accordingly corroborated with regards to confirmed death rates.

Figure 11:



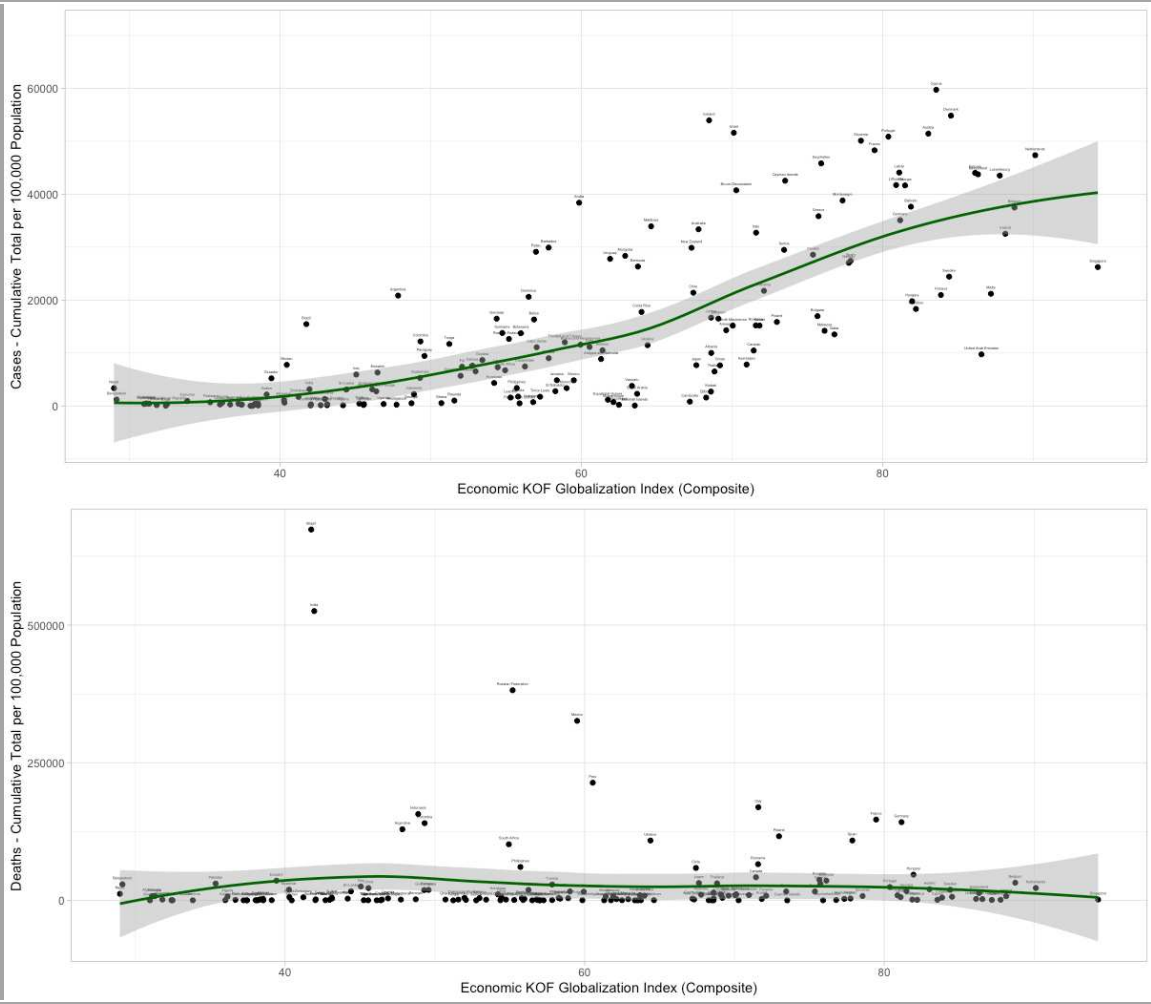
Conditional relationship between Globalization and COVID-19 Case/Death Rates (de jure)

In the process of computing Fig. 11, representing the conditional relationship between the composite index on overall globalization on a de jure level and the total cumulative case and death rates per 100,000 population, a total of four rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 11 presents the conditional relationship between globalization and COVID-19 case and death incidence rates for a total of 169 available observations. Fig. 11, in contrast to the preceding one, showcases the de jure distinction of the individual components and dimensions of overall globalization in theory, therefore focusing on policies that either facilitate or inhibit activities of globalization across economic, social, and political sectors (Gygli et al. 2019: 551-552; Haelg 2020: 691). Unlike the de facto dimension of overall globalization in structural resemblance to the composite KOFGI, a correlative pattern of larger levels of de jure composite globalization being associated

with higher scores in cumulative case rates is particularly apparent when observing the right-hand side of the graph with many countries' de jure scores seemingly being paralleled by relatively higher cumulative total cases per 100,000 population and not as present for lower de jure KOFGI scores with a slight turn of the LOESS fit line on the left. It therefore cannot be stated as clearly as in the prior figures that the pattern observed in Fig. 11 accordingly strengthens the hypothesis in terms of cases rates, yet still to a certain extent. For the same reasons as stated in the early graphs, the within Fig. 11 presented LOESS fit line does not comprehensively demonstrate a pattern of countries with a higher score in overall globalization in alignment with necessarily higher death incidences. Therefore, the hypothesis cannot be exhaustively corroborated with regards to confirmed death rates.

4.2.2 COVID-19 in the context of economic globalization

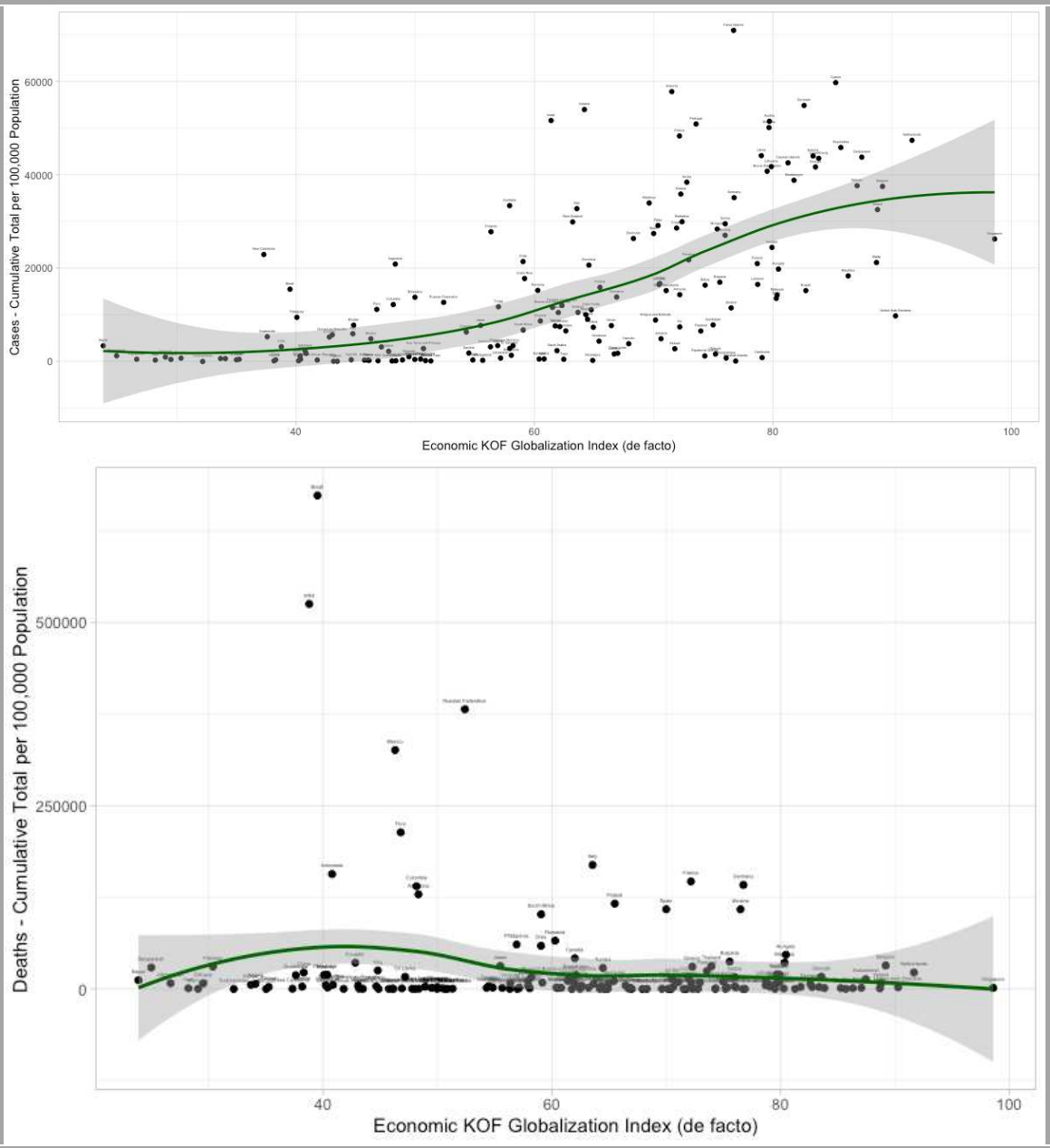
Figure 12:



Conditional relationship between Economic Globalization and COVID-19 Case/Death Rates

In the process of computing Fig. 12 on the correlative relation between the composite index on the economic dimensions of globalization and the total cumulative case and death rates per 100,000 population, a total of eleven rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 12 presents the conditional relationship between economic globalization and COVID-19 case and death incidence rates for a total of 162 available observations. The within Fig. 12 utilized economic dimension of globalization on a de facto and de jure level includes trade as well as financial globalization as features of the composite economic dimension (Gygli et al. 2019: 552-559; Haelg 2020: 694). A correlative pattern regarding the relationship between economic globalization is strongly visible as one can observe relatively higher scores of globalization in alignment with similarly higher scores of affected population in terms of case incidences. This empirical observation alludes to the results presented in the time series of KOFGI and its dimensions throughout the years in Fig 1. and 2. respectively, strongly indicating the significance of economic entanglements between countries on a global scale – after all, economic globalization was the most dominant strand of the three dimensions of KOFGI and despite the financial crisis and its effects putting a halt on the steady rise of globalization and its dimensional development, the importance of said dimensions, particularly the economic dimension, has only grown in time, especially in times of the COVID-19 pandemic (Gygli et al. 2019: 560, Haelg 2020: 692-693; Ajana 2021: 3). Countries like Brazil, for instance, with comparatively average scores, however, steadily increasing scores of economic globalization throughout the years, have heavily been under fire due to their prioritization of economic growth within the country and further intended improvements in economic relations throughout the course of the pandemic (Barberia/Gómez 2020; Ferigato 2020; Ajana 2021: 24-25). Generally observable within Fig. 12 is an evident tendency towards the hypothesis that higher degrees of economic globalization correlate with higher confirmed case rates. Once again, however, the presented hypothesis cannot be as clearly strengthened in terms of total cumulative death rates per 100,000. Here, the hypothesis can only be corroborated properly only with regards to confirmed cases rates.

Figure 13:

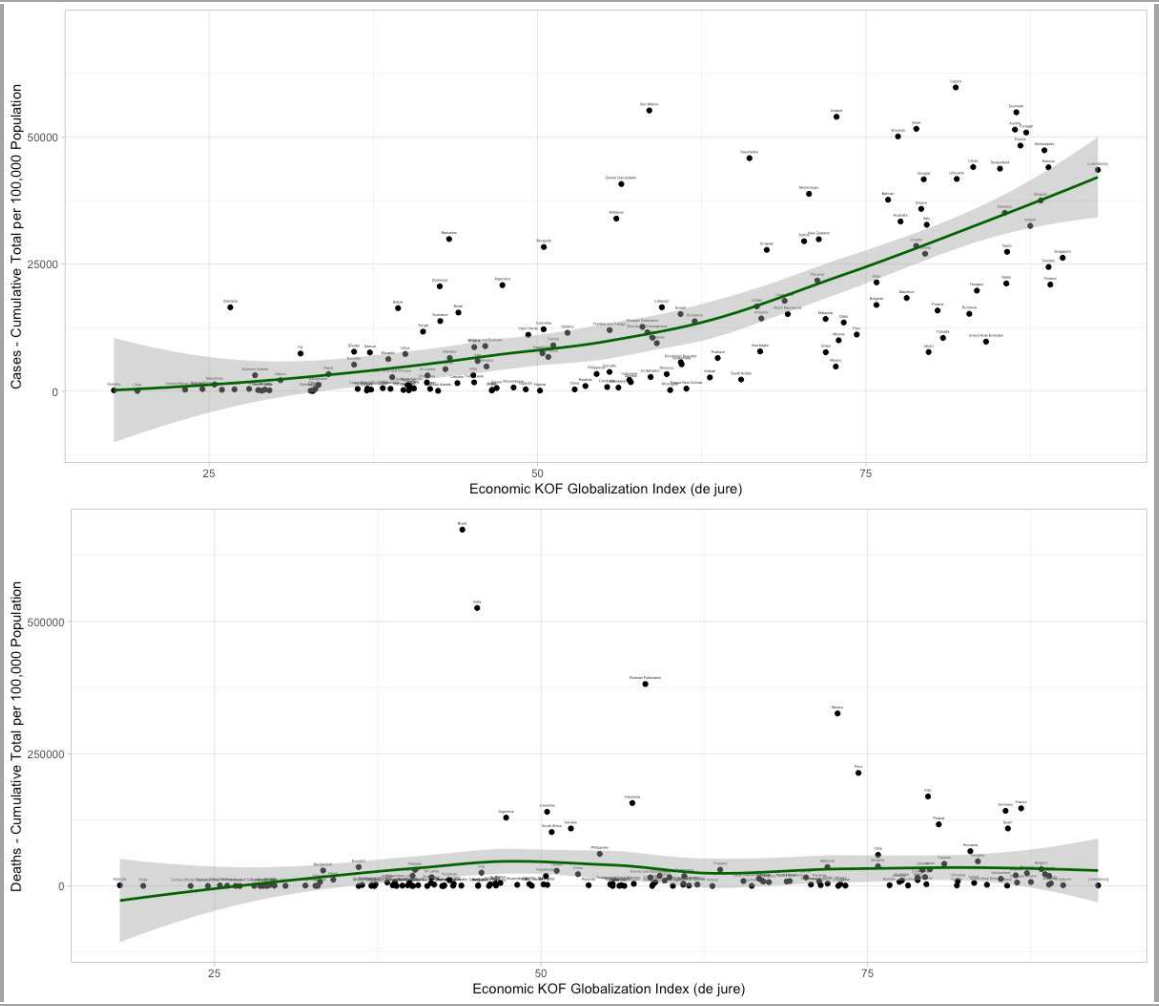


Conditional relationship between Economic Globalization and COVID-19 Case/Death Rates (de facto)

In the process of computing Fig. 13, representing the conditional relationship between the economic index on globalization on a de facto level and the total cumulative case and death rates per 100,000 population, a total of nine rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 13 presents the conditional relationship between de facto economic globalization and COVID-19 case and death incidence rates for a total of 164 available observations. The de facto dimension of economic globalization

consists of trade globalization featuring the exchange of goods and services between countries on a de facto level as well as partner diversity in trade (Gygli et al. 2019: 552-559; Haelg 2020: 694). For financial globalization as the second of two sub-dimensions to the economic dimension of globalization, foreign direct investments, international debt, and reserves as well as income payments and country-specific portfolio investments form the de facto sub-dimension computed with the data on COVID-19 as can be derived from Fig. 13 (Gygli et al. 2019: 552-559; Haelg 2020: 694). In sum, Fig. 13 showcases the de facto distinction of the individual components and dimension of economic globalization in practice and is accordingly focusing on carried out activities per se in financial sectors (Gygli et al. 2019: 551-552; Haelg 2020: 691). As was the case for its economic composite, one can observe higher scores of de facto economic globalization similarly correlating with higher rates in cumulative cases, further encouraging the given hypothesis. The within Fig. 13 presented LOESS fit line does not showcase a clear pattern of countries with higher scores in de facto economic globalization aligning with necessarily higher cumulative death incidences, whereas the hypothesis cannot be strongly corroborated with regards to confirmed death rates.

Figure 14:



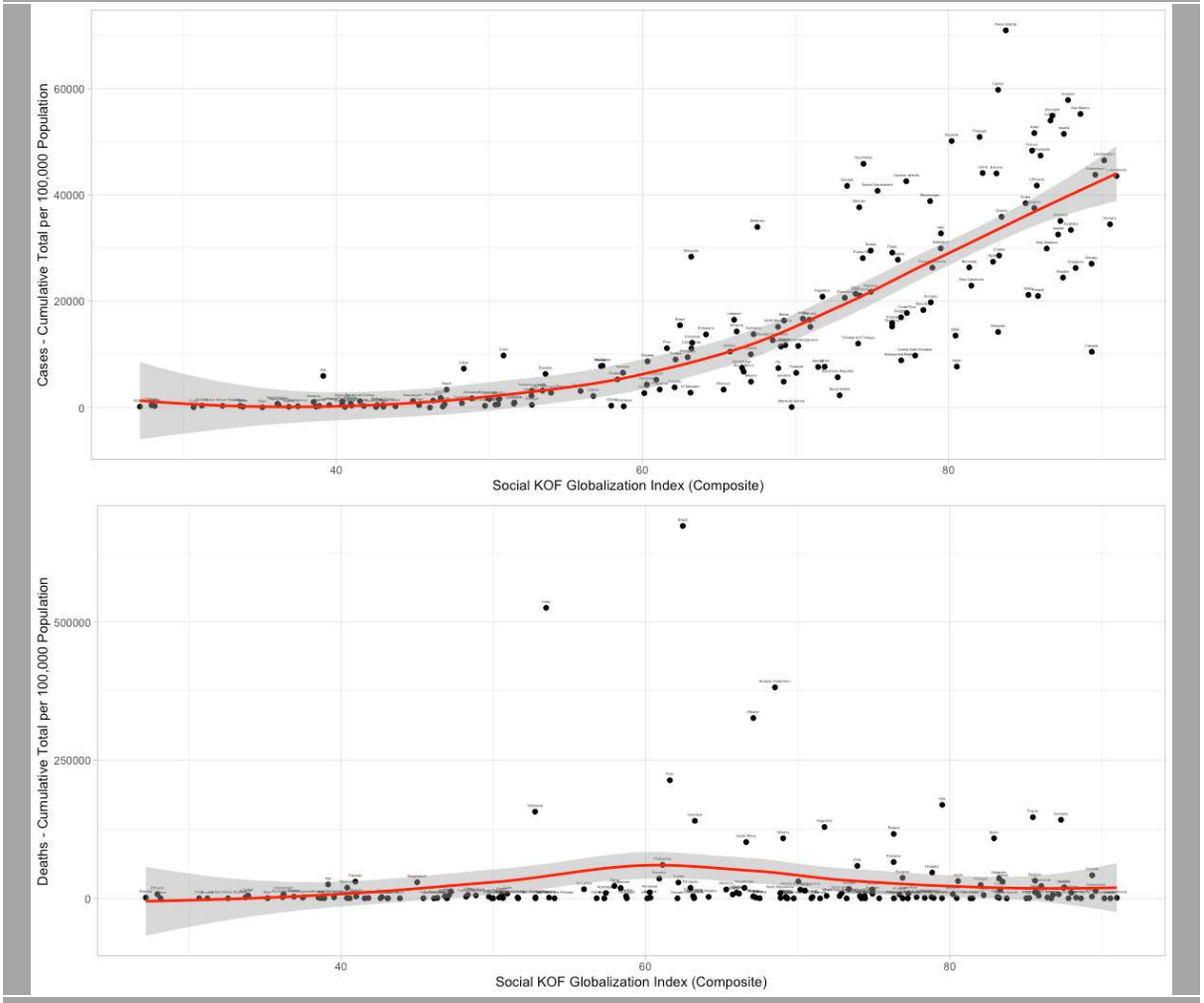
Conditional relationship between Economic Globalization and COVID-19 Case/Death Rates (de jure)

In the process of computing Fig. 14, representing the conditional relationship between the de jure index on economic globalization and the total cumulative case and death rates per 100,000 population, a total of 18 rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 14 presents the conditional relationship between de jure economic globalization and COVID-19 case and death incidence rates for a total of 155 available observations due to the lack of available data on the de jure economic dimension. Addressing the literature review with the economic sub-dimensions, policies such as trade regulations, trade taxes and trade agreements as well as tariff rates on a de jure level make up trade globalization on a de jure level (Gygli et al. 2019: 552-559; Haelg 2020: 694). For financial globalization as the second of two sub-dimensions to the economic dimension of globalization, de jure restrictions and agreements on (international) investment as well as

capital account openness are once again mentioned (Gygli et al. 2019: 552-559; Haelg 2020: 694). Fig. 14 focuses on policies that either facilitate or inhibit economic, financial and trade activities of globalization (Gygli et al. 2019: 551-552; Haelg 2020: 691). In close similarity to its de facto counterpart due to the vast extent of economic policies, one is able to associate higher cumulative case rates in accordance with larger levels of de jure economic globalization. A variety of particular outliers can be observed when it comes to death incidences where the relatively low total cumulative rates per 100,000 population do not allow for particularly comprehensive substantiation of the hypothesis. Generally, on a de jure level, there is a tendency to affirm the hypothesis due to the visible strength in correlation presented in terms of case rates and the accompanying LOESS fit line.

4.2.3 COVID-19 in the context of social globalization

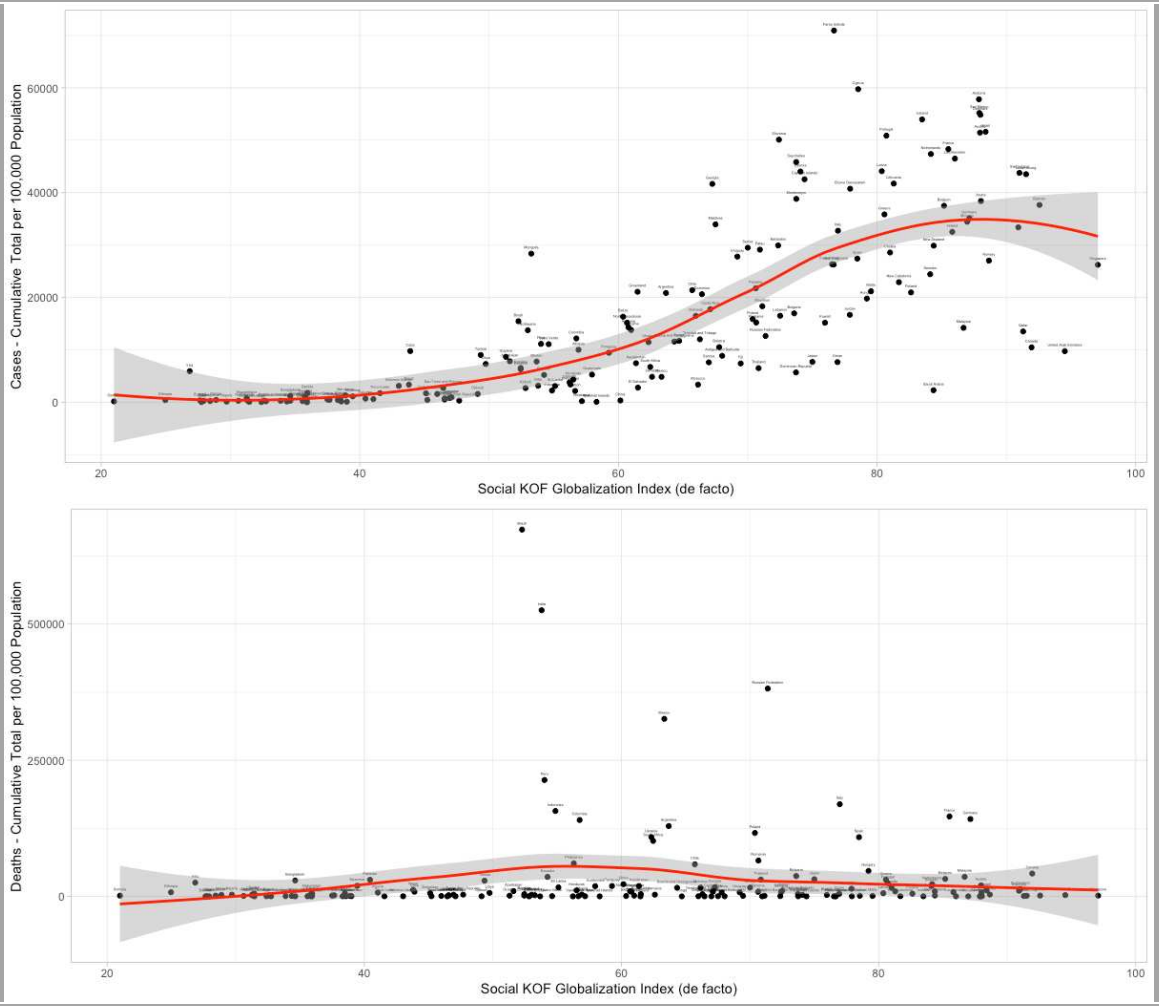
Figure 15:



Conditional relationship between Social Globalization and COVID-19 Case/Death Rates

In the process of computing Fig. 15, representing the conditional relationship between the composite index on social globalization and the total cumulative case and death rates per 100,000 population, merely one row in the merged data set has been removed due to its containment of missing values. As such, Fig. 15 presents the conditional relationship between social globalization and COVID-19 case and death incidence rates for a total of 172 available observations. Within Fig. 15, an approach as in the economic dimension is similarly applied to social globalization on a de facto and de jure scale, consisting of interpersonal, informational, and cultural globalization with conceptually close sub-indicators (Gygli et al. 2019: 553-557; Haelg 2020: 694). Fig. 15 and its conditional relationship between composite social globalization and data related to COVID-19 represents a comprehensive pattern of countries scoring high in terms of social globalization also being generally more affected in terms of population incidence rates regarding cases. As will further be broken down in the following distinction of de facto and de jure social globalization, its development into the most dominant of the three strands of globalizations empirically signals the openness of the population not just within the country but also in terms of state relations with other countries. Concerning social globalization, the graph computed provides visual evidence of a tendency in support of the hypothesis stating higher degrees of social globalization correlate with higher confirmed case rates. Whereas the hypothesis can only slightly be strengthened in terms of total cumulative death rates per 100,000 in respect of country-specific examples, a slight bump in the LOESS fit line is visible due to the few outliers with significant differences in death incidences.

Figure 16:

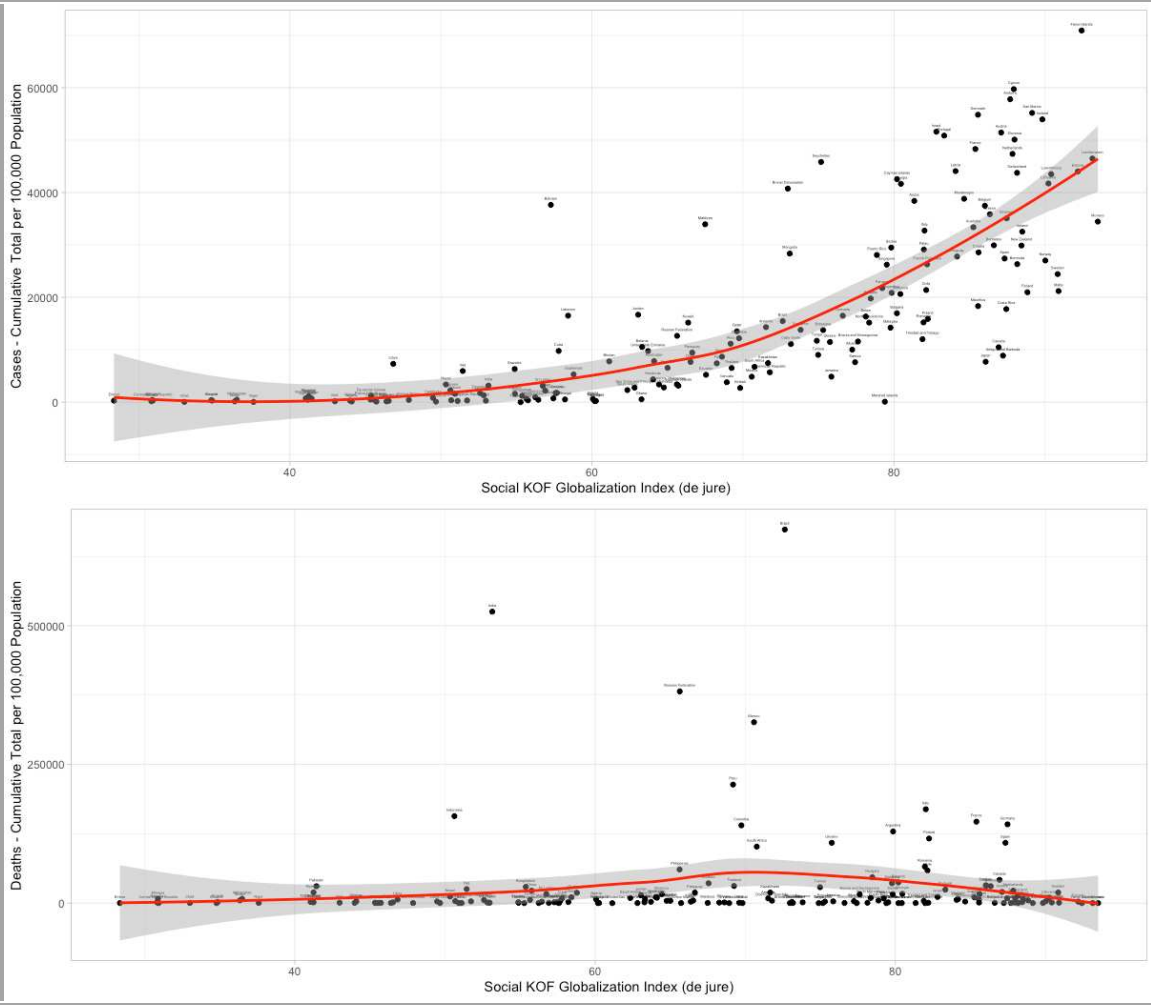


Conditional relationship between Social Globalization and COVID-19 Case/Death Rates (de facto)

In the process of computing Fig. 16, representing the conditional relationship between the de facto index on social globalization and the total cumulative case and death rates per 100,000 population, a total of three rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 16 presents the conditional relationship between de facto social globalization and COVID-19 case and death incidence rates for a total of 169 available observations. Next to the economic dimension of globalization, only the social dimension can also be broken down into further sub-dimensions with different indicators measuring social globalization in theory and practice (Gygli et al. 2019: 553-557; Haelg 2020: 694), as can be derived from the literature review. Interpersonal globalization as the first of three sub-dimensions to the social dimension consists of transfers as well as international voice traffic, tourism, and the number of students within a country, further including rates of

migration (Gygli et al. 2019: 552-559; Haelg 2020: 694). The informational sub-dimension of social globalization on a de facto level includes references to used internet bandwidth, the density in international patents as well as high technology exports (Gygli et al. 2019: 552-559; Haelg 2020: 694). Lastly, as a reminder of comprehension, the cultural sub-scale measures trade in cultural goods and personal services, international trademarks and the density in McDonald's restaurants and IKEA stores (Gygli et al. 2019: 552-559; Haelg 2020: 694). Showcased in the given the de facto distinction of social globalization in practice is a pattern that, in a great measure, correlates higher scores of de facto social globalization with higher rates in cumulative case rates in support of the hypothesis. There is, however, a turn presented on the right-hand side of the graph that indicates that countries with particularly high scores of de facto social globalization do not always present the highest case as well as death rates with the author noting the hypothesis cannot be strongly corroborated for all observations with certain outliers.

Figure 17:

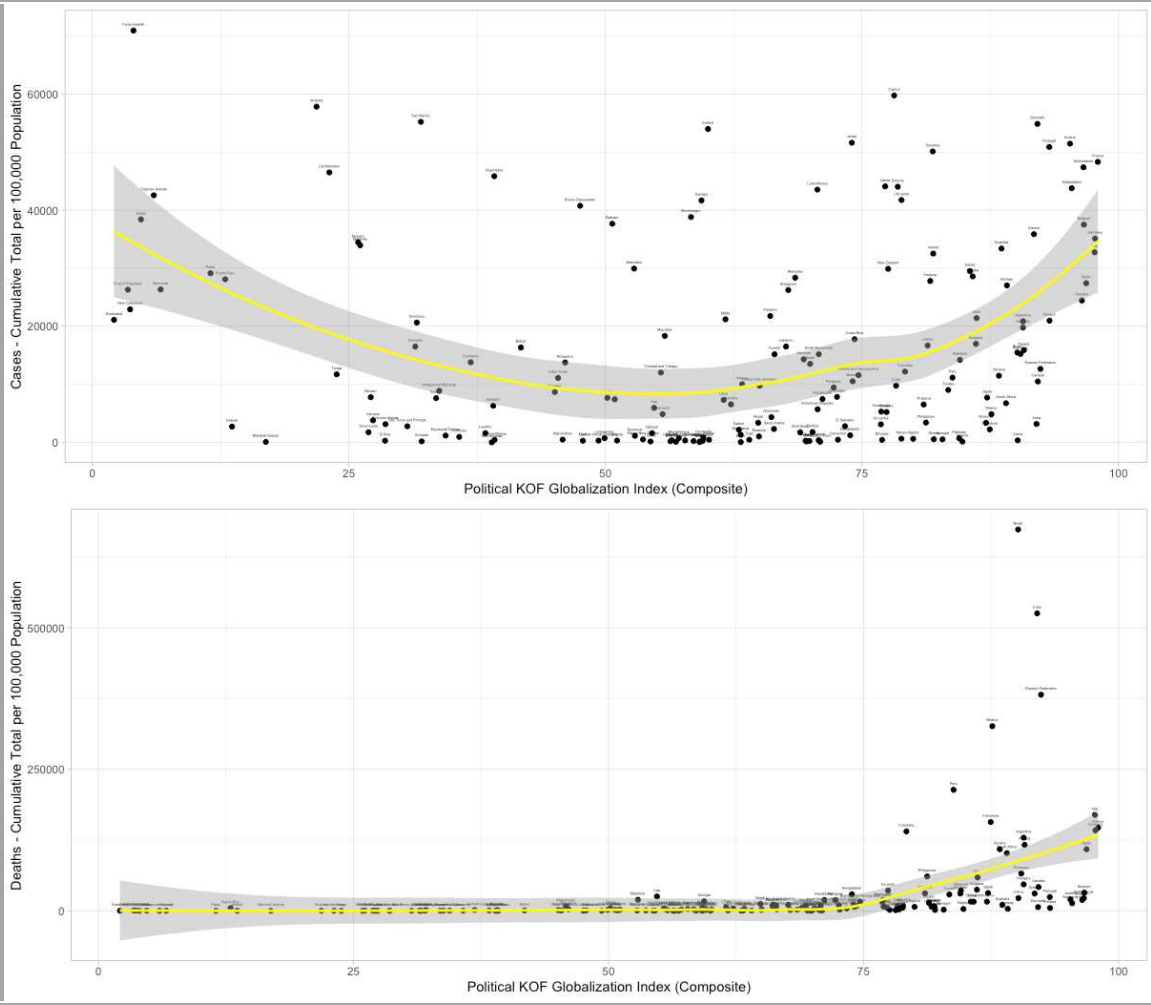


Conditional relationship between Social Globalization and COVID-19 Case/Death Rates (de jure)

In the process of computing Fig. 17, representing the conditional relationship between the index on de jure social globalization and the total cumulative case and death rates per 100,000 population, a total of three rows in the merged data set have been removed due to their containment of missing values. Accordingly, Fig. 17 presents the conditional relationship between de jure social globalization and COVID-19 case and death incidence rates for a total of 170 available observations. In the de jure specifics of social globalization, in recapitulation, interpersonal globalization as part of the de jure sub-dimension includes the amount of international airports within a country and region, mobility rates, and the freedom to visit said country and region as well as the numbers of telephone subscriptions within the population (Gygli et al. 2019: 552-559; Haelg 2020: 694). The de jure specifics of informational globalization contrast the de facto counterpart with access to television and internet as well as press freedom (Gygli et al. 2019: 552-559; Haelg 2020: 694). De jure levels of gender parity, human capital as well as civil liberties make up cultural globalization (Gygli et al. 2019: 552-559; Haelg 2020: 694). The de jure conditional relationship with regard to COVID-19 in Fig. 17 provides a distinctly stronger pattern in comparison to the de facto contrast of social globalization in practice as, here, higher scores of de jure social economic globalization comprehensively align with higher rates in cumulative case rates, strengthening the hypothesis that is guiding the empirical analysis. The author is beware of the visual representation of further outliers in Fig. 17 as the hypothesis cannot be accordingly corroborated for all countries being observed. The same, once again, applies to the outliers presented in the death rates overview, leading to the summary for social globalization that the index is not providing significant visual representation in support of the hypothesis in those specific cases.

4.2.4 COVID-19 in the context of political globalization

Figure 18:

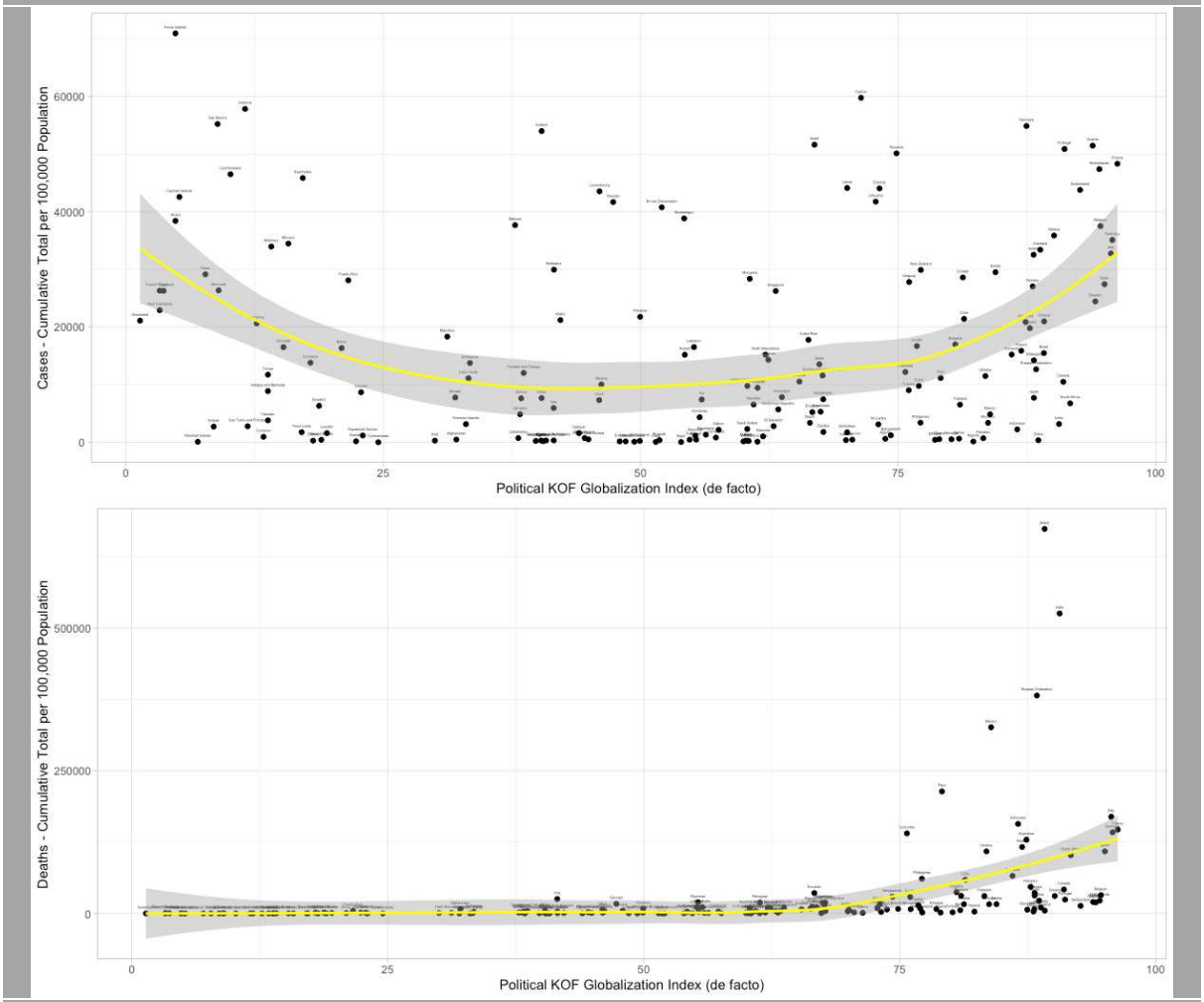


Conditional relationship between Political Globalization and COVID-19 Case/Death Rates

In the process of computing Fig. 18, representing the conditional relationship between the composite index on political globalization and the total cumulative case and death rates per 100,000 population, solely one row in the merged data set has been removed due to its containment of missing values. As such, Fig. 18 presents the conditional relationship between political globalization and COVID-19 case and death incidence rates for a total of 172 available observations. As mentioned in the literature review, political globalization is particularly special in comparison to the economic and social dimensions as it, in fact, is the only of the three dimensions of globalizations that is not further separated into certain sub-dimensions due to the relatively low number of indicators and variables it is comprised of. Fig. 18 is key in providing a view into the correlative relation between composite political globalization and

case as well as death incidence rates per 100,000 population regarding the outcome of COVID-19 within a country. Strikingly observable in an ostentatious manner when compared to the composite visualization of the previous two dimensions in relation to COVID-19 is the prominent curve represented in Fig. 18. The remarkable number of outliers as well as difference in distribution of the provided observations leads to the author not being able to categorize a distinct pattern of countries' scores of political globalization being accompanied with similar allocations in case and death rates. As was laid down in the KOFGI time series throughout the past decades, this difference in comparison to the economic and social dimensions is on par with the course of the empirical analysis within the trajectory of the pandemic. Particularly likely due to the pandemic-state of the world being accompanied by a new age of globalization that affects the directionality of political globalization through rises in country-specific measures in policy- and decision-making (Figus/de Serio 2020: 1; Haelg 2020: 693; Figus 2021; Gründler et al. 2021: 2-4). Accordingly, the hypothesis can only be strengthened strongly upon certain thresholds of the composite political KOFGI with specifications of certain countries. Visibly is the stronger tendency in support of the hypothesis due to a salient rise of the LOESS fit line and particular countries, indicating specific correlation of higher scores of the political KOFGI accompanying total cumulative deaths per 100,000 population that is stronger than for any of the other previous visualizations of correlation between COVID-19 and globalization.

Figure 19:

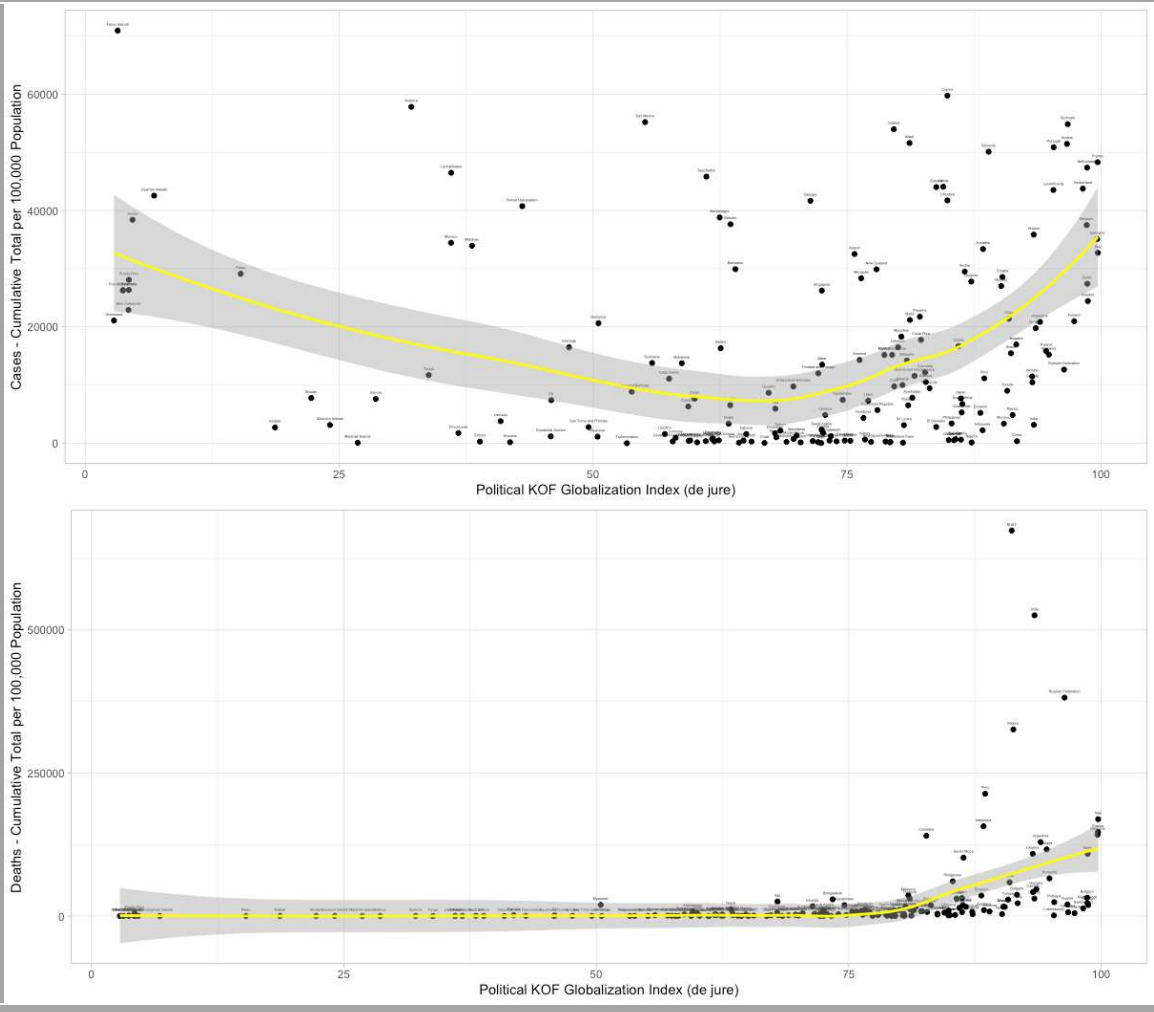


Conditional relationship between Political Globalization and COVID-19 Case/Death Rates (de facto)

In the process of computing Fig. 19, representing the conditional relationship between the de facto index on political globalization and the total cumulative case and death rates per 100,000 population, none of the rows in the merged data set have been removed because of missing values. As such, Fig. 19 presents the conditional relationship between political globalization and COVID-19 case and death incidence rates for all of the 173 available observations in the data set. The scores for observations in the graph for de facto political globalization are computed with data on, as can be recalled from the literature review, political globalization in action, measured by countries' presence of embassies within their borders, the participation of countries and member states in UN peacekeeping missions as well as the presence of international non-governmental organizations present and also active within a country (Gygli et al. 2019: 553-557; Haelg 2020: 694). Within Fig. 19 as well, the correlation

of de facto political globalization with COVID-19 cases and deaths per 100,000 population provides no extensive indication in support of the hypothesis across the board due to a vast variety of different outliers present. Despite this non-exhaustive pattern exhibited within Fig. 19, slight indication strengthening the hypothesis can be derived from the right-hand side of the graph where comparatively high scores in the political KOFGI do align themselves with higher cases as well as death rates. This indication is provided by the visible turn in the LOESS fit lines for both graphs.

Figure 20:



Conditional relationship between Political Globalization and COVID-19 Case/Death Rates (de jure)

In the process of computing Fig. 20, representing the conditional relationship between the de jure index on political globalization and the total cumulative case and death rates per 100,000 population, none of the rows in the merged data set have been removed due to their containment of missing values. As such, Fig. 20 presents the conditional relationship between

globalization and COVID-19 case and death incidence rates for all of the 173 available observations. The de jure realm of possibilities and ability in engaging cooperation within the international political system is measured with indications of globalization policies and actual political cooperation between states (Gygli et al. 2019: 555; Haelg 2020: 694). This de jure scale of political globalization encapsulates memberships of a country in international organizations as well as their participation in those with treaty partner diversity included as well (Gygli et al. 2019: 553-557; Haelg 2020: 694). As was the case for the previous visualizations of conditional relation with overall political globalization as well as the de facto dimension of it, the conditional relationship between the de jure political KOFGI and the available corresponding data on COVID-19 case and death rates is accompanied by a vast variety of outliers that do not allow for exhaustive interpretation of the graph in clear accordance to the hypothesis. The pattern of correlation includes a majority of the countries leaning towards relatively high political KOFGI scores on a de jure level, most notably due to political globalization in theory, as measured by the de jure participation in international organizations and multilateral communication per se, not being all too rare. In fact, the UN body itself as well as WHO member states are a clear representation of political globalization being realized on a de jure level due to their very membership. This provides clarity on the salient point of upward trajectory for the right-hand side of the graph where, at least for the comparatively most globalized states on a de jure level, the hypothesis holds gently, further strengthening it even in the case of the total cumulative deaths per 100,000 population, thus concluding the empirical analysis of the thesis presented here.

5. Conclusion

Meticulous examination of the empirical research conducted throughout the course of this thesis ultimately allows for the results of the thesis to be variously explicable by putting COVID-19 in the context of globalization. Within this thesis, the author aimed to showcase how the degrees of globalization correlate with the trajectory of the pandemic for respective countries on a global scale regarding their total cumulative case and death rates per 100,000 population in order for the different results to be properly contraposed by way of comparison and visualization of the given data.

For the research question to be elucidated, the author of this thesis presented an in-depth literature review that focused on both, the concept of globalization as well as the COVID-19 pandemic. As such, globalization was presented as a multifaceted concept that transcends a scientifically myopic form of astigmatism that focuses on merely economic indications with

the inclusion of social and political indicators with various degrees of sub-dimensions. Furthermore, this multifarious approach was aided by distinction of de facto globalization in practice and forms of de jure globalization as represented by policies that either facilitate or compound its realization. This was aided by self-computed graphs on the development of the KOFGI throughout the years that were of help in the interpretation of the empirical results through general time series of the composite index as well as its respective dimensions. In clear alignment, the literature review included a section on the ongoing COVID-19 pandemic featuring an overview on specific situation reports as well as daily, weekly, and monthly EOUs facilitating further comprehension of the pandemic trajectory on a global scale. This was supported by the display of key milestones that accompanied the pandemic run.

The elaborate literature review was key in the process of putting COVID-19 in a theory of globalization. Scholarly efforts on COVID-19 and its connection to globalization that have particularly been on the rise in the sequence of pandemic events were furthermore utilized to not only juxtapose COVID-19 and globalization in opposition to each other, but to understand the scholarly justified linkage of the two topics that were put into a joint framework in this process of theory-driven amalgamation. Along with a presentation of the scientific relevance of this thesis, the theoretical framework allowed for the formulation of the hypothesis guiding the thesis and stating that higher degrees of overall globalization as well as its respective dimensions align themselves with higher degrees of total cumulative case and death rates in this impact study on COVID-19.

The comprehensive ventilation of the topic allowed for the author to penetrate the research at great length for an improved understanding of states' scores of globalization with their pandemic outcomes. Chapter 4 thus commenced with the conceptualization of the research design as well as the presented operationalization of the independent variable, presented by the degree of globalization, as well as the dependent variable, presented by the pandemic results at the time of the particularly chosen most recent situation report as part of the EOUs that served as the observation point in time.

The detailed application and analysis of the functional interaction of data on globalization and on COVID-19, respectively, were of particular aid in putting COVID-19 in the context of overall globalization as well as its economic, social, and political dimensions through a de facto and de jure distinction for better interpretation of detailed de facto activities on globalization as well as its de jure policies affecting said activities. The empirical research signified more of substantiation of particular aspects of the guiding hypothesis, due to the particularly visible focus of alignment of the KOFGI in various forms with the total cumulative

case incidences, rather than the total cumulative death rates. The conditional relationship provided clearer patterns for the cases rates and their connection to the index' results for overall, economic, and social globalization with political globalization being accompanied by a variety of different outliers in the case rates. However, composite as well as de facto and de jure political globalization offered more insights into the connection between the KOFGI and total cumulative death rates than any of the other dimensions did.

Further research could utilize the results that were provided in this thesis to shine light upon aspects that were left out of the thesis at hand due to its restrictive scope by further delving into not only the overall, economic, social, and political dimension, but also into the respective sub-dimensions of financial and trade as well as interpersonal, informational, and cultural globalization. More comprehensive research could also provide more statistical insights that do not only present graphical visualizations of the conditional relationship between globalization and COVID-19, but also statistical significance between the observed relationship of the variables at hand through more detailed information on COVID-19 for certain observation periods as well as specific points in time in the pandemic development. More variables such as, for instance, PHSM could compositely be introduced to the analysis and further categorically be broken down into detailing the effect of globalization under certain measures taken by specific countries in their handling of the pandemic situation. In conclusion, the results presented did provide insights that were of aid in shining light upon the research question with the author, however, particularly calling on further research to focus on attitudinal changes in state-specific efforts of globalization with the release of further KOFGI data sets focusing on scores for the height of the pandemic in 2020 and 2021.

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