The Impact of Degrowth on the Global South

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THE IMPACT OF DEGROWTH ON THE GLOBAL SOUTH

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Abstract

This research aims to provide thought about the impact of degrowth on the Global South. It focuses on the conditions under which degrowth will be beneficial for those countries. We study the current economic dependency of the Global South on the Global North in order to estimate what the impact of GDP decline in rich countries would be on poverty indicators in lower income countries using the OLS panel fixed effect model. The sample includes 91 low and lower-middle-income countries on the period 2015-2020. Our results suggest that the economic health of the Global South is currently dependent on exports to high-income countries. In the current state of the world, GDP decline in rich countries could lead to an increase in the prevalence of undernourishment in lower income countries. This indicates that if the degrowth project fails to bring neo-colonial dependencies to an end and to establish policies that address the vulnerabilities of the Global South, it might have disastrous impacts on those populations.[1]

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Introduction

In 1972, Meadows published *The Limits to Growth*, emitting for the first time the idea that unlimited growth was compromised by the Earth's capacities. Since this report, a wide range of thinkers of degrowth to support ecological transition has emerged. Degrowth theories are not unanimously supported. One of the main criticisms levelled at them is that they fail to take account of inequalities and social needs that are not satisfied for some populations (Lavignotte, 2009). Indeed, it might be unpopular to extend the degrowth project to the Global South, which is characterised by low living standards and the absence of welfare states. Furthermore, global economic interdependence makes it impossible for a single group to implement degrowth transition. Therefore, the applicability of degrowth to lower income countries is a major issue (Chiengkul, 2018). This research proposes a thought about the impact of degrowth on the Global South, i.e. a part of the world including developing countries situated in Africa, Asia and Latin America, that are characterised by lower levels of economic development than industrialised countries from the Global North (Mahler, 2017).

This research aims to address the following question: under what conditions will degrowth be beneficial for the Global South? The first section will provide an overview of degrowth thinking and a thought about the impact of degrowth on the Global South based on literature. This first part demonstrates that degrowth would be beneficial for lower income countries only if it succeeded in putting an end to neo-colonial dependencies – a major challenge that degrowth is unlikely to achieve in its early stages. Then, the second part of this research will study the current economic dependency of the Global South using a sample of 91 low and lower-middle-income countries over the period 2015 to 2020. It provides estimations of the impacts of GDP variations in rich countries on poverty indicators in lower income countries using an OLS panel fixed effect model. This gives an indication of how these countries would be affected in the early stages of a transition to degrowth before they could create their own alternative development paths.

Literature Review

This section will introduce past and current thinking about the impact of degrowth on the Global South. There is no uniform definition of degrowth. However, the degrowth project is not reducible to a decline in GDP and it is important to consider the diverse aspects of the movement in order to understand the issues at stake.

In this research, degrowth is seen as a holistic approach that stems from the conclusions of various scientific works. Starting out as a simple objection to growth in production and consumption, it has evolved over time and become an increasingly broad and diverse criticism of the growth societies. The history of degrowth thought will be further detailed in Section I.

Degrowth is based on a broad criticism of growth and incorporates the seven fields of criticism of capitalism, including a South-North critique of economic growth. Today, degrowth is divided into five currents, each one focusing on a specific aspect of the movement. Degrowth thought is diverse and therefore difficult to define unanimously. According to Parrique (2022), a correct definition of degrowth must include four elements: sustainability, democracy, justice and well-being. Degrowth is also seen as a path of transition to post-growth societies. There is a set of policies and institutions proposed by the proponents of degrowth in order to give rise to this transition to post-growth societies. Nowadays, degrowth is not unanimously supported in the public debate and some criticisms are repeatedly directed at the current. All those aspects will be further developed in Section II, which will provide an overview of the degrowth movement.

Although the degrowth project is not reducible to a decline in GDP, there are some similarities between degrowth and recessions. Furthermore, today's societies are dependent on economic growth and their historical experiences of declines in GDP did not give rise to the end of the capitalistic system. Moreover, a degrowth project would be globally beneficial only if it were set considering its holistic approach. However, degrowth policies might be hard to implement in a democratic way. If for democratically-founded reasons, the degrowth project is only partially implemented and it fails to overcome the capitalist system, the line between degrowth and recession could be thinner than expected. This thought will be developed in Section III. Section IV will detail why recessions are good news for the environment. Although recessions have positive impacts on the environment, they have devasting impacts on countries from the Global South. Section V will detail the impacts of economic recessions on the Global South and discuss the potential causes of the vulnerabilities of those countries.

Indeed, the relevance of degrowth to lower income countries is often questioned. Due to global economic interdependence, we need an international alliance to reach global ecological sustainability. The applicability of the degrowth project to the Global South is a major issue. Section VI will expand upon potential barriers to the expansion of degrowth to lower income countries and focus on how degrowth theories take account of the Global South.

Section VII concludes and details the objective of the research question.

I. A Brief History of Thought of Degrowth

The degrowth movement comes out of the conclusions of various scientific works. Starting out in 1970s as a simple objection to growth in production and consumption, it has evolved over time. Today, degrowth has become an increasingly broad and diverse criticism of the growth societies.

Two Books at the Root of Degrowth

In 1972, Meadows published *The Limits to Growth*, admitting for the first time the idea that unlimited growth was compromised by the Earth's capacities. For a long time, the society bought the idea of continuous growth in population and production without taking account of its damaging consequences. In order to produce this report, a team of scientists simulated the future if present

growth continued. They highlighted the five basic factors determining and limiting growth: planetary population increase, agricultural production, non-renewable resource depletion, industrial output and pollution generation. Their conclusion was clear: exponential economic and population growth with a finite supply of resources was not sustainable. They demonstrated that the earth, with its limited resources, would not be able to support present rates of economic and population growth forever. With this report, Meadows demonstrated empirically the unsustainability of the European model of development (Visser et al., 2009).

At the same time, Georgescu Roegen (1971) in *The Entropy Law and the Economic Process* developed for the first time the ecological issue inside economic thought by using a bioeconomic approach. He confronted the classical production function with ecological limits and demonstrated the impossibility of infinite growth in a finite world.

Birth and Evolution of the Degrowth Movement

The idea of objecting to growth was born from those two works. At its beginning, the degrowth movement took the form of an objection to a constant increase in production and consumption (Parrique, 2022). Degrowth ideas appeared in the wake of May 1968 and anti-capitalist ideas. André Gorz was the first to utter this word in 1972 while commenting on the conclusions of the Meadows report.

Later, when it was realised that the ecological limits predicted by Meadows had been reached, the degrowth movement evolved. Degrowth was no longer just an objection to growth but a desire to decrease the size of the economy and to get out of the growth ideology characterising productivist societies (Parrique, 2022). Amar (1973) called for a profound change in thinking. Eastarlin (1974) demonstrated that after a certain threshold of GDP per capita, growth no longer produced happiness. Daly (1973) explained that growth should be seen as a temporary step towards maturity and sufficiency of society until the economy reached a steady state. He argued that after a certain threshold, the pursuit of economic growth became counterproductive. At this time, degrowth referred to a reduction in material production and a plan for a society centred on new values (Parrique, 2022).

Since the 2000s, the degrowth movement has developed a utopia with post-growth as the desired destination of our societies (Parrique, 2022). The slogan “Fewer goods, more links” appeared (Parrique, 2022). Rhabi (2010) transmitted the tradition of voluntary simplicity and proposed the name happy sobriety instead of degrowth. Latouche (2004) advanced the idea that degrowth was a decolonisation of the imaginary of growth and the abandonment of the belief that more is better. Clémentin and Cheynet (2016) posed sustainable degrowth as an alternative to sustainable development. Latouche (2004) also criticised development and growth as strategies to perpetuate the exploitation of southern countries. Ariès (2005) created the notion of equitable degrowth by linking ecology and reductions in inequality. Degrowth became more than a simple ecological strategy and was transformed into a philosophy centred on the values of autonomy, cooperation, sufficiency, sharing, conviviality and concern (Parrique, 2022).

Nowadays, degrowth is considered to be a path, a period of transition to post-growth, i.e. the desired destination of our societies (Parrique, 2022). It is situated at the confluence of five currents of thought or sources (Parrique, 2022): First, ecology describes the degradation caused by growth. Ecology in degrowth gives primacy to nature, not to humankind. Then, degrowth is bioeconomic and demonstrates the biophysical limits of growth. Culturalism rejects a specific vision of development centred on growth. Democracy resists invasive economics. Finally, the spiritual insists on the fact that growth does not contribute to happiness (Parrique, 2022). Above all, degrowth today is intended to be pluralistic and its strength is its holistic view. It is a pluriverse in the sense that it attempts to bring together different growth-critical perspectives from around the world into a cohesive, broad critique of growth (Schmelzer, 2022).

II. An Overview of Degrowth

We have seen in Section I how degrowth has evolved into a broad criticism of the growth societies. According to Duverger (2011), degrowth is above all an alternative to capitalism and a contradiction of growth that relies on the notions of development and progress. To understand the definition, objectives and policies of degrowth, it is necessary to look into the way growth is defined inside the degrowth movements and the criticism levelled at growth. Firstly, this section will look at the way growth is defined inside the degrowth thought. Then, it will detail some criticisms of growth forming the basis for degrowth.

Degrowth is a holistic approach that today is divided into five currents, each one focusing on a specific aspect of the movement. The third part of this section will present the several currents and perspectives of the movement. Then, it will present a definition of degrowth. The fifth part will detail some of the main policy proposals in order to give rise to the transition to degrowth societies.

Nowadays, degrowth is not unanimously supported in the public debate and some criticisms are repeatedly levelled at the movement. This section will conclude with an overview of some criticisms of degrowth.

Definition of Growth inside the Degrowth Movement

In the degrowth movement, the concept of economic growth is broader than the increase in monetary production measured by GDP. Economic growth is defined as the ideological, social and biophysical materialisation of capitalist accumulation. It is an increase in economic production and the self-reinforcing cultural, social and material processes that have transformed the planet over the past centuries (Schmelzer, 2022).

According to Schmelzer (2022), economic growth is conceived of as three interlinked processes:

First, it is a recent idea that is the core ideology of capitalism. Indeed, there is a shared belief that growth is natural, necessary and good. In the course of history, growth was linked to progress and emancipation and became a normative ideal of modernity. As a result, growth became a policy goal and a social obsession: the economy is measured through GDP and state interventions aim to stabilise capitalist economies. This justifies the belief that growth is natural, necessary and unlimited while obscuring the social and material roots of growth (Schmelzer, 2022).

Second, it is a social process which establishes a specific set of social relations resulting from and driving capitalist accumulation. This process results in cultural norms as well as specific modes of production and living. The process of dynamic stabilisation characterises the dynamic relationship between class formations and material growth: in order to remain stable and to reproduce their social structures, growth societies require continuous economic expansion. Dynamic stabilisation explains how and why growth societies are fundamentally dependent on growth (Schmelzer, 2022).

Finally, growth is a material process characterised by the over-encroaching use of land, resources and energy. This material process has environmental and social limits: it deteriorates the environment and is driven by relations internal to capitalism such as exploitation, alienation, as well as externalisation, appropriation and unequal exchange. Therefore, this process is rooted in patriarchy and colonialism and results in accelerated material and energy throughput as well as in exploitation for the sake of profit. It transforms the planet and increasingly threatens to undermine the foundations of growth itself. Ecological crises are perceived as the consequences of growth and hit the poorest first and hardest (Schmelzer, 2022).

Criticicsm of Growth

Degrowth aims to incorporate the main criticisms of capitalism, and more especially the ecological and social critiques (Duverger, 2011). It is a pluriverse since it attempts to bring together different growth-

critical perspectives from around the world into a cohesive, broad critique of growth (Schmelzer, 2022). Schmelzer (2022) identifies seven different fields of criticism inside the degrowth movement, each one addressing a particular aspect of growth, namely, the ecological, socio-economic, cultural, anti-capitalist, feminist, anti-industrialist and South-North critiques. This part will mainly develop the ecological, socio-economic and South-North critiques.

Ecological Critique

The ecological critique claims that economic growth destroys the ecological foundations of human life and cannot be transformed to become sustainable (Schmelzer, 2022).

It is rooted in the field of ecological economics and the thermodynamic arguments of Nicholas Georgescu-Roegen. Indeed, infinite growth is not possible on a finite planet. In addition, economic growth cannot become sustainable by using any type of growth modulation or technical progress or even shifts in energy sources or energy bases. The degrowth proponents do not believe that green growth, increased efficiency through digitisation, renewable energy or recycling will be able to save the world (Schmelzer, 2022).

Decoupling refers to the dissociation between GDP growth and environmental pressures thanks to technological progress and the efficiency revolution. This refers to green growth (Parrique, 2022). According to Parrique (2022), the hope of decoupling is an illusion since it refers only to carbon and fails to take imports into account. Additionally, the rare experiences of decoupling that did occur were local, temporary and small scale. Furthermore, countries that experienced decoupling had low GDP growth rates and part of the emissions reductions in those countries might therefore be explained by a slowdown in economic growth (Parrique, 2022). In the degrowth movement, innovation is also not a solution to the ecological limits of economic growth because of the rebound effect: increasing the efficiency of energy and material use often leads to increased consumption of this energy or raw material (Schmelzer, 2022). The strong coupling of growth and emission is demonstrated by the fact that the historical periods of significant decrease in CO2 emissions are periods of economic decline (Parrique, 2022; Schmelzer, 2022).

Kallis et al. (2012) underline that growth has a large environmental cost and pursuing economic growth as usual is unrealistic if we want to meet the climate stabilisation target by 2050.

Ecological critique is also based on eco-Marxist analysis of social metabolism which describes the dynamic relationship between humans and nature. Social dynamics, and more particularly the capitalist economy's social metabolic process, adversely affect ecological systems by producing wastes that cannot be absorbed by ecosystems (Schmelzer, 2022).

Socio-economic Critique

The socio-economic critique postulates that economic growth mismeasures our lives and stands in the way of well-being and equality of all (Schmelzer, 2022).

Parrique (2022) explains that there is sometimes an idea that pollution and environmental disasters are the price to pay for the benefits of growth, which are the eradication of poverty, reduction of inequality, reduction of unemployment, funding of the pubic budget and improvement of the quality of life. However, growth seems to fail in generating these benefits (Parrique, 2022). Schmelzer (2022) adds that the social and environmental costs of growth above a certain income level are higher than its benefits.

First, the growth does not eradicate poverty (Parrique, 2022). Parrique (2022) demonstrated that there was enough income in France to allow everyone to live decently. The true problem relies in redistribution. Moreover, growth does not boost the income of the poorest households. Therefore, poverty in France seems to be a matter of allocation and not of production (Parrique, 2022).

Second, regarding inequalities, the Kuznets curve represents the relationship between economic growth and wage inequality. When a country industrialises, wage inequality increases because only a minority of the population has access to the new industrial sector. After a certain threshold of industrialisation, the overall level of wage inequality decreases because more and more parts of the population have access to the industrial sector. From this perspective, the growth of high income will eventually trickle down in the long run. However, Piketty argues that growth in a capitalistic economy is exclusive and increases inequalities, since owners of capital get richer faster than wage earners. Inequalities are self-amplifying because rich people invest their wealth (Parrique, 2022). Parrique (2022) proposes a reduction in inequalities without growth by reducing the share of rents and increasing the share of wages in the national income. This might be done by promoting labour-intensive activities such as agroecology (Parrique, 2022).

Furthermore, it is believed that below one percent growth, unemployment would rise quickly. Okun's law states that unemployment always evolves in the same direction as growth (Parrique, 2022). Parrique (2022) identifies three ways of increasing employment: producing more, working more slowly and working less. As a result, slowing down and improving working conditions might help to increase employment. In parallel, living standards will have to be decoupled from purchasing power and thus from salaried employment (Parrique, 2022).

Finally, growth is not deemed to improve the quality of life (Parrique, 2022). Eastarlin (1974) demonstrated that after a certain threshold of GDP per capita, growth no longer produced happiness. Indeed, growth above a level of satisfies basic needs does not improve psychological well-being. Furthermore, more equal distribution of income and investment in public services might have a greater effect on well-being than generalised growth (Kallis et al., 2012). As a result, growth should be seen as a temporary adjustment strategy to a situation of scarcity and not as the default operating mode of developed economies (Parrique, 2022). According to Schmelzer (2022), quality of life depends on factors that are independent of growth, such as equality, democratic participation, leisure time, revaluation of care work and the overcoming of bad consumption habits.

Despite all this, Kallis et al. (2012) explain that a lack of growth in our societies can translate into a debt spiral, unemployment and the deterioration of social welfare. As a result, it is important for economists to think about the feasibility of prosperous degrowth (Kallis et al., 2012).

Degrowth is also antithetical to a single conception of the world based on capitalist principles (Schmelzer, 2022). As a result, the limits of GDP as a way to measure the economy are pointed out by the degrowth movement. Kallis et al. (2012) explain that GDP is a bad indicator of social welfare and degrowth is not reducible to GDP decline. Indeed, GDP has some limitations as an indicator. Firstly, every action that does not give rise to a monetary transaction has no value in terms of production measured by GDP. In addition, GDP does not distinguish between what it is or is not desirable. Therefore, GDP growth is not always a good thing. It does not take account of the depletion and degradation of natural resources (Parrique, 2022).

Cultural Critique

According to the cultural critique, economic growth produces alienating ways of working, living and relating to each other and nature (Schmelzer, 2022).

It is a criticism of the consumer culture and alienation according to which people are deprived of their ability to determine their own actions, destinies and relations with other people, products and even their own labour. Alienation passes through bullshit jobs that are meaningless, unnecessary and even harmful and is the way we foster relationships to each other and to the world. The alienation present in the workplace would have been extended to everyday life. It can be manifested as depression or burnout. Exhaustion, general dissatisfaction, feeling of a lack or resistance to one's own work or life situations are subjective limits to growth (Schmelzer, 2022).

Anti-capitalist Critique

In the views of the anti-capitalist critique, economic growth depends on and is driven by capitalist exploitation and accumulation (Schmelzer, 2022).

Capitalism is conceived of as a competitive compulsion to accumulate and is organised around competitive expansion, growth and intensification. The double dynamic of exploitation and accumulation is inherent in the process of economic growth. Accumulation is the unlimited process of adding value to capital. Capitalism brings about a general scarcity within daily life through privatisation of the commons. Exploitation passes through the exploitation of the human labour but also through the appropriation and continuous colonisation of a non-capitalist "outside", i.e. nature, women and colonies (Schmelzer, 2022). The primary cause of ecological derailment is not all humankind, as is suggested in the definition of the Anthropocene, but capitalism and its unbridled pursuit of growth (Parrique, 2022). As a result, the limits of growth are also the limits of capitalism and degrowth necessarily means post-capitalism (Schmelzer, 2022).

Feminist Critique

According to Schmelzer (2022), feminist perspectives are crucial for degrowth because of the analytic tools they provide and also to prevent degrowth policies from reproducing the gender-based division of labour. The feminist critique posits that economic growth is based on gendered over-exploitation and devalues reproduction (Schmelzer, 2022).

According to the eco-feminist vision, the capitalist economy is a patriarchal system that makes invisible and devalue the vital reproductive work of society. In such a patriarchal system, reproductive work is in permanent crisis because it is structurally devalued and poorly remunerated. Moreover, the market perspective of the economy denies the fundamental dependence of all economic activities upon the sphere of reproduction, which is largely driven by women and nature. Centring care is a key cornerstone of degrowth in order to promote gender justice. The economic system must dissolve the binary model of the productive and reproductive spheres within the field of economics (Schmelzer, 2022).

Anti-industrialist Critique

The anti-industrialist criticism postulates that economic growth gives rise to undemocratic productive forces and techniques (Schmelzer, 2022).

From this perspective, no matter the kind of ownership or social organisation, the development of productive forces and technology in modern society has become authoritarian and alienating. Technological innovation has become an end in itself and the scientific-experimental rationality has been extended to the society. The automation, mechanisation and acceleration of work processes, while necessary for increases in productivity, have the perverse effect of alienating people from their own activity (Schmelzer, 2022).

South-North Critique

In the view of the South-North critique, economic growth relies on and reproduces relations of domination, extraction and exploitation between the capitalist centre and the periphery (Schmelzer, 2022).

Degrowth is conceived in a spirit of social justice (Parrique, 2022). From this perspective, growth and development as well as the economy create and maintain neocolonial dependencies between regions and enforce growth-oriented lifestyles in the Global South (Schmelzer, 2022).

According to Latouche (2004), growth is omnipresent in people's minds in southern countries. The South-North critique finds its roots in the post-development approach (Schmelzer, 2022). Latouche (2004) explains that development is an ideology and construct of the North that became a guiding political concept promising integration into the capitalism that would be associated with improved living standards. This provided legitimacy for post-colonial strategies of domination from the North

towards people in the South. However, prosperity in the South might never be attainable due to the structure of the global world economy based on the division of labour and ecological limitations (Latouche, 2004). The imperial mode of living focuses on the way certain norms of production, distribution and consumption became embedded in the political, economic and practices of the population in the Global North, and increasingly in the emerging countries in the Global South. This way of living exacerbates many various crises in order to stabilise social conditions in the core (Schmelzer, 2022).

According to Schmelzer (2022), since growth is based on colonial appropriation and extractivism, the South was reduced to the dependent role of raw material suppliers. Growth and the prosperity of the global North cannot be understood without colonialism, exploitation and dispossession of the South. The economic models in the South are extractivist in the sense that the countries are dependent on large-scale extraction of their resources and exports to the Global North while not being able to diversify their economies. According to Marxist theories of uneven development, for capitalist development to occur, it must rely on structural under-development elsewhere. Therefore, development is grounded in the unequal valorisation of the labour of the Global South workers, as well as the exploitation of resources. Those resources are exchanged with industrial nations at unequal terms of trade: raw materials, food and labour from the Global South are bought as cheap inputs by the Global North, which transforms them into manufactured products with a large added value and sells them back to the Global South at full price. At the same time, uneven development is driven by financial institutions that lend money to poor nations at high interest rates and impose structural adjustments when debts cannot be paid (Schmelzer, 2022).

Alternatives to development can be found in traditions and practises of subsistence of local communities and movements in the Global South. Moreover, capitalism can be overcome only through multiple alliances between actors from the North and South (Schmelzer, 2022). This will be developed further in Section VI.

Currents of Degrowth

The degrowth movement is a pluriverse (Schmelzer, 2022) and includes several components (Duverger, 2011). Duverger (2011) identifies four different components or currents of degrowth.

First, degrowth is culturalist. It posits that humans have to change their visions of their world and history. This implies going beyond developmentalist ideas. This is the current of Serge Latouche with its post-development proposal and Pierre Rabhi's with its idea of voluntary simplicity (Duverger, 2011). Schmelzer (2022) has more recently dubbed it the "sufficiency-oriented current", which focuses on practices outside the consumer-drive capitalist market. This current of degrowth gives primacy to culture (Duverger, 2011) and rejects the specific vision of development centred on growth (Parrique, 2022).

Second, degrowth is democratic. It insists on the framework of the nation-state and aims to create public debate. This current is represented by Vincent Cheynet with his notion of sustainable degrowth and Paul Ariès with his concept of equitable degrowth (Duverger, 2011). In 2022, Schmelzer (2022) renamed it the "institution-oriented current", which argues for a wide range of policy instruments in order to entail a macroeconomic shift away from growth. The democratic current gives primacy to politics (Duverger, 2011) and resists invasive economism (Parrique, 2022).

Then, degrowth is also ecological and focuses on giving primacy to nature instead of to humankind (Duverger, 2011). Ecology describes the degradation caused by growth (Parrique, 2022).

Finally, degrowth is bioeconomic. At the origins of degrowth, Nicholas Georgescu-Roegen scientifically proved the limits of natural resources, revealing that the end of growth was inevitable. This current gives primacy to science (Duverger, 2011) and focuses on the biophysical limits of growth (Parrique, 2022).

Furthermore, Parrique (2022) adds to this the spiritual current, which insists particularly on the fact that growth does not contribute to happiness.

Definition of Degrowth

There is no unanimous agreement on a clear definition of degrowth. A just definition of degrowth must be open enough to incorporate the various currents and specific enough to make the project of a degrowth society intelligible (Schmelzer, 2022). According to Parrique (2022), a clear definition of degrowth must take account of four elements: sustainability, democracy, justice and well-being. Therefore, degrowth can be defined as "a reduction of production and consumption in order to diminish the ecological footprint, this planned in a democratic way, in a spirit of social justice and in a concern for well-being" (Parrique, 2022, p.216). Bayon et al. (2010) define degrowth as a physical paring down in the economic system for ecological, social and democratic reasons. Additionally, degrowth is seen as a transition to post-growth, which in turn is the destination of societies (Parrique, 2022). Post-growth is defined as "a stationary economy in harmonious relationship with nature where decisions are taken together and wealth is shared equitably so that it can prosper without growth" (Parrique, 2022, p.2019).

First, a reduction in production and consumption entails a slowdown of the economy. This is necessary to ensure the sustainability of the economy over time. This means that the size of the economy must not exceed the regeneration capacity of the natural resources and the assimilation and recycling capacities of the ecosystems. In short, to become sustainable, the ecological footprint of an economy cannot exceed biocapacity of the territory (Parrique, 2022). Schmelzer (2022) refers to the notion of global ecological justice implying a transformation of the material metabolism of societies through a reduction in production and consumption in such a way that life becomes ecologically sustainable. Lower production and consumption are required to avoid a bounce-back effect according to which saving natural resources leads to an increase in overall production (Lavignotte, 2009).

Second, degrowth must be democratically planned in the sense that it is not intended to be an unforeseen, uncontrolled and suffered crisis but an anticipated, organised and chosen transition (Parrique, 2022). Degrowth aims to be a chosen project and not a suffered recession (Duverger, 2011). Furthermore, degrowth attaches importance to the development of democracy, autonomy and collective self-determination. However, the concrete form of the democratisation process remains unclear (Schmelzer, 2022).

Third, degrowth is part of a spirit of social justice. This can be summarised by the application of the principle of common but differentiated responsibilities: every entity will contribute to degrowth according to its situation. From this perspective, the most ecologically destructive countries will have to reduce their GDP the most, while the most vulnerable countries will have to benefit from this change in economic organisation according to the logic of contraction and convergence (Parrique, 2022). The material standards of living are expected to converge globally to ensure good living conditions for all (Schmelzer, 2022). According to the global justice perspective, the decline of the rich countries is a *sine qua non* for the prosperity of the poor countries (Parrique, 2022). This idea will be developed further in Section VI.

Finally, degrowth strives to act in the interest of well-being. This implies the necessity to decouple well-being from GDP and especially from the environmental footprint (Parrique, 2022). Schmelzer (2022) explains that in the degrowth project, well-being will become independent of growth and, therefore, prosperity must be detached from the sphere of economic quantifiability by promoting conviviality and time prosperity through a decrease in working hours and increase in leisure time. Degrowth is a release from consumption logic and the abandonment of the belief in the economy and development as sources of happiness (Lavignotte, 2009).

In conclusion, degrowth is seen as a path of transition to a lower steady state, a prosperous society without growth (Kallis et al., 2012). The degrowth movement claims that the pursuit of unlimited

economic growth driven by the capitalistic system is incompatible with Earth's biophysical limits. It is also aimed at rectifying the unequal distribution of resources within and between countries (Chiengkul, 2018). Kallis et al. (2012) associate degrowth with a Cinderella economy, an economy giving rise to an increase in socially valuable sectors that appear unproductive according to GDP standards. It is an economy in which pay is low and the quality of work is high. It is characterised by low productivity activities, ecological investments and high labour intensity coupled with high levels of work satisfaction and social value. Degrowth economists think that the transition to a Cinderella economy will not involve any material sacrifice. However, this requires a new vision of prosperity based on less material abundance and consumption, and also models of voluntary simplicity (Kallis et al., 2012). However, according to Kallis et al. (2012), it might be overly optimistic to consider scaling up voluntary simplicity experiences to the social level.

Degrowth Policies

The transformation of institutions and specific policies will be needed in order to give rise to the transition to degrowth societies (Parrique, 2022; Kallis et al., 2012). Degrowth economists share a set of policies and institutions (Kallis et al., 2012). Parrique (2022) identifies four elements in degrowth policies stemming from the definition of degrowth, to wit: reduction of the ecological footprint, the promotion of democracy, the emphasis on social justice and the intention to increase well-being.

The first objective of degrowth policies is to reduce society's ecological footprint (Parrique, 2022).

This involves pollution cap and share schemes. A global annual cap on tonnage of CO2 emitted by fossil fuels must be set and tradable permits must be allocated through parts of the world (Kallis et al., 2022). There might also be non-tradable caps on the extraction of natural resources (Chiengkul, 2018). Rationing the use of fossil fuels might be an efficient solution to reduce pollution as well (Parrique, 2022).

Ecotaxes and increasing the prices of polluting goods are also a good way to set collective limits on environmentally harmful activities (Chiengkul, 2018; Parrique, 2022). There will also be an individual self-limitation process in order to reduce the consumption of goods per household (Chiengkul, 2018). Regarding consumption, some concrete measures such as the prohibition of certain forms of advertising, rationing of airline tickets and reduction of working hours might be set (Parrique, 2022).

Indeed, another concrete proposal aimed at promoting sobriety and decreasing environmental pressure is to reduce working time (Parrique, 2022). Work-sharing consists in reducing working hours and sharing the available work. Indeed, less growth might result in fewer jobs. Unemployment will rise unless available jobs are shared and work is made less productive (Kallis et al., 2012). Degrowth aims to decrease the speed of work and reduce working time while increasing leisure time (Parrique, 2022). Degrowth also points to the importance of care activities that are devalorised by current monetary economy (Chiengkul, 2018). Otherwise, meaningful employment could also include non-remunerated activities. Alternative unpaid work such as participating in community, personal care and other non-capitalist activities could increase individual well-being (Kallis et al., 2012; Chiengkul, 2018).

Secondly, degrowth must be democratically planned and promote democracy in the decision-making process (Parrique, 2022).

Degrowth is considered a self-limitation and political choice of people to limit their production and consumption to preserve future generations (Chiengkul, 2018). It is not a crisis to which one submits but a chosen transition that must be planned, since capitalism is not designed to degrow naturally (Parrique, 2022). In this sense, degrowth opposes capitalism and its logic of continuous growth and accumulation (Chiengkul, 2018). It promotes the local and living in post-capitalist communities with consumer-oriented cooperatives, urban gardens, pirate programmers, non-monetary trading (barter) and various forms of sharing. Common property must be encouraged (Kallis et al., 2012). Indeed,

decentralised small-scale and participatory economic alternatives such as cooperatives are promoted. Additionally, the public sector is preferred to privatisation just as collective political practices are preferred to individualistic consumer actions (Chiengkul, 2018).

Thirdly, degrowth policies are designed in the spirit of social justice to promote the equitable sharing of wealth (Parrique, 2022).

The spirit of social justice is summarised by the word equity. The ecological budgets must be shared more equally to allow countries in the South to have more resources to build infrastructure essential to their well-being. Decreases in consumption and production will occur in high-income countries. This implies the end of globalisation, the end of the extractivist circuit and a reversal of unequal trade. Concretely, the volume of imports must by reduced in proportion to the decline in production and consumption, while financial flows from North to South must be increased (Parrique, 2022).

This will partly be achieved through the relocalisation of production, local trading systems and non-monetary exchanges. Community or local currencies will also help to relocalise the economy (Chiengkul, 2018). Regional devaluation will be allowed to restrain the spatial distribution of wealth, maintain sufficient liquidity and reduce the vulnerability of regions to monetary problems elsewhere. In sum, the strengthening of a localised economy is a key aspect for degrowth (Kallis et al., 2012).

Schmelzer (2022) summarises those ideas as international solidarity, implying a restructuring of the international monetary system to dismantle uneven hierarchies between nations, the cancellation of the debt of the Global South and the transfer of resources, technology and money as reparations for the climate debt. Those ideas will be developed further in Section IV.

The equitable sharing of wealth entails the creation of new welfare institutions and policies to reduce inequalities. Progressive taxation will be used to finance welfare states (Chiengkul, 2018). Other more radical ideas are setting a guaranteed minimum income at the poverty line, predistributing inheritance to set a guaranteed minimum inheritance, distributing added value through the logic of free wages (Parrique, 2022) and setting maximum income caps (Chiengkul, 2018).

Finally, degrowth policies are intended to increase well-being and to create a society that is able to prosper without growth (Parrique, 2022).

This requires the implementation of happy degrowth by extending access to quality public services for free and decoupling purchasing power from living power. For this purpose, the prices of essential goods should be regulated and brought back closer to their real production costs. Then, it will be necessary to question the existence of certain jobs and ask ourselves whether certain professional activities justify the risk of ecological collapse. Indeed, most activities that are important for well-being have small ecological footprints (Parrique, 2022). Individuals in degrowth societies will be characterised by sobriety and no longer pursue the individual accumulation of resources. Rather, they will centre their lives around care, leisure and democratic participation (Chiengkul, 2018). The core objective of degrowth is ultimately to build an economy that can achieve and maintain a high quality of life without growth. This is achieved by redefining prosperity a search for meaning and happiness in frugality and respect for the living (Parrique, 2022). In the end, degrowth is a utopian vision of societies where people are happier while working and consuming less (Chiengkul, 2018).

All those political ideas can be summarised in a new definition of degrowth societies as localised, democratically governed economies that stay within ecological limits and distribute resources more equally between and within countries and in which individuals live according to the principle of happy sobriety (Chiengkul, 2018).

Some Criticisms Levelled at Degrowth

Degrowth is not unanimously supported in the public debate. There is agreement on the fact that economic degrowth is ecologically desirable but doubts at to whether it would be socially sustainable, effective and globally just (Kallis et al., 2012; Parrique, 2022).

Degrowth is often considered to be being painful, since it implies a slowing down in production and consumption (Parrique, 2022). Degrowth can reduce social welfare. Indeed, degrowth would cause a reduction in private consumption, but this would be offset by an increase in leisure. The increase in leisure must more than compensate for the loss of well-being from reduced consumption for degrowth to have a positive impact on social welfare (Kallis et al., 2012).

Moreover, economic degrowth could be unstable and lead to unemployment, which would in turn reduce the effective demand, resulting in more unemployment, an increase in state expenditure for unemployment benefits and finally a fiscal crisis for the state. However, degrowth could also take the form of a reduction in paid work hours and a surge in high social value and low productivity economic activities (Kallis et al., 2012).

Some people believe degrowth will be ineffective in reducing the environmental footprint (Parrique, 2022). Indeed, a core ideology of degrowth is selective growth, which is a structural shift of the economy to lower-intensity commodities. For some researchers, this will not work, since producing such commodities will require intermediate high intensity commodities (Kallis et al., 2012). In any case, historical periods of economic recessions have not been bad news for the environment since less growth means less material consumption, lower CO2 emissions and less habit destruction (Kallis et al., 2012). This will be developed further in Section IV.

Degrowth might also be impoverishing (Parrique, 2022). Indeed, green recessions are a social catastrophe, especially in countries from the Global South (Cömert & McKenzie, 2016). This idea will be further explained in section V. The problem is that growth economies do not know how to degrow, they collapse (Kallis et al., 2012). Parrique (2022) and Schmelzer (2022) insist on the fact that degrowth may not be associated with a recession, which will be further discussed in section III.

Considering the Global South, degrowth is often perceived as selfish. It is thought that if an economic decline is provoked in the rich countries, the poorer countries will collapse (Parrique, 2022). The way in which the situation of the Global South is taken into account in degrowth movement will be developed in section VI.

III. Links Between Degrowth and Recessions

In Section II, the diverse aspects of the degrowth movement were developed. In the end, it is clear that degrowth is not reducible to a decline in GDP. However, some similarities between degrowth and recessions can be found.

The first element of the definition of degrowth is “a reduction in production and consumption” (Parrique, 2022). From this perspective, degrowth might be associated with a recession. Many newspapers have published opinion pieces attacking degrowth and arguing that the coronavirus crisis has revealed the misery of degrowth. The belief is that degrowth would make economic recession permanent (Schmelzer, 2022). According to Schmelzer (2022), the coronavirus pandemic and the deliberate, planned shutdown of the economy in order to save lives was closer to degrowth than anything heretofore experienced.

However, the second element of the definition of degrowth is “democratically planned”. From this perspective, degrowth cannot be confused with an unforeseen and uncontrolled recession (Parrique, 2022). According to Kallis et al. (2012), GDP is a bad indicator of social welfare and, what is more, degrowth is not reducible to a drop in GDP. According to those arguments, economic recessions and the social misery caused by the pandemic must not be confused with degrowth. Recessions are

unintentional, worsen inequalities and mainly lead to cuts in public services. Inversely, degrowth would be planned, seek to reduce inequalities and foster the sharing of essential goods and services (Schmelzer, 2022).

The problem is that our economies are dependent on economic growth (Schmelzer, 2022). Schmelzer (2022) specifies that the Covid-19 recession was not degrowth since the economy was still dependent on growth. In the degrowth concept, crises are intrinsic to the capitalist system. In capitalist societies, a lack of growth is, first of all, a crisis. Therefore, a reduction in growth must be coupled with the overcoming of capitalism. However, historical experiences of stagnation and declining GDP did not lead naturally to the end of the capitalistic system and finally exacerbated social and political crises dramatically (Schmelzer, 2022). Indeed, green recessions are social catastrophes given that since our growth economies do not know how to degrow, they collapse. Additionally, it is not certain that a voluntary path to degrowth is possible within capitalist economies (Kallis et al., 2012).

Furthermore, degrowth would be globally beneficial only if it were set up holistically. A diverse panel of policies responding to the diverse critiques of capitalism simultaneously must be implemented. If a decline in growth is not adequately paired with policies that guarantee well-being and social justice, it will result in a crisis for most people as was the case of the coronavirus recession (Schmelzer, 2022). Kallis et al. (2012) insist on the fact that it might be overly optimistic to scale up simplicity experiences to the global level. Furthermore, degrowth policies might be hard to implement, especially in a democratic way. There might be clashes with the profits and interests of those who have political and economic power (Kallis et al., 2012). Kallis et al. (2012) emphasise the question of the feasibility of prosperous degrowth. And if it is really feasible, by whom, why and how will it be organised collectively and democratically?

Eventually, if for democratic reasons, the degrowth project is only partially implemented, such that it focuses only on reducing society's environmental footprint without considering its other dimensions, and if it fails to surmount the capitalist system, then, degrowth might turn into a recession.

IV. Positive Impacts of Recessions on the Environment

In the previous section, we put forward some evidence to suggest that the line between degrowth and recessions could be thinner than expected due to the difficulty of implementing the entire degrowth project in our current societies. If degrowth takes the form of a recession, it could still be effective in reducing pressure on the environment.

In the modern growth ideology, GDP growth is a synonym of progress while a decline in GDP is undesirable. While stagnation is considered to be a failure, recessions are experienced as catastrophes (Parrique, 2022).

However, historically, the 2008 and 2020 recessions were not bad news for the environment (Kallis et al., 2012; Parrique, 2022). Less growth is associated with less material consumption, lower CO2 emissions and less habit destruction (Kallis et al., 2012), and indeed, global greenhouse gas emissions fell by 5.4 percent in 2020, which is the fastest decline on record (Parrique, 2022). Historically, 80 percent of the French carbon emissions reduction happened in 2008 and 2020. Those were green recessions that proved that when the economy slowed down, emissions slowed down as well. This constitutes undisputable evidence that cutting, even stopping, production and consumption are good ways to reduce environmental pressure (Parrique, 2022).

Kallis et al. (2012) underline that resuming economic growth as usual is not an appropriate response to the crisis, since it accelerates climate change and biodiversity loss.

V. Devastating Impact of Recessions on the Global South

In Section IV, we suggested that if degrowth took the form of a recession, it would still have a positive impact on the environment. However, despite their positive environmental impacts, recessions have

devastating impacts on households and more especially in countries from the Global South (Bottan et al., 2020). This section will detail the impacts of recessions on the Global South and discuss the potential causes of the vulnerabilities of those countries.

The Impact of Recessions on the Global South

The economic impacts of the pandemic recession were large and unequal. The health crisis exacerbated the inequalities in low-income countries. The political measures implemented had a negative economic impact in the short run and widened the gap between rich and poor (Bottan et al., 2020). According to Comacho and Palmieri (2019), the effects of recessions on inequalities depend on a country's degree of development. Regarding the 2008 financial crisis, low-income countries had heterogeneous abilities to cope with the crisis. While some managed the crisis quite well, others experienced significant slowdowns (Cömer et McKenzie, 2016).

Declines in food security and health were among the disproportionate impacts. During the pandemic, many households were impacted by job losses and business closures. This was translated as drops in income that in turn led to a decline in food security (Bottan et al., 2020). Indeed, the coronavirus crisis and its economic impact increased the number of people who were starving (Beasley, 2022).

The Potential Causes of these Vulnerabilities

In general, low-income countries are particularly vulnerable to economic crisis since an important share of the population is vulnerable to falling back into poverty due to economic shocks (Bottan et al., 2020).

The economic impact of the pandemic was relatively more important in the Global South. One reason is that workers were more vulnerable due to the domination of the informal economy, which limited the ability of the most vulnerable households to maintain their incomes. The high degree of informality in the labour market, involving more jobs with social contacts and difficulties to telework, explains why the labour markets in low-income countries were particularly hard hit during the pandemic. In addition, informal workers tend to have less access to formal safety nets (Bottan et al., 2020).

Regarding the 2008 crisis, the trade channel was the most important mechanism in the transmission of the crisis from advanced economies to low-income countries. The reason is that those countries are highly dependent on advanced countries markets for their exports. The trade channel was affected through fluctuations in commodity prices, a limited number of export markets and high income elasticity of export goods (Cömer and McKenzie, 2016).

The role of the financial channel in the transmission of the 2008 crisis varied across countries. This channel was affected because a large share of credits was dominated by foreign currencies. Certain countries faced a reversal in financial flows while others faced a lack of liquidity. However, the financial shocks were relatively mild (Cömer et McKenzie, 2016).

Although low-income countries experienced high growth rates before the 2008 crisis, they at the same time amassed significant vulnerabilities linked to their dependence on the advanced economies. Indeed, export markets and commodity exports are more vulnerable to economic cycles in advanced economies (Cömer and McKenzie, 2016). Cömer and McKenzie (2016) conclude that countries in the Global South would be less exposed to external shocks if they chose strategic integration into the world economy instead of embracing the neoliberal agenda.

Furthermore, low-income countries had limited ability to conduct counter-cycle and fiscal policies in order to mitigate the effects of the 2008 crisis. This was explained by limited fiscal space or by eurozone entry requirements. The limited ability of countries to cut interest rates is explained by the exchange rate regime, inflation, fiscal deficit or balance-of-payment constraints. There were also concerns about international reserves. As a result, these countries could not use fiscal policy to tackle the crisis and experienced large drops in GDP (Cömer and McKenzie, 2016).

VI. The Global South in Degrowth Theories

In Section III we explained why degrowth and recessions could be more similar than expected. Then Section V detailed the devastating impact of recessions on lower income countries and the potential causes of the important vulnerabilities of the Global South. Those vulnerabilities are cited as reasons for challenging the relevance of degrowth to lower income countries. This section will focus on how degrowth theories allow for the Global South and review potential barriers to the expansion of degrowth to lower income countries.

The relevance of degrowth to low-income countries from the Global South is often questioned. Indeed, it might be unpopular to extend degrowth ideas to countries characterised by low living standards and the absence of a welfare state (Chiengkul, 2018). Bayon et al. (2010) confirm that degrowth ideas might not be compatible with less developed societies. Furthermore, global economic interdependence makes it impossible for a single group to implement the degrowth transition. We need an international alliance to reach global ecological sustainability. Therefore, the applicability of degrowth to low-income countries is a major issue (Chiengkul, 2018).

Actually, some characteristics of the Global South might prevent the expansion of degrowth to those countries. First of all, unfair global trade practices are a first barrier for the expansion of the degrowth project in the Global South. Indeed, green economies have more severe environmental regulations on exports, which limits trade opportunities. Degrowth calls for economic localisation, which enters into conflict with many southern producers whose incomes are based on exports. Secondly, concentrated control over advanced technology is a second barrier for implementing degrowth in the Global South. Low-income countries might have trouble catching up with the technology of the Global North, which would affect their ability to use green technologies. Finally, southern countries face more constraints than others to spread non-capitalist initiatives compatible with the degrowth vision. This is due to the fact that those countries lack well-established social security schemes, protected labour rights and/or stable democracies. As a result, it is harder for people to take economic risks and to challenge socio-economic norms (Chiengkul, 2018).

On the one hand, degrowth is accused of not taking account of inequalities and social needs that are not satisfied for some populations (Lavignotte, 2009). Measures must thus be taken to enable all countries to raise living standards, especially where basic needs are not met (Chiengkul, 2018). On the other hand, degrowth is sometimes considered to be selfish in the sense that if growth falls in rich countries, the poorer countries will necessarily collapse (Parrique, 2022). From this point of view, the continuous development of the rich countries would benefit the development of the poor. A slowdown from the north would then freeze the current distribution of wealth and it keep the Global South stuck in poverty (Bayon et al., 2010). This is the argument of the trickle-down effect on the global scale (Parrique, 2022; Bayon et al., 2010). However, inside the degrowth movement, it is assumed that degrowth will be able to ameliorate the welfare and economic conditions of the Global South.

First, there is a significant correlation between emissions and wealth. Indeed, all of humankind is not is responsible for the ecological catastrophe: the richest 10 percent of the world's population is responsible for 50 percent of total greenhouse gas emissions. Since the symmetry between wealth and emissions is almost perfect, what is ecologically efficient might be compatible with what is socially just. In speaking about degrowth, this means economic contraction for the rich countries, not for lower income ones (Parrique, 2022).

Above all, degrowth is inscribed in the spirit of social justice and the logic of contraction and convergence. Indeed, there will be contraction, and thus degrowth, for the most privileged countries while convergence, and thus growth, will be encouraged in countries with low living standards (Parrique, 2022). Indeed, some forms of green growth should be applied in the Global South (Chiengkul, 2018). The principle of common but differentiated responsibilities will be applied, meaning that each country will contribute to degrowth according to its situation. As a result, the most

environmentally destructive countries will have to make the greatest efforts to reduce their GDP while the most vulnerable ones will benefit from the change in economic organisation (Parrique, 2022).

Secondly, pollution is coupled with a global injustice, since the rich are responsible for pollution while the poor suffer from this pollution as well (Parrique, 2022). Indeed, climate change and the loss of biodiversity have the potential to destabilise the entire planetary ecosystem. The changes wrought by these phenomena affect populations very differently in line with their geographical location and position in relations of power and domination. In sum, all ecological crises hit the poorest first and hardest. The policies of degrowth provide for repayment of the climate debt by the rich countries (Schmelzer, 2022).

On another note, some criticisms argue that the reduction of inequalities must be addressed before degrowth. However, in the degrowth concept, growth is linked to inequalities. For thirty years, growth was followed by an increase in inequalities between the Global North and the Global South. Therefore, growth is intrinsically unequal and attacking growth is a solution to attack inequalities (Bayon et al., 2010). Indeed, degrowth advocates for a reduction in global inequalities and asks for wealth redistribution (Parrique, 2022). Chiengkul (2018) confirms that income, wealth and resource redistribution is required to raise living standards to decent levels in the Global South.

Finally, the degrowth proponents advocate that degrowth in the Global North is a sine qua non for the prosperity of the Global South (Parrique, 2022). According to Chiengkul (2018), structural reform of the global political economy is indeed required to address unequal relations between northern and southern countries.

According to Parrique (2022), poor countries only receive the crumbs of the growth and international trade works at the expense of small countries. As a result, it is a mistake to think that the growth of the rich countries feeds the wealth of the Global South (Parrique, 2022). It seems that growth is made possible by the depletion of others since it is characterised by the concentration of the ecological goods in rich countries while rubbish and raw materials are concentrated in the periphery (Bayon et al., 2010). Growth and economic prosperity of the North are extractivist and rely on the unequal exchange: rich countries pressure poor countries to benefit from cheap resources and then, sell their finished products at high price (Parrique, 2022). Cömert and McKenzie (2016) confirmed that the high growth rates of countries in the Global South were accompanied by an increase of their vulnerabilities related to structural problems in the integration of these countries in the world economy.

In sum, in our current world, what the rich get does not trickle down to the poor because resources are not replaceable (Bayon et al., 2010). Indeed, GDP growth in rich countries deprives the Global South of resources it could use to develop. Growth is accumulation through plundering while degrowth is intended to reverse the trend. When growth in the rich countries decline, budgets and resources primordial to allow the development of the Global South will be liberated (Parrique, 2022). Indeed, degrowth in the Global North will reduce demand, prices and competition for resources (Chiengkul, 2018). Finally, degrowth policies promote international solidarity by proposing to restructure the international monetary system, cancel the debt of the Global South and transfer resources, technology and money to repay the climate debt (Schmelzer, 2022).

In the framework of post-colonial studies, the degrowth movement provides a new vision and an alternative development path (Chiengkul, 2018). Cömert and McKenzie (2016) underline that the Global North should opt for a strategic integration into the world economy rather than embracing the neo-liberal agenda. Currently, southern countries spend money and energy to modernise and to catch up with the North (Bayon et al., 2010). There is a necessity for the Global South to break with its economic dependence on the North. Degrowth will allow those countries to create their own development, without the influence of colonialism and globalisation (Latouche, 2004).

VII. How Would GDP Decline in Rich Countries Affect Poverty Indicators in Low-income Countries?

Since the 1970s, various degrowth theories have been deployed in order to support the ecological transition. They are not unanimously supported. One of the main criticisms levelled at them is that they fail to take account of inequalities and social needs that are not satisfied for some populations (Lavignotte, 2009).

Indeed, extending the degrowth project to the Global South characterised by low living standards and the absence of welfare states could be impopular. Furthermore, global economic interdependence makes it impossible for a single group to implement degrowth transition. Therefore, the applicability of degrowth to the Global South is a major issue (Chiengkul, 2018).

However, the assumption inside the degrowth movement is that degrowth will be able to ameliorate the welfare and the economic condition of the Global South. First, degrowth belongs to the logic of contraction and convergence, with degrowth for the most privileged countries and growth for countries with low living standards (Parrique, 2022). Second, degrowth in the Global North is perceived as a sine qua non for the prosperity of the Global South. Indeed, GDP decline in rich countries will liberate budgets and resources that are primordial for the development of the Global South (Parrique, 2022). Finally, the degrowth movement will provide a new vision and an alternative development path (Chiengkul, 2018); it will allow the Global South to sever its economic dependence on the North (Latouche, 2004).

On another note, the degrowth project has multiple components. Degrowth is defined as a "reduction in production and consumption in order to diminish the ecological footprint, planned democratically, in a spirit of social justice and with a concern for well-being" (Parrique, 2022, p.216). Degrowth is a holistic approach covering many aspects of the society and encompassing many struggles. According to Kallis et al. (2012), it is not certain that a voluntary path to degrowth is possible within capitalist economies. Indeed, our economies are dependent on economic growth and historical experiences of reduction in growth did not overturn the capitalist system (Schmelzer, 2022). Degrowth would be internationally beneficial only if its diverse panel of policies was implemented simultaneously at the global scale to respond to the diverse criticisms of the capitalism. However, some degrowth policies might be hard to implement, especially in a democratic way (Kallis et al., 2012). Furthermore, while implementing degrowth policies at the national level may be difficult, extending degrowth at the international scale also represents a serious problem (Schmelzer, 2022). Indeed, some characteristics of the Global South might prevent the expansion of degrowth to those countries (Chiengkul, 2018). Today, neither exactly how democratically planned degrowth is to be organised nor the issue of the globalisation of the transition have been solved by the proponents of degrowth (Schmelzer, 2022).

Degrowth is a recent concept that appeared in the 1970s and has evolved continuously over time. Today, degrowth is a cohesive, broad criticism of growth and capitalist societies. It also aims to be a political project proposing a new world-system for post-capitalist societies. However, it seems that some gaps need to be addressed in order to make the degrowth transition sustainable, democratic, just and conducive to well-being. No indication is given regarding the different steps and to how long the transition will take. On another note, according to Schmelzer (2022), the democratic current is the most likely to become a government position today. It is a green-liberalist orientation and it is based on socio-economic and ecological critiques of growth (Schmelzer, 2022) that do not include the South-North critique.

In the end, for democratic reasons and due to the potential difficulties of extending degrowth policies in southern countries, the degrowth project may be only partially and locally implemented in its early stages. For those reasons, in its beginning, the degrowth project could be reduced to a green recession in the Global North without being able to overcome the capitalist system and without putting an end

to the neo-colonial dependencies between regions. Therefore, if the degrowth transition fails to incorporate its global justice strand, it might worsen the economic situation of the Global South, which will probably take time to build its own development path. Indeed, the economic health of the Global South is currently highly dependent on exports and tourism (Schmelzer, 2022). Degrowth calls for economic localisation, which enters into conflict with many southern economic agents (Chiengkul, 2018).

Degrowth is a visionary proposal for a global and social transition that has never been realized (Schmelzer, 2022). Empirically, there has never been any complete experience of degrowth at the international scale. However, it is likely that, in its first stages of transition, degrowth project will fail to overcome the capitalist system and neo-colonial dependencies between world regions. Therefore, estimating the contemporaneous effects of GDP variations in rich countries and poverty indicators in lower income countries will give an idea of the current economic dependency of the Global South. This allows to measure how these countries will be affected in the early stages of a transition to degrowth, before they have time to create their own development path.

Methodology & Data

I. Model

Research Question

The objective of the following section is to study the impact of GDP variations in rich countries on poverty indicators in lower income countries. Indeed, we have reason to believe that if the degrowth project were implemented in our societies today, its early stages would take the form of purely economic degrowth in rich countries. Decline in their production and consumption, added to the relocalization of production and implementation of local exchange trading systems in high-income countries, would result in an overall decrease in their imports. Moreover, concrete measures to curtail consumption, including the promotion of slow travel and the rationing of airline tickets, might be taken (Parrique, 2022).

Our econometric model aims to study the ceteris paribus effect of variations in exports and tourism (due to variations of GDP in middle and high-income countries) on poverty indicators in lower income countries. This will measure the current economic dependency of the Global South on the Global North and give an indication of how these countries will be affected in the early stages of a transition to degrowth, before they can create their alternative development path. Therefore, our model studies the determinants of poverty in the populations of lower income countries.

Basic Model

In our equation, we have a poverty indicator as a dependant variable. Potential dependant variables are *Poverty_Headcount* or *Poverty_Gap* ratios (as a percentage of the population) or prevalence of *Food_Insecurity* or *Undernourishmen*t in population.

Our variable of interest is GDP in middle and high-income countries. However, it is an external variable since our sample contains lower income countries only. From the literature section, we have reason to believe that economic decline in middle and high-income countries will be transmitted to lower income countries through international trade and tourism. As a result, our variable of interest is approximated with variables *Export_to_high-income_countries* and *Tourism_receipts*.

In order to estimate the ceteris paribus effect of exports to high-income countries and tourism on poverty in lower income countries, we have to take account of other variables that are likely to affect poverty indicators.

The main control variable in our model is *GDP,* which accounts for economic growth in lower income countries. Indeed, we are interested in measuring the impact of GDP decline in rich countries on poverty indicators in lower income countries, while keeping their own GDP constant. Other relevant variables then account for the specific situations of the countries, e.g. *Population*, *Employment_Rate*, *FDI* (Foreign Direct Investment) and *NDA* (net development assistance & official aid received) (Dorn et al., 2022; Yameogo et Omojalaibi, 2021). The institutional quality of the country must be considered as well (Yameogo et Omojalaibi, 2021). This is done using dummy variables on the country rating status from the Freedom House, where each country is classified as *Free*, *Partially_Free*, or *Not_Free*. This will be further detailed in Section II. The importance of the informal sector is also likely to affect poverty (Bottan et al., 2020). This is integrated using a proxy variable on *Self-employment.*

$$Undernourishment_{i,t} = \beta_0 + \beta_1\, Exports\_high\_inc._{i,t} + \beta_2\, Tourism\_receipts_{i,t} + \beta_3\, GDP_{i,t} + \beta_4\, Population_{i,t} + \beta_5\, Employment_{i,t} + \beta_6\, FDI_{i,t} + \beta_7\, NDA_{i,t} + \beta_8\, Partially\_Free_{i,t} + \beta_9\, Not\_Free_{i,t} + \beta_{10}\, Self\_Employment_{i,t} + u_{i,t}$$

Expected Sign of β_1 and β_2

We expect the sign of β_1 to be negative. Indeed, an increase in exports to high-income countries should impact poverty in lower income countries negatively, whereas a decrease in exports to high-income

countries (due to a decrease in GDP in this part of the world) should have a positive impact on poverty level, as is the case during recessions. In the same way, the sign of β_2 is expected to be negative as well. Indeed, an increase in tourism receipts (due to an increase in GDP in higher-middle and high-income countries) should impact poverty in lower income countries negatively, whereas a decrease in tourism should impact poverty positively, as was the case during the Covid-19 pandemic.

Estimation Methods

In order to estimate the relationship between our variables of interest, we first used ordinary least squares estimators with pooled samples. In the end, pooled OLS results were challenged using panel data methods. A fixed-effect model allows us to solve the country-specific time-constant omitted bias: it exploits the within-country variation over time and eliminates country-specific time-invariant effects. Then, standard errors robust to heteroskedasticity clustered at the country level were used.

Finally, an instrumental variable estimation method would have been interesting to mobilise to deal with potential endogeneity of the variable *Export_to_high-income_countries* in the model. This method is frequently used in applied econometrics, even though it is rather difficult to find relevant instruments. Dorn et al. (2022) computed the variable *Predicted_Openness* based on a gravity equation as an instrument variable (IV) for *Trade_Openness*. However, this process goes beyond the scope of this research. This research was limited to the use of a fixed-effect estimator, while an IV estimator was retained for further improvement.

Model Assumptions

Satisfying Gauss Markov assumptions is important to ensure, among other things, that the estimates of the coefficients of a regression model are unbiased and efficient. A violation of those assumptions can lead to incorrect conclusions about the relationships between the variables of interest. Indeed, we want OLS estimators to be unbiased, efficient and consistent. Considering those assumptions helps to specify more clearly the econometric model to use and allows awareness of the potential limitations of the results.

A pooled sample is defined as a collection of random samples drawn from different populations at different periods of time. In our case, countries were identical from one time period to another which means that we used a panel. A pooled sample has the advantage of increasing the sample size and hence, benefits from the advantages of large samples: increases in the precision of estimators and in the power of test statistics. Year dummies were added to the model to allow intercept changes over time. Then, interaction terms between explanatory variables and year dummies allowed different slopes between time periods. For example, the magnitude of the coefficient of *GDP* might increase over time due to an improved economic environment in lower income countries. On another front, a Chow test was computed to screen for the occurrence of structural changes in the relationships between variables in the period before and after the pandemic.

The second Gauss Markov assumption is random sampling, which ensures that observations are identically and independently distributed. In our case, independence might be questioned when macroeconomic models are used, since the outcomes of one country may not be independent of the outcomes of the others due to geo-political, economic and environmental interdependence.

Then, the non-perfect collinearity assumption requires that none of the explanatory variables is a constant and there is no perfect linear relationship among them. Indeed, in order to estimate the ceteris paribus effect, we need each explanatory variable to vary, at least to some extent, independently of other variables. In this model, we faced a high degree of multicollinearity between explanatory variables, as reported in Table 1. Multicollinearity causes OLS estimators to have a larger variance and to be less precise without giving rise to a violation of the third Gauss-Markov assumption. To address this problem, the variable *FDI* was not included in the regression due to its near-perfect collinearity with the variable *Population*. Then, we focused on the years around 2020 to take advantage of the considerable variation in explanatory variables caused by the pandemic. In addition, we decided

to include several years of observations before the pandemic in order to increase the sample size. Finally, variables whose coefficients were not statistically different from 0 were removed one by one in each regression so as to estimate the significant coefficients as accurately as possible.

TABLE 1 Correlation matrix between explanatory variables

	Export to high-inc. (log)	Tourism receipts (log)	GDP p.c. (log)	Population	Employment	Self-employment	FDI	NDA & official aid (log)
Export to high-inc. (log)	1.000							
Tourism receipts (log)	0.6974	1.000						
GDP p.c. (log)	0.3640	0.3743	1.000					
Population	0.4460	0.4298	0.0647	1.000				
Employment	0.0205	0.1364	-0.3345	-0.1202	1.000			
Self-employment	-0.1631	-0.2050	-0.6248	0.1098	0.5250	1.000		
FDI	0.5253	0.5441	0.1715	0.9224	-0.0734	0.0044	1.000	
NDA & official aid (log)	0.5091	0.3941	-0.2969	0.2896	0.1796	0.2636	0.2379	1.000

Notes: correlations were calculated from the full sample for the period 2015-2020.

The zero conditional mean assumption (ZCA) means that the expected value of the error term given any value of the explanatory variable is zero. In other words, the unobserved factors must be, on average, unrelated to the explanatory variables. The violation of this assumption leads to biased and inconsistent estimators and may result from functional form misspecification, measurement errors, a non-random sample or an omitted variable.

First, functional form misspecification consists in omitting a function of the dependent variable such as quadratics, logarithms and interaction terms. Firstly, *GDP* squared might be relevant in our model to specify the negative but potentially diminishing effect of GDP on poverty. Quadratic forms of other explanatory variables were also added to the regression and the statistical significance of their coefficients was tested to determine their relevance. Secondly, adding interaction terms between dummies on country liberty status and other explanatory variables such as *GDP* and *Tourism* makes it possible to consider different slopes across country's status. On another note, a dummy variable called *Destination* was created and was equal to 1 for countries whose number of average annual tourism arrivals exceeded 5 million or whose tourism receipts-over-GDP ratio was above 20%, and 0 otherwise. This destination dummy was interacted with the variable *Tourism_receipts,* since we expected the partial effect of this variable to be different when considering countries with varying degrees of tourism. Lastly, five dummies were generated to represent the country's export status based on the type of goods mainly exported by each country (agricultural raw materials, fuel, manufactured goods, ores and metal or food products). Those dummies were interacted with the variable *Export_to_high-income_countries*. We believe that the partial effect of export to high-income countries on poverty might differ due to the fact that, a country's economy may be more or less dependent on exports

depending on the type of product exported. Third, logarithmic forms of the explanatory variables were tested to represent non-linear relationships. Each variable was added in the regression one by one, by beginning with the main explanatory variables and ending with the control variables. For each new variable, two regression were computed: one including the new variable at level and the second including it in its logarithmic form. Then, the R squared values of the two regressions were compared in order to select the most appropriate specification.

Second, the omission of a relevant explanatory variables is also a violation of the ZCA. In our model, the importance of the informal sector is likely to affect poverty and might be correlated to our explanatory variables. However, the informal sector is difficult to measure, so *Self-employment* was identified as a proxy variable to take it into account. Then, it might be relevant to add lagged variables in our model since we expect our explanatory variables to influence poverty for a longer time period than one year. However, since contemporaneous variables were relevant as well, joining each variable and its lagged value gave rise to a considerable increase in the level of multicollinearity. For this reason, lagged variables were not included in the final regression because this additional multicollinearity hindered the precision of the estimations. Events such as financial crises or the occurrence of a recession might influence poverty indicators and all other explanatory variables in macroeconomic models. Those events were taken into account using year dummies. However, it is equivalent to considering that all countries reacted uniformly to the pandemic. In reality, they may potentially have implemented different types of policies in order to tackle the Covid-19 situation.

Third, measurement errors in the dependent variable are harmless provided that they are random, unrelated to both the true unobserved dependent variable and the explanatory variables. Measurement errors in explanatory variables are much more problematic. This is another limitation of the model. Indeed, macroeconomic variables could be of lower quality in countries with lower GDP or having lower institutional quality due to lack of financial means or corruption. From this point of view, we also have a concern about missing data. This cannot be ignored when data are missing based on the dependent variable. In our case, we have more missing observations for countries characterised by higher levels of undernourishment. For these reasons, OLS results must be interpreted with caution since measurement errors and missing values can lead to biased and inconsistent OLS estimators.

Then, the assumption of homoskedasticity means that the variance of the error term given any value of the explanatory variable is constant. In our model, we can have higher variability in poverty indicators for countries characterised by lower levels of GDP. Indeed, countries with lower GDP might be more vulnerable to shocks resulting in higher variability in their poverty levels. Due to the fact that observations are dated from different periods of time, we might have a correlation of errors across time. A Breusch Pagan test detected the presence of heteroskedasticity. As a result, fully robust standard errors were used to provide valid test statistics and inference procedures. On another note, the use of first-difference estimators removes potential autocorrelation.

Finally, fixed-effect and first-difference estimators consist in applying pooled OLS estimators to a transformed model. Both techniques remove the time-constant omitted variables by eliminating observable and unobservable country-specific time-constant effect. This comes at a cost, since all time-constant explanatory variables, such as dummies on the country's liberty rating status, disappear from the model. Since it is not the main variables of interest, this is not too problematic. The use of random effect estimator allows us to keep time-constant variables in the model but requires the time-constant unobserved individual effects to be unrelated to the explanatory variable, which is a strong assumption. On the one hand, the fixed-effect estimator consists in eliminating the time-constant individual unobserved effect by time-demeaning the original data. On the other hand, first-difference consists in eliminating the time-constant individual unobserved effect by first-differencing the original data. In addition to removing time-constant explanatory variables, fixed-effect and first-difference estimators cause the loss of degrees of freedom and reduce the sample variation of the explanatory variables, resulting in less precise estimations of the coefficients. The use of a first-difference estimator

rather than a fixed-effect estimator is recommended when errors are strongly serially correlated. In this research, the two estimations techniques were used and generated quite similar results.

Final Model and Potential Limitations

The basic model was the following:

$$Undernourishment_{i,t} = \beta_0 + \beta_1\, Exports\_high\_inc._{i,t} + \beta_2\, Tourism\_receipts_{i,t} + \beta_3\, GDP_{i,t} + \beta_4\, Population_{i,t} + \beta_5\, Employment_{i,t} + \beta_6\, FDI_{i,t} + \beta_7\, NDA_{i,t} + \beta_8\, Partially\_Free_{i,t} + \beta_9\, Not\_Free_{i,t} + \beta_{10}\, Self\_Employment_{i,t} + u_{i,t}$$

In order to satisfy Gauss-Markov assumptions closely and to provide unbiased, efficient estimators, our basic model was enhanced with several elements such as year dummies and interaction terms between year dummies and explanatory variables. Then, squares of some explanatory variables such as GDP were added and their statistical significance tested. Interaction terms between dummies on country liberty rating status and other explanatory variables were also included in the model. The variable *FDI* was dropped from the regression due to its considerable degree of multicollinearity with the variable *Population*. Some independent variables were included in their logarithmic form. Finally, interaction terms between the dummy variable *Destination* and *Tourism_receipts* and between country export status dummies and *Export_to_high-income_countries* were added to the regression. However, despite those elements, it is likely that some limitations remain.

First, macroeconomic observations are not independent across countries due to geo-political, economic and environmental interdependence and our variables are highly correlated with each other. Second, our model treats all countries as if they reacted uniformly to the pandemic, without considering that countries implemented various measures and policies in order to tackle Covid-19. Then, as explained previously, macroeconomic variables can be of lower quality and account for more frequent measurement errors for countries characterised by lower GDP levels or lower institutional quality. In addition, we have a concern about missing data that cannot be ignored when data based on the dependent variable are missing. In our case, we have more missing observations for countries characterised by a higher degree of poverty. For these reasons, OLS results must be interpreted with caution since omitted variables, measurement errors and missing values can lead to biased and inconsistent OLS estimators. Finally, although panel data methods solve the individual-specific time-constant omitted variable bias, they cannot remove the time-varying unobserved individual effect. According to Dorn et al. (2022), the variable *International_Trade* might be endogenous due to omitted variable bias (through *Mobility* and *International_Competition* variables) and reverse causality. The use of an instrumental variable would have been interesting to replace the variable *Export_to_high-income_countries* which is potentially endogenous. However, a relevant instrument must satisfy two conditions, namely, instrument exogeneity and relevance. As a result, it is rather difficult to find good instruments. Dorn et al. (2022) computed the variable *Predicted_Openness* based on a gravity equation as an IV for *Trade_Openness*. However, this process goes beyond the scope of this research and was retained for further improvement. It is also compromised to determine the direction of causation between the variables on net official aid and development assistance received and the level of undernourishment in the population. Indeed, it is likely that the dependant variable "prevalence of undernourishment" affects the amount of net development assistance and official aid received: countries with higher levels of undernourishment may receive more aid and development assistance to tackle this problem. Conversely, when a country receives more aid and development assistance, its degree of undernourishment might decrease. This corresponds as well to a case of reverse causality, which can lead to biased and inconsistent estimators. Using an instrumental variable is a common approach to address reverse causality concerns.

II. Database

Variables

1. *Dependant Variable on Poverty*

Several potential dependant variables were considered. The variables *Poverty_headcount_ratio* or *Poverty_gap* (as percentages of the population) were available on the World Bank website. Additional observations were found on the Poverty and Inequality Platform. Unfortunately, both variables were plagued by a considerable number of missing observations and were not used. Another option considered was to use the data on food aid from the World Food Programme. However, the latter has stopped publishing them. Finally, the variables on undernourishment and moderate food insecurity appeared to be of better quality and had fewer missing observations. Those were found on the United Nations' Food and Agricultural Organization web page. It is important to note that those indicators were available only as 3-year moving averages with the aim of reducing the impact of possible errors in estimation. To ensure consistency, all explanatory variables were also computed as 3-year moving averages.

2. *Exports to High-Income Countries, Tourism and Control Variables*

Most of the explanatory variables were found on the World Bank website. The two variables of interest were *Exports_to_high-income_countries* (merchandise exports) and *Tourism_receipts*, both expressed in current U.S. dollars.

Population, GDP and GDP p. c., foreign direct investment, net development assistance and official aid received, employment and self-employment variables came from the World Bank as well. For employment and self-employment, estimates from the International Labour Organization were selected instead of national ones to ensure data quality.

Finally, data on institutional quality were found on the Freedom House website. The Freedom House computes numerical ratings using a combination of on-the-ground research, local contacts, articles, nongovernmental organisations and governments. For each country and year, it rates political rights and civil liberties on scales of from one to seven, with 1 representing the highest degree of freedom and 7 the lowest. Then, an average rating is computed. If it is between 1 and 2.5, the country's status is designated as Free; between 3 and 5.5, the country is Partly Free and between 5.5 and 7, the country is considered Not Free.

Samples

The full sample contains low and lower-middle-income countries classified by the World Bank criteria of 2017 and includes 91 countries having a gross national income per capita lower than US$3,956. In this sample, some countries were characterised by extreme values. First, Vietnam, Cambodia, Papua New Guinea, Republic of Congo, Tunisia, Honduras and Djibouti were considered outliers regarding their high ratio of exports to rich countries to GDP. Second, Cabo Verde and Vanuatu could also be considered outliers regarding their high level of tourism receipts ratio to GDP.

A second subsample containing the 60 countries with the lowest GNI per capita in 2017 was used to allow comparison. This subsample was selected instead of a sample of the 42 low-income countries in 2017 to guarantee a sufficient number of observations.

In the end, the full sample corresponded to an unbalanced panel for 91 countries over the period 2015 to 2020. The data were computed as 3-year moving averages to ensure consistency with the variables on undernourishment and food insecurity.

Empirical Results

For democratic reasons and due to the difficulty of extending degrowth policies in southern countries, degrowth may be reduced to a green recession in the Global North in its early stages. It is likely that it will take time for degrowth to bring an end to the capitalist system and to neo-colonial dependencies between regions. According to Schmelzer (2022), the economic health of the Global South is currently highly dependent on export and tourism. Degrowth calls for economic localisation, which enters into conflict with many southern economic agents (Chiengkul, 2018). It will take time for the countries of the South to create their own development pathways.

The aim of this section is to study the effects of the variables *Export_to_rich_countries* (merchandise exports) and *Tourism_receipts* on the prevalence of undernourishment in the sample of low-income and lower-middle-income countries. This will give a measure of the current economic dependency of the Global South and make it possible to estimate how these countries will be affected in the early stages of a transition to degrowth.

Descriptive Statistics

Export to High-Income Countries and Undernourishment across Countries

Figure 1 illustrates the correlation between export to high-income countries and the prevalence of undernourishment in the population across Global South countries in 2018. The coefficient of correlation between those two variables is -24.17%, suggesting that they are highly negatively correlated. It implies that high levels of export to high-income countries tend to be associated with a lower level of undernourishment in the population. In Figure 2, differences are made between countries based on their export status. It seems that the relationship between undernourishment and export to high-income countries is not uniform depending on the type of good mainly exported by the country. Indeed, the correlation coefficient between export to high-income countries and undernourishment is -41.24% for agricultural and raw material exporting countries, around -31% for fuel and manufacturing exporting countries, and -21.75% for countries exporting mainly food products. In parallel, this correlation coefficient is completely different when one considers ore and metal exporting countries, for which the correlation coefficient is positive and equals 61.71%.

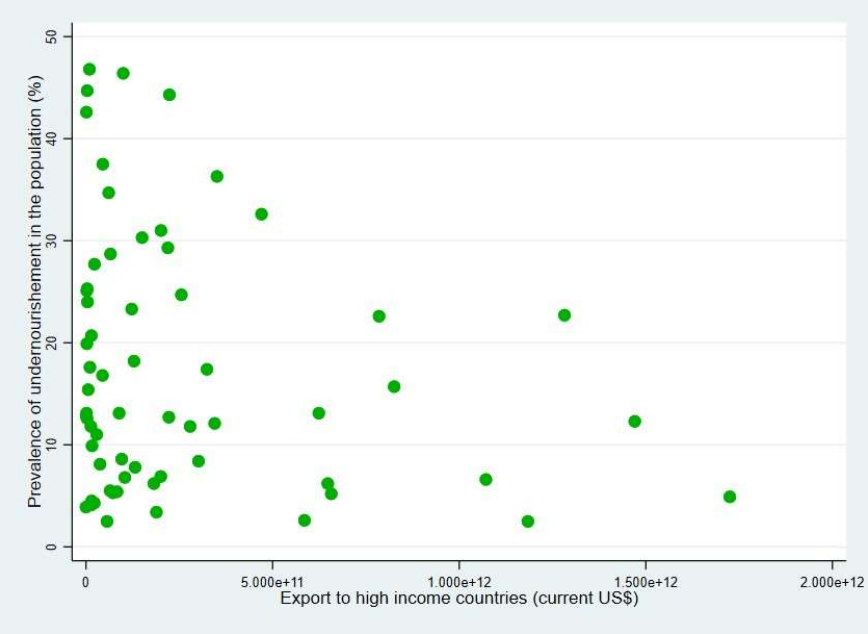
Tourism Receipts and Undernourishment across Countries

Figure 3 represents the relationship between tourism receipts and the prevalence of undernourishment in the population in 2018. The correlation coefficient between those two variables of interest is -20.03%, indicating that high levels of tourism receipts are associated with lower levels of undernourishment. Figure 4 distinguishes between countries with at least one major tourist destination and those without. Unsurprisingly, the negative correlation between tourism receipts and undernourishment is much more pronounced for tourist countries (-50.04%) than for the others (-6.08%).

Trends over Time

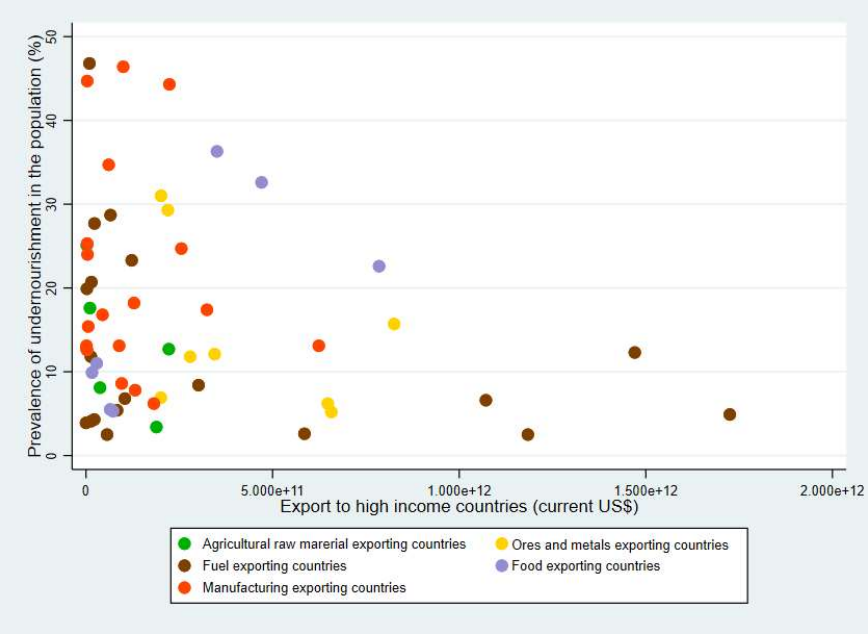
Figure 5 reveals that exports to high-income countries and tourism receipts increased continuously between 2016 and 2018. The rate of undernourishment was relatively stable between 2015 and 2018 and the average value was around 16.6% of the population. Since data are formatted as 3-year moving averages, the effect of the pandemic was already visible in 2019. Indeed, both exports to high-income countries and tourism receipts decreased between 2018 and 2020. The average value of exports to high-income countries decreased by around US$9 billion between 2018 and 2020, while the average value of tourism receipts decreased by around US$5 billion in the same time period. In parallel, the average value of the prevalence of undernourishment in the population across the Global South increased by 0.81% between 2018 and 2020.

Figure 1 Exports to high-income countries and prevalence of undernourishment in the population, 2018 – full sample



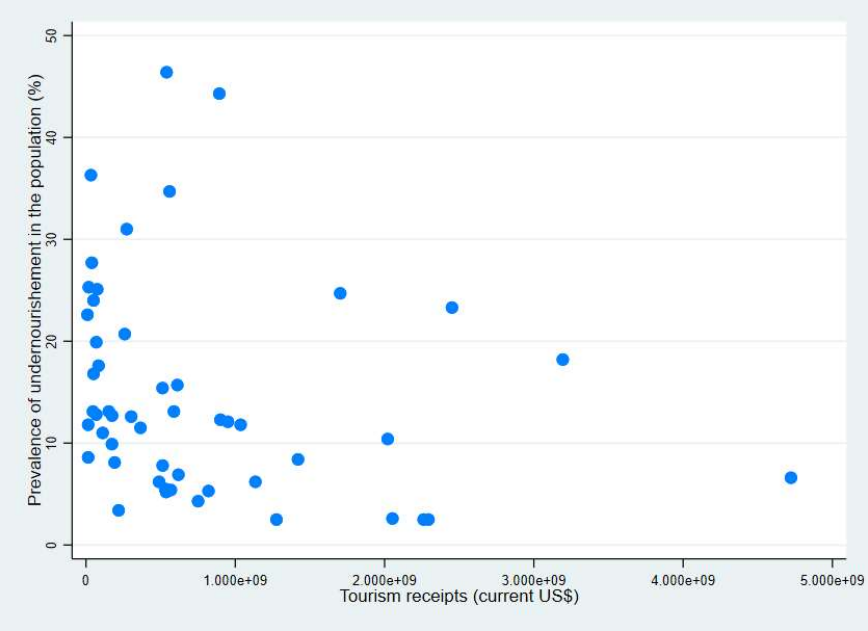
Notes: This figure relates to the full sample of low and lower-middle-income countries in 2018. Unconditional correlation = -24.17%. *Source:* World Bank, Food and Agriculture Organization of the United Nations (FAO), own calculations.

Figure 2 Exports to high-income countries (differentiated by type of country) and prevalence of undernourishment in the population, 2018 – full sample



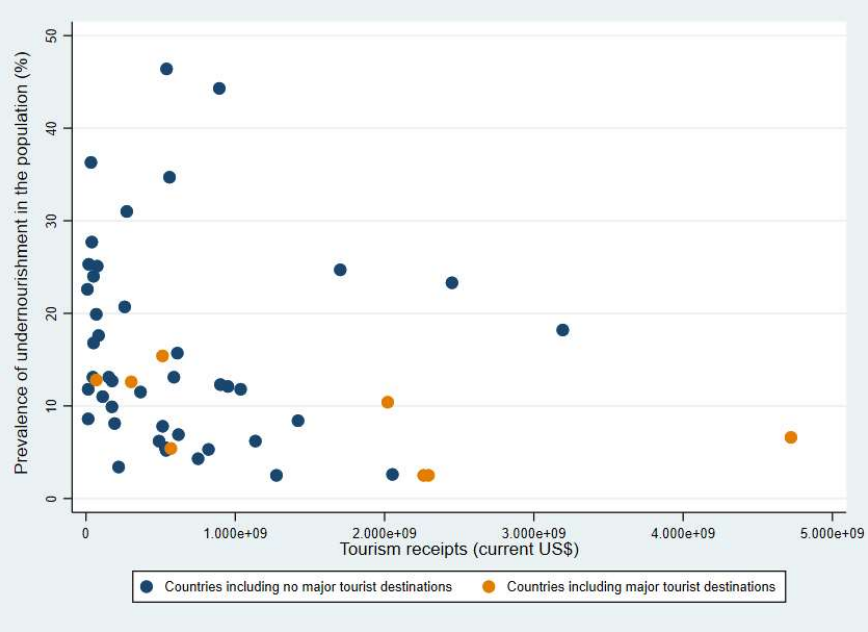
Notes: This figure relates to the full sample of low and lower-middle-income countries in 2018. Unconditional correlation (agricultural and raw material exp. countries) = -41.24%. Unconditional correlation (fuel exp. countries) = -31.33%. Unconditional correlation (manufacturing exp. countries) = -32.05%. Unconditional correlation (ore and metal exp. countries) = 61.71%. Unconditional correlation (food exp. countries) = -21.75%. *Source:* World Bank, Food and Agriculture Organization of the United Nations (FAO), own calculations.

Figure 3 Tourism receipts and prevalence of undernourishment in the population, 2018 – full sample



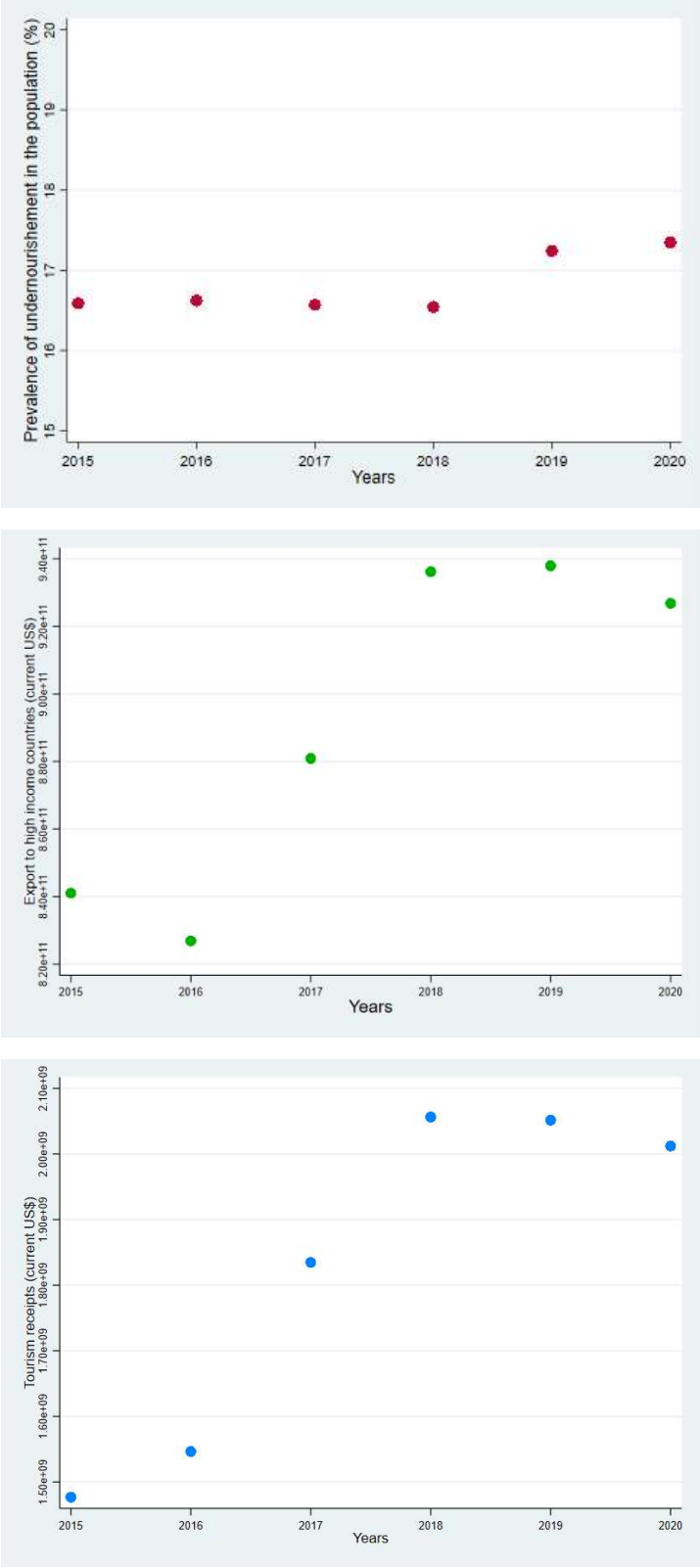
Notes: This figure relates to the full sample of low and lower-middle-income countries in 2018. Unconditional correlation = -20.03%. *Source:* World Tourism Organisation, Food and Agriculture Organization of the United Nations (FAO), own calculations.

Figure 4 Tourism receipts (differentiated by type of country) and prevalence of undernourishment in the population, 2018 – full sample



Notes: This figure relates to the full sample of low and lower-middle-income countries in 2018. Unconditional correlation (no major tourist destinations) = -6.08%. Unconditional correlation (at least 1 major tourist destination) = -50.04%. *Source:* World Tourism Organisation, Food and Agriculture Organization of the United Nations (FAO), own calculations.

Figure 5 Time trends in prevalence of undernourishment, exports to high-income countries and tourism receipts, 2015-2020 – full sample



Notes: This figure relates to the full sample of low and lower-middle-income countries in 2018. Each point corresponds to the annual average for the sample. Data are formatted as 3-year moving averages, which explains why the effect of the pandemic is already visible in 2019. *Source:* Food and Agriculture Organization of the United Nations (FAO), World Bank and World Tourism Organisation, own calculations.

Baseline Results

Tables 2 and 3 report the results of OLS with a within-country fixed effect estimator. The full sample corresponds to low and lower-middle-income countries. The second sample contains the sixty countries with the lowest incomes. For each sample, results were recalculated by removing countries considered to be outliers due to abnormally high exports to rich countries-to-GDP ratios. Indeed, Vietnam, Cambodia, Papua New Guinea, Congo Rep, Tunisia, Honduras and Djibouti were considered outliers. Due to the high level of multicollinearity, variables whose coefficients were not statistically different from zero at 10% confidence level were dropped from the regression.

Our results in Table 2 do not suggest a statistically significant relationship between tourism receipts and the prevalence of undernourishment in our full sample and subsample (Table A1, Columns 1 and 2, Appendix). The coefficient on exports to high-income countries is significant at the 10% confidence level in each sample and its sign is negative. It indicates that the prevalence of undernourishment in the population is expected to decrease by 1.69% on average as the level of exports to high-income countries increases by 1% for the full sample (Table 2, Column 1). For the subsample of the 60 lowest income countries, the relationship is similar (Table 2, Column 3). Based on those results, the economic health of those lower income countries is dependent on export but not on tourism: the prevalence of undernourishment is expected to increase by 16.9% (16.6% for the 60 lowest income countries subsample) when exports to high-income countries decrease by 10%. The relationship between exports to high-income countries and undernourishment seems not to be driven by outliers: the coefficients on exports are still significant at the 10% confidence level in each sample and increase in magnitude as countries characterised by extreme values are excluded (Table 2, Columns 2 and 4).

In Table 3, interaction terms between the country's export status and exports to high-income countries were added in order to differentiate the effect on exports to high-income countries on undernourishment between those exporting mainly manufactured goods, fuel-exporting countries, agricultural countries (food exporting and agricultural raw material exporting countries) and those exporting mainly gold and metals. For the full sample, results change significantly when outliers are excluded from the regression. It indicates that the relationships between our variables of interest in the full sample are driven by extreme values (Table 3, Column 1). When outliers are excluded, all variables including the variable export to high-income countries have non-significant coefficients except for the interaction term between fuel dummy and export, which is significant at 10% confidence level (Table 3, Column 2). For the subsample of the 60 lowest income countries, the coefficient on exports to high-income countries (measuring the partial effect of export for countries mainly exporting manufactured goods) is initially significant at the 5% confidence level but it is no longer statistically different from 0 when outliers are excluded. The interaction term between fuel dummy and export to high-income countries remains statistically significant whether or not extreme values are removed (Table 3, Columns 2 and 3). Those results suggest that the export level to high-income countries does not have a statistically significant impact on the prevalence of undernourishment for countries exporting mainly manufactured goods, agricultural countries and those exporting mainly gold and metals. It should be noted that the coefficients are negative for export (measuring the partial effect of export for countries mainly exporting manufactured goods) and the interaction term between export and ores and metals dummy, while they are positive for the interaction term between export and agricultural dummy and export and food dummy (Table 3, Columns 2 and 4). For fuel-exporting countries, the prevalence of undernourishment in the population is expected to decrease by 3.92% on average as the level of export to high-income countries increase by 1% for the full sample (Table 3, Column 2). This rises to 6% for the 60 lowest income countries subsample (Table 3, Column 4).

Tables 2 and 3 also show the coefficient estimates of the control variables. As expected, GDP per capita has a negative effect on the prevalence of undernourishment and the magnitude of the coefficient

increases with time (Table 2, Columns 1-4, and Table 3, Columns 1-4). As an example, if we consider the full sample, in 2016, when GDP per capita increased by 1%, the prevalence of undernourishment in the population was expected to decrease by 0.42%. The expected decrease in undernourishment associated with a 1% increase in GDP per capita became 3.04% in 2020 (Table 2, Column 1). The amount of net official development assistance and official aid received has a significant negative effect on the prevalence of undernourishment in the full sample only (Table 2, Columns 1-2 and Table 3, Columns 1-2). The coefficient on the dummy Not Free is significant at the 5% level in the full sample and is negative. This suggests that when a country is not free, the prevalence of undernourishment is expected to decrease (Table 2 , Columns 1-2 and Table 3, Columns 1-2). This is a counter-intuitive result. In addition, fixed-effect estimation is not relevant to estimate the partial effect of variables that are likely to be relatively constant over time. However, since the coefficient of this variable was statistically different from 0, it was kept in the regression. The variable employment is statistically significant at the 10% level in Table 3 when the subsample of 60 lowest income countries only is used and loses its significance when outliers are removed. This suggests that employment is not relevant to explain the prevalence of undernourishment. Finally, each year dummies are positive and statistically significant. The magnitudes of the coefficients increase with time suggesting that undernourishment exponentially increases exponentially over time (Table 2, Columns 1-4 and Table 3, Columns 1-4). Let's note that the magnitudes of the year dummies' coefficients are unusually high, reaching around 25% in 2020. We must therefore remain critical when interpreting these results.

TABLE 2 Export to high-income countries, tourism receipts and prevalence of undernourishment (% of population) – baseline results

	(1) **Full sample**	(2) **Full sample** (without outliers)	(3) **60 lower income countries**	(4) **60 lower income countries** (without outliers)
Export to high-inc. (log)	-1.698*	-1.807*	-1.667*	-1.836*
	(0.859)	(0.980)	(0.941)	(1.095)
GDP p.c. (log)	-0.833	-0.165	-0.587	-0.218
	(1.557)	(1.651)	(1.892)	(1.975)
y16 * GDP p.c. (log)	-0.425**	-0.519**	-0.336*	-0.420**
	(0.177)	(0.200)	(0.181)	(0.196)
y17 * GDP p.c. (log)	-0.682**	-0.771***	-0.775**	-0.875***
	(0.266)	(0.278)	(0.297)	(0.313)
y18 * GDP p.c. (log)	-1.157***	-1.272***	-1.188***	-1.288***
	(0.388)	(0.401)	(0.432)	(0.452)
y19 * GDP p.c. (log)	-2.363***	-2.453***	-2.435***	-2.504***
	(0.594)	(0.624)	(0.682)	(0.703)
y20 * GDP p.c. (log)	-3.040***	-3.157***	-3.224***	-3.360***
	(0.783)	(0.808)	(0.887)	(0.898)
NF	-1.894**	-1.920**	/	/
	(0.780)	(0.779)		
NDA & off. aid (log)	-1.133***	-1.351***	/	/
	(0.385)	(0.422)		
y16	2.981**	3.611**	2.378*	2.928**
	(1.310)	(1.447)	(1.334)	(1.425)
y17	4.909**	5.506***	5.564**	6.241***
	(1.987)	(2.055)	(2.199)	(2.309)
y18	8.570***	9.363***	8.732***	9.426***
	(2.944)	(3.019)	(3.247)	(3.378)
y19	18.22***	18.88***	18.55***	19.06***
	(4.537)	(4.720)	(5.141)	(5.280)
y20	24.20***	25.04***	25.21***	26.18***
	(6.105)	(6.262)	(6.808)	(6.867)
Country FE	Yes	Yes	Yes	Yes
Observations	311	279	264	244
R^2	0.402	0.417	0.369	0.381
Countries	59	52	51	46

Notes: OLS fixed effect estimations based on 6 time periods using 3-year moving averages between 2015 and 2020. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns (represented by "/"). Clustered robust standard errors in parentheses. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

TABLE 3 Export to high-income countries (differentiated by type of country), tourism receipts and prevalence of undernourishment (% of population) – baseline results

	(1) **Full sample**	(2) **Full sample** (without outliers)	(3) **60 lower income countries**	(4) **60 lower income countries** (without outliers)
Export to high-inc. (log)	-2.469**	-1.465	-2.310**	-1.205
	(1.037)	(0.954)	(1.135)	(0.839)
Agricultural * Exp. high-inc. (log)	2.389*	1.295	1.898	0.693
	(1.211)	(1.167)	(1.211)	(1.013)
Fuel * Exp. high-inc. (log)	-2.687	-3.927*	-4.698**	-6.008***
	(2.328)	(2.295)	(1.831)	(1.879)
Ores-metals * Exp. high-inc. (log)	-0.292	-1.271	-0.490	-1.560
	(2.813)	(2.823)	(2.908)	(2.954)
Food * Exp. high-inc. (log)	1.738	0.360	1.609	0.282
	(1.304)	(1.517)	(1.430)	(1.610)
GDP p.c. (log)	-0.332	0.285	0.588	0.677
	(1.475)	(1.624)	(1.683)	(1.817)
y16 * GDP p.c. (log)	-0.473**	-0.536**	-0.481**	-0.503**
	(0.178)	(0.207)	(0.189)	(0.200)
y17 * GDP p.c. (log)	-0.703**	-0.766**	-0.944***	-0.932***
	(0.302)	(0.316)	(0.327)	(0.340)
y18 * GDP p.c. (log)	-1.129**	-1.228***	-1.290***	-1.322***
	(0.431)	(0.447)	(0.462)	(0.485)
y19 * GDP p.c. (log)	-2.374***	-2.451***	-2.538***	-2.569***
	(0.614)	(0.650)	(0.675)	(0.722)
y20 * GDP p.c. (log)	-3.134***	-3.220***	-3.255***	-3.492***
	(0.776)	(0.814)	(0.839)	(0.898)
NF	-1.926**	-1.867**	/	/
	(0.766)	(0.802)		
NDA & off. aid (log)	-1.021***	-1.152***	/	/
	(0.380)	(0.407)		
y16	3.273**	3.682**	3.258**	3.418**
	(1.326)	(1.499)	(1.387)	(1.458)
y17	4.928**	5.341**	6.475**	6.461**
	(2.276)	(2.355)	(2.438)	(2.526)
y18	8.200**	8.885**	9.101**	9.463**
	(3.284)	(3.382)	(3.502)	(3.658)
y19	18.13***	18.66***	18.62***	19.29***
	(4.688)	(4.925)	(5.093)	(5.441)
y20	24.76***	25.34***	24.47***	26.92***
	(6.030)	(6.286)	(6.417)	(6.888)
Employment	/	/	-0.404*	/
			(0.216)	
Country FE	Yes	Yes	Yes	Yes
Observations	311	279	264	244
R^2	0.430	0.439	0.436	0.420
Countries	59	52	51	46

Notes: OLS fixed effect estimations based on 6 time periods using 3-year moving averages between 2015 and 2020. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns (represented by "/"). Clustered robust standard errors in parentheses. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. The coefficient on Export to high-inc. (log) represents the partial effect of log(Export to high-inc.) for countries exporting mainly manufactured goods. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Robustness Checks

In order to check the sensitivity of our baseline results, we computed our initial regression by using the prevalence of moderate and severe food insecurity as a dependent variable. The prevalence of moderate and severe food insecurity is defined by the proportion of the population that includes at least one adult in their household who has had to compromise on the quality of their diet and limit the amount of food consumption due to financial constraints and limited resources on multiple occasions throughout the year (World Bank, 2017). Food insecurity is often a contributing factor to undernourishment. Table 4 reports the results of OLS with a within-country fixed effect estimator including prevalence of moderate and severe food insecurity as the dependant variable. The coefficients including the variable export to high-income countries lacks statistical significance at 10% level, whether or not we differentiate by types of country (Table 4, Columns 1 and 2). This indicates that the relationship between exports to high-income countries and poverty in lower income countries lacks robustness and should be interpreted carefully. This difference in results can be explained by the fact that the country samples between Tables 2-3 and Table 4 are different following the removal of countries that did not report data on food insecurity.

Second, the results of a Chow test reported in Table A2 (Table A2, Appendix) indicate the presence of a structural change over time in 2020 that corresponds to the occurrence of the Covid-19 pandemic. Table 4 reports the results of two separate regressions. Indeed, we can see that the results differ between these two time periods.

Before 2020, when we considered that export to high-income countries impacted all countries uniformly regardless of the country's export status, the results do not suggest a statistically significant relationship between export to high-income countries and prevalence of undernourishment (Table A3, Appendix). When interaction terms between the country's export status and export to high-income countries are added, the coefficient on export (representing the partial effect of exports for countries mainly exporting manufactured goods) is significant at the 10% level and its sign is negative. The prevalence of undernourishment is expected to decrease by 1.006% on average as exports to high-income countries increase by 1% (Table 5, Column 2). Variables including interaction terms between exports and country's export status are non-significant except for the interaction term including ores and metals dummy, which is significant at the 10% level and positive. This would mean that before 2020, for countries mainly exporting gold and metals, a 1% increase in the level of exports to high-income countries was expected to be associated with a 2.42% increase in the prevalence of undernourishment in the population on average (Table 5, Column 2). According to this result, increasing exports to high-income countries worsens economic health of gold and metal exporting countries. Although not significant, the coefficients on the interaction terms between export and agricultural dummy as well as the one between export and food dummy are also positive (Table 5, Column 2). On another note, our results in Table 5 suggest a statistically significant relationship between tourism receipts and the prevalence of undernourishment. Before 2020, undernourishment in the population was expected to decrease by 0.57% on average as the level of tourism receipts increase by 1% (Table 5, Column 2).

If we consider the relationships of interest after 2020 and treat all countries uniformly, the coefficient on exports to high-income countries is statistically significant at 1% and equal to -5.286. After 2020, a 1% decrease in exports to high-income countries is associated with a 5.286% increase in the prevalence of undernourishment on average (Table 5, Column 3). The negative relationship between exports to high-income countries and undernourishment appears to be more intense after 2020. When the countries are differentiated by type, the interaction term between exports to high-income countries and the dummy on fuel exporting country is the only variable including exports whose coefficient is statistically different from 0. The coefficient is significant at 1% level and equal to -18.11 (Table 5,

Column 4). In this case again, the coefficient on the variable tourism receipt is statistically significant. However, the sign of the coefficient is positive, suggesting that the prevalence of undernourishment is expected to increase as the tourism receipts of a country increase (Table 5, Columns 3 and 4). Given the abnormally high magnitude of the coefficient on the interaction term between fuel dummy and export to high income country and the counter-intuitive sign of the coefficient on tourism receipts, we suspect that the coefficients of the regressions after 2020 are biased. This might be due to the fact that the current regressions after 2020 treat the entire sample of countries uniformly whereas the countries may have implemented different types of policies in order to tackle the pandemic.

Summary of Results

Ultimately, our regressions do not demonstrate a strong relationship between tourism receipts and the prevalence of undernourishment or food insecurity. The coefficient on tourism in the regression after 2020 seems to be biased. The regression computed before 2020 is the only one reporting a significant and negative coefficient on tourism receipt and its magnitude is relatively low. Therefore, the empirical results reveal that the economic health of the Global South is not as dependant on tourism as predicted by Schmelzer. From this perspectives, the decline in tourism caused by the economic degrowth in rich countries will not affect lower income countries significantly.

Then, it appears that the amount of exports to high-income countries has a negative impact on prevalence of undernourishment: the prevalence of undernourishment is expected to decrease as exports to high-income countries increase. This result implies that the economic health of the Global South depends on exports to high-income countries. On another note, after 2020, when a decline in the global economy occurred that was something resembling degrowth more than anything experienced (Schmelzer, 2022), the negative relationship between our two variables of interest appears more intense. This illustrates that as long as degrowth measures fail to consider the situation of the Global South and to overcome neocolonial dependencies between regions, they might have disastrous impacts on poverty in lower income countries. However, our regression using moderate and severe food insecurity as a dependant variable does not corroborate this relationship.

Finally, it seems that economic dependency on exports to high-income countries is not uniform across the Global South. The relationship between exports to rich countries and undernourishment differs according to the country's export status. Unfortunately, our regressions lack precision to estimate clearly how each type of country will be impacted. The baseline results and the results of the regression computed after 2020 indicate that fuel exporting countries would be the most affected by a decrease in exports to high-income countries. Those countries would be more vulnerable to experiencing increased poverty in the early stages of a transition to degrowth. Tables 3 and 5 suggest that countries exporting mainly manufactured goods also exhibit a negative relationship between their export level to high income country and their level of undernourishment, although the relationship of interest is not always statistically significant. For agricultural countries exporting mainly agricultural raw materials or food, the signs of the (albeit non-significant) coefficients in the baseline results and the regression before 2020 suggest a positive correlation between the level of export to high-income countries and undernourishment. Furthermore, the results of the regression before 2020 indicate that ore and metal exporting countries exhibit a significant and positive relationship between their export levels to high-income countries and the prevalence of undernourishment in their population. These results, although lacking in precision, suggest that for certain countries in the Global South and at certain time periods, increasing the level of exports to high-income countries can have an adverse effect on their economic health. For those kinds of countries, probably marked by the unequal exchange process, degrowth transition would potentially ameliorate their welfare, even during its early stages.

TABLE 4 Export to high-income countries, tourism receipts and prevalence of moderate and severe food insecurity (% of population) – robustness checks

	(1) **Full sample** (without outliers)	(2) **Full sample** (without outliers) – type of country
Export to high-inc. (log)	0.408 (1.061)	2.519 (4.359)
Agricultural * Exp. high-inc. (log)	Not included	-5.358 (5.030)
Fuel * Exp. high-inc. (log)	Not included	-3.779 (7.816)
Ores-metals * Exp. high-inc. (log)	Not included	-3.543 (4.603)
Food * Exp. high-inc. (log)	Not included	0.511 (5.641)
GDP p.c. (log)	-11.39*** (3.288)	-11.05*** (3.515)
y16 * GDP p.c. (log)	-1.188** (0.523)	-1.245** (0.505)
y17 * GDP p.c. (log)	-1.298 (0.834)	-1.687** (0.754)
y18 * GDP p.c. (log)	-1.487 (1.089)	-1.874* (1.050)
y19 * GDP p.c. (log)	-2.511** (1.229)	-2.710** (1.182)
y20 * GDP p.c. (log)	-3.137** (1.419)	-3.209** (1.393)
y16	11.06*** (3.826)	11.43*** (3.661)
y17	14.04** (6.104)	16.76*** (5.580)
y18	16.39** (7.892)	19.08** (7.594)
y19	25.92*** (8.993)	27.41*** (8.609)
y20	32.45*** (10.79)	33.11*** (10.52)
Country FE	Yes	Yes
Observations	209	202
R^2	0.540	0.561
Countries	44	42

Notes: OLS fixed effect estimations based on 6 time periods using 3-year moving averages between 2015 and 2020. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns. Clustered robust standard errors in parentheses. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. In Column 1, interaction terms between type of country and export were not included. The coefficient on Export to high-inc. (log) in Column 2 represents the partial effect of log(Export to high-inc.) for countries exporting mainly manufactured goods. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

TABLE 5 Export to high-income countries, tourism receipts and prevalence of undernourishment (% of population) – Before and after 2020

	(1) **Full sample Before 2020** (without outliers)	(2) **Full sample Before 2020** (without outliers) - type of country	(3) **Full sample After 2020** (without outliers)	(4) **Full sample Before 2020** (without outliers) - type of country
	/			
Export to high-inc. (log)		-1.006*	-5.286***	-0.994
		(0.579)	(0.667)	(3.353)
Agricultural * Exp. high-inc. (log)	Not included	0.965	Not included	-8.780
		(0.912)		(8.126)
Fuel * Exp. high-inc. (log)	Not included	-1.690	Not included	-18.11***
		(1.208)		(5.952)
Ores-metals * Exp. high-inc. (log)	Not included	2.426*	Not included	-5.245
		(1.415)		(3.705)
Food * Exp. high-inc. (log)	Not included	0.646	Not included	-4.128
		(1.023)		(3.196)
Tourism receipts (log)	-0.641*	-0.570*	2.974*	5.006***
	(0.356)	(0.313)	(1.555)	(1.577)
GDP p.c. (log)	-1.136	-0.608	-10.95***	-7.908**
	(0.966)	(1.069)	(3.730)	(3.367)
y16 * GDP p.c. (log)	-0.261*	-0.382***	Not included	Not included
	(0.148)	(0.140)		
y17 * GDP p.c. (log)	-0.742***	-0.848***	Not included	Not included
	(0.234)	(0.221)		
y18 * GDP p.c. (log)	-1.220***	-1.310***	Not included	Not included
	(0.353)	(0.354)		
PF	/	/	0.919***	1.083***
			(0.160)	(0.181)
y16	1.816	2.612**	Not included	Not included
	(1.091)	(1.017)		
y17	5.331***	6.020***	Not included	Not included
	(1.758)	(1.652)		
y18	8.970***	9.578***	Not included	Not included
	(2.687)	(2.713)		
y20	Not included	Not included	1.224***	1.307***
			(0.274)	(0.273)
Country FE	Yes	Yes	Yes	Yes
Observations	191	191	73	73
R^2	0.206	0.246	0.594	0.664
Countries	49	49	40	40

Notes (Columns 1-2): OLS fixed effect estimations based on 4 time periods using 3-year moving averages between 2015 and 2018. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns (represented by "/"). Clustered robust standard errors in parentheses. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. In Column 1, interaction terms between type of country and export were not included. The coefficient on Export to high-inc. (log) in Column 2 represents the partial effect of log(Export to high-inc.) for countries exporting mainly manufactured goods. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Notes (Columns 3-4): OLS fixed effect estimations based on 2 time periods using 3-year moving averages in 2019 and 2020. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns. Clustered robust standard errors in parentheses. In Column 3, interaction terms between type of country and export were not included. The coefficient on Export to high-inc. (log) in Column 4 represents the partial effect of log(Export to high-inc.) for countries exporting mainly manufactured goods. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Discussion

Degrowth is a pluralistic approach bringing together different criticisms of growth, including the North-South criticism of capitalism. This criticism is rooted in post-development approaches and post-colonial studies (Schmelzer, 2022), according to which development and growth are strategies to perpetuate the exploitation of southern countries and to maintain neo-colonial dependencies (Latouche, 2004; Schmelzer, 2022). In contrast, degrowth partakes of a spirit of social justice and advocates that the most vulnerable countries should benefit from the change in economic organisation. Decline in rich countries is considered to be a condition for the prosperity of the Global South (Parrique, 2022). Indeed, degrowth is aimed at rectifying the unequal distribution of resources between countries: income, wealth and resource redistribution will make it possible to raise living standards in the Global South (Chiengkul, 2018). It advocates for the end of globalisation, the end of the extractivist circuit and a reversal of unequal trade relationships (Parrique, 2022). International solidarity entails the cancelling of the debt of the Global South and transfers of resources, technology and money as reparations for the climate debt (Schmelzer, 2022). For all those reasons, degrowth aims to improve welfare and economic conditions in the Global South and would allow those countries to create their own development paths (Latouche, 2004).

On another front, degrowth is not only a criticism of capitalist societies but also a political project. Such a transformation to degrowth societies is comparable to world-system historical transitions. However, today, discussions about degrowth transformation are only in their infancy (Schmelzer, 2022). Degrowth must be democratically planned and strives to be an organised, chosen transition (Parrique, 2022). Although the idea of planning is often mentioned in the movement, concrete organisational questions are often neglected in the debate (Schmelzer, 2022). Degrowth policies might be difficult to implement, especially in a democratic way (Kallis et al., 2012). Those are not aligned with vested interests and there will be great oppositions to them (Schmelzer, 2022). Furthermore, while implementing degrowth at the national level may be difficult, extending degrowth at the international scale also represents a serious problem. National governments must create alliances with international movements and especially with those in the Global South (Schmelzer, 2022). However, some characteristics of the Global South, such as high dependency on exports, technology gaps, the lack of a social security system or protected labour rights and unstable political conditions, might prevent the expansion of degrowth to those countries (Chiengkul, 2018). Proponents of degrowth do not spell out the geopolitical ramifications of the transition and the roles of institutions such as the European Union or the United Nations therein (Schmelzer, 2022). Global economic interdependence makes it impossible for a single group to implement degrowth and then, the possibilities for degrowth transition at the global level are a key issue (Chiengkul, 2018). Moreover, even if it is confined to richer countries, transitioning towards a degrowth society would have serious consequences within the current world system. The repercussions of degrowth in industrialised countries on communities in the Global South would be transferred by export markets and tourism. Degrowth must be managed in a way that overcomes global inequalities and does not deepen dependency. It should also address centuries of colonial and ecological debt and consider the matter of reparations by industrialised countries (Schmelzer, 2022).

In sum, it seems that there are some gaps that need to be addressed in order to make the degrowth transition sustainable, democratic, just and conducive to well-being across the population. Moreover, there is no reference to the different steps involved and how long the transition will take. The degrowth project is likely to be only partially and locally implemented in its early stages and take the form of a green recession in the Global North without being able to overcome the capitalist system and to put an end to the neo-colonial dependencies between regions. Our results provide an estimation of the contemporaneous effects of GDP variation in rich countries on poverty indicators in lower income countries. It measures the current economic dependency of the Global South. This allows us to estimate how these countries will be affected in the early stages of a transition to degrowth, before they have time to create their own development paths.

The empirical results reveal no significant relationship between tourism receipts and the prevalence of undernourishment or food insecurity. Therefore, the decline in tourism caused by economic degrowth in rich countries will not significantly affect lower income countries. Rather, they suggest that the economic health of the Global South depends on their exports to high-income countries. The baseline results indicate that the prevalence of undernourishment in the population is expected to decrease by 1.69% on average as the level of exports to high-income countries increases by 1% (Table 2, Column 1). This negative relationship appears more intense after 2020, which was the period of global economic decline that was more akin to degrowth than anything experienced before (Schmelzer, 2022). This result suggests that, in its first stages, degrowth could deepen the economic dependency of the Global South. On another note, it seems that economic dependency on exports to high-income countries is not uniform across the Global South and depends on the country's export status. The empirical results suggest that fuel exporting countries would be the more vulnerable to experiencing increased poverty in the early stages of a transition to degrowth. However, for some types of countries and at certain periods of time, increasing the level of exports to high-countries can have an adverse effect on their economic health. For those countries, probably marked by the unequal exchange process, transitioning to degrowth might improve well-being, even during its early stages. Those results confirm that if the degrowth transition fails to incorporate global justice aspirations in its early stages, it might worsen the economic situation of the Global South, which will probably take time to build its own development path.

Conclusion

In conclusion, it seems clear that the complete vision of degrowth is a proposal that will ultimately benefit the Global South. Degrowth fits in with the logic of contraction and convergence: contraction for the most privileged countries and convergence for lower income ones. The most vulnerable countries will benefit from the change in economic organisation, since degrowth in rich countries will liberate resources needed for growth in the Global South (Parrique, 2022). In parallel, degrowth calls for the end of the unequal exchange and an increase in financial flows to the South. The debt of the Global South will be cancelled, while resources, technologies and money will be sent to lower income countries as reparations for the climate debt. Eventually, degrowth provides a new vision of an alternative development path in which the Global South will break away from economic dependence on the North and create its own development, free from the influences of colonialism and globalization (Latouche, 2004).

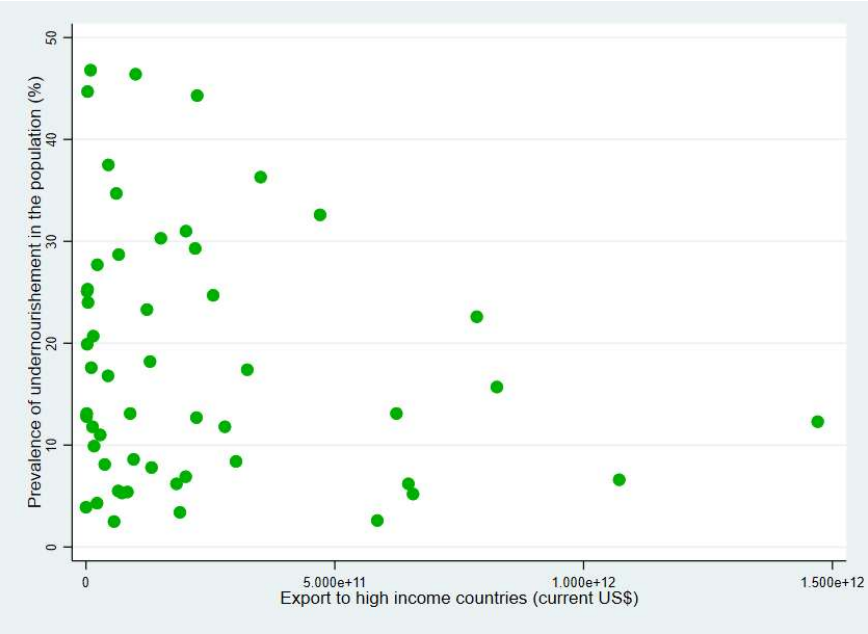
Doubts about the benefits of degrowth lie in the feasibility, timing and stages of the transition. Indeed, our empirical results confirm that the economic health of the Global South is currently highly dependent on exports to high-income countries. They suggest that the prevalence of undernourishment is expected to increase by 16.9% if exports to high-income countries decrease by 10%. Furthermore, the negative relationship between exports to rich countries and the prevalence of undernourishment in the sample of lower income countries is exacerbated after 2020, which was a situation of economic decline similar in some respects to degrowth. If the first stages of degrowth worsen the economic situation or deepen the economic dependency of the Global South, whose populations are already very vulnerable, the human impact of degrowth could be catastrophic. As long as the matters of the concrete organisation of democratically planned degrowth and the globalisation of the transition are not addressed, it is not certain that all degrowth policies will be put in place simultaneously at the international scale to ensure the global positive impact of the degrowth project. Indeed, degrowth will be beneficial for the Global South only if it is considered in its holistic vision and by implementing policies that simultaneously respond to the various criticisms of degrowth while establishing an international alliance.

Although work has been done to produce an econometric model in line with the Gauss Markov assumptions, some limitations remain. First, the independence of macroeconomic observations is unlikely. Second, our econometric model does not consider the diversity of political reactions to the pandemic in the different countries of the sample. There is also a concern about data quality and the important number of missing data for countries characterised by a higher degree of poverty. In further research, it might be interesting to use an instrumental variable to deal with the potential endogeneity and the reverse causality concern of the variable on export. The concern of reverse causality between the variable on undernourishment and the variable on net development assistance and official aid received might also be addressed using a relevant instrument.

Finally, degrowth is a visionary proposal for a global social transition that has never been done (Schmelzer, 2022). Empirically, there has been no complete experience of degrowth at the international scale. Although the economic recession following the coronavirus pandemic shared some similarities with degrowth, it was not degrowth (Schmelzer, 2022). Degrowth proponents believe such types of crises will play a role in bringing about this socio-ecological change. It is therefore possible that in five, ten or twenty years' time, some experiments in degrowth will be set up on a macroeconomic scale as a reaction to the past crisis. In such case, it is expected that the Global South would create its own development path. The adverse effects of the reduction in exports on poverty levels in these countries would be reduced by their own economic growth and parallel degrowth policies such as the increased financial flows, debt cancellation and transmission of resources as reparations for the climate debt. In the meantime, this research shows us the potential threat that degrowth holds for the Global South if the project fails to be implemented in a single stage, on a global scale and in its holistic vision.

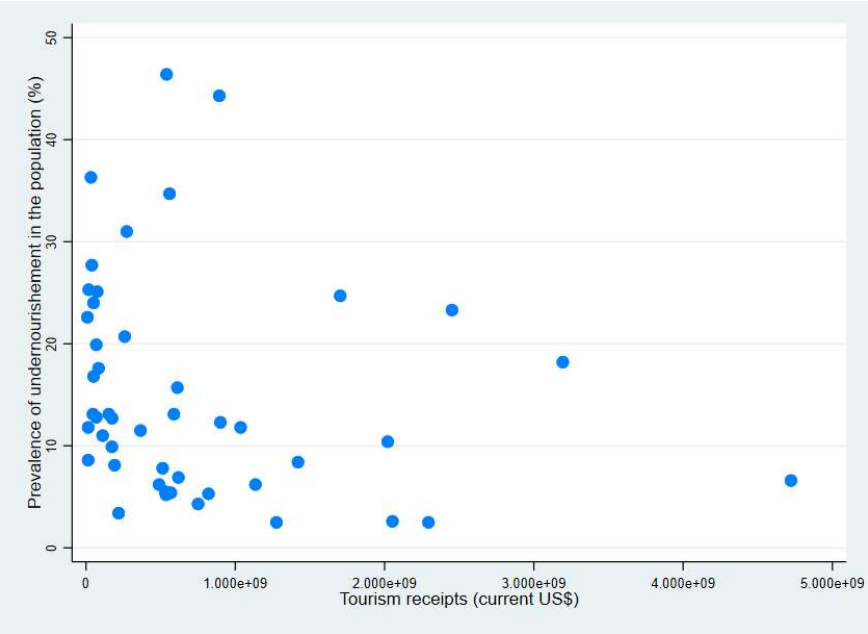
Appendices

Figure A1 Export to high-income countries and prevalence of undernourishment in the population, 2018 – 60 lowest income countries



Notes: This figure relates to the sample of the 60 lowest income countries in 2018. Unconditional correlation = -19.59%. *Source:* World Bank, Food and Agriculture Organization of the United Nations (FAO), own calculations.

Figure A2 Tourism receipts and prevalence of undernourishment in the population, 2018 – 60 lowest income countries



Notes: This figure relates to the sample of the 60 lowest income countries in 2018. Unconditional correlation = -16.73%. *Source:* World Tourism Organisation, Food and Agriculture Organization of the United Nations (FAO), own calculations.

TABLE A1 Export to high-income countries, tourism receipts and prevalence of undernourishment (% of population) – baseline results

	(1) **Full Sample**	(2) **60 lower income countries**
Export to high-inc. (log)	-1.701*	-1.535
	(0.927)	(0.994)
Tourism receipts (log)	-0.0538	-0.668
	(0.474)	(0.519)
Destination * Tour. receipts (log)	-0.828	-0.0712
	(0.767)	(0.658)
GDP p.c. (log)	-0.897	-0.301
	(1.491)	(1.728)
y16 * GDP p.c. (log)	-0.409**	-0.231
	(0.178)	(0.181)
y17 * GDP p.c. (log)	-0.639**	-0.732**
	(0.264)	(0.294)
y18 * GDP p.c. (log)	-1.083***	-1.160***
	(0.392)	(0.425)
y19 * GDP p.c. (log)	-2.344***	-2.474***
	(0.599)	(0.672)
y20 * GDP p.c. (log)	-3.051***	-3.281***
	(0.785)	(0.885)
NF	-1.895**	/
	(0.850)	
NDA & off. aid (log)	-1.129***	/
	(0.409)	
y16	2.873**	1.604
	(1.311)	(1.329)
y17	4.639**	5.309**
	(1.984)	(2.177)
y18	8.103***	8.629***
	(2.987)	(3.201)
y19	18.10***	18.83***
	(4.571)	(5.077)
y20	24.27***	25.52***
	(6.116)	(6.808)
Country FE	Yes	Yes
Observations	311	264
R^2	0.405	0.377
Countries	59	51

Notes: OLS fixed effect estimations based on 6 time periods using 3-year moving averages between 2015 and 2020. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns, except for variables including tourism (represented by "/"). Clustered robust standard errors in parentheses. The coefficient on Tourism receipts (log) represents the partial effect of log(Tourism receipts) for countries with no major tourist destinations. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

TABLE A2 Export to high-income countries, tourism receipts and prevalence of undernourishment (% of population) – Chow test for structural change across time

	(1) **Full Sample**
Export to high-inc. (log)	-0.136 (0.774)
Tourism receipts (log)	-1.326 (0.865)
GDP p.c. (log)	-4.776* (2.739)
Population	4.80e-09 (4.23e-09)
Employment	0.0543 (0.0996)
Self-employment	0.0512 (0.0834)
NDA & off. aid (log)	0.0753 (1.524)
After 2020 * Export to high-inc. (log)	0.242 (0.612)
After 2020 * Tourism receipts (log)	1.269 (0.781)
After 2020 * GDP p.c. (log)	-4.931*** (1.616)
After 2020 * Population	6.22e-11 (3.70e-09)
After 2020 * Employment	0.0213 (0.0815)
After 2020 * Self-employment	0.00552 (0.0669)
After 2020 * NDA & off. aid (log)	-2.060* (1.157)
After 2020	45.95* (23.34)
Observations	311
R^2	0.352

Notes: Pooled OLS estimations based on 6 time periods using 3-year moving averages between 2015 and 2020. Clustered robust standard errors in parentheses. Coefficients of variables that are non-interacted with *After 2020* dummy represent the partial effect of each variable for the time period before 2020. The F-test for joint significance of the *After 2020* year dummy and all of the interaction terms provides a p-value equal to 0.005. This indicates the presence of a structural change over time. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

TABLE A3 Export to high-income countries, tourism receipts and prevalence of undernourishment (% of population) – Before 2020

	(1) **Full sample** **Before 2020** (without outliers)
Export to high-inc. (log)	-0.313
	(0.561)
Tourism receipts (log)	-0.585*
	(0.348)
GDP p.c. (log)	-0.998
	(1.014)
y16 * GDP p.c. (log)	-0.284*
	(0.158)
y17 * GDP p.c. (log)	-0.765***
	(0.254)
y18 * GDP p.c. (log)	-1.243***
	(0.372)
y16	1.974*
	(1.162)
y17	5.491***
	(1.895)
y18	9.143***
	(2.826)
Country FE	Yes
Observations	191
Countries	49
R^2	0.209

Notes: OLS fixed effect estimations based on four time periods using 3-year moving averages between 2015 and 2018. Variables with non-significant coefficients dropped from the model due to multicollinearity concerns (except for variable *Export to high-income countries*). Clustered robust standard errors in parentheses. The coefficient on GDP p.c. (log) represents the partial effect for log(GDP p.c.) in 2015. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

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