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Globalization, environmental damage and the Corona pandemic: Lessons from the crisis for economic, environmental and social policy

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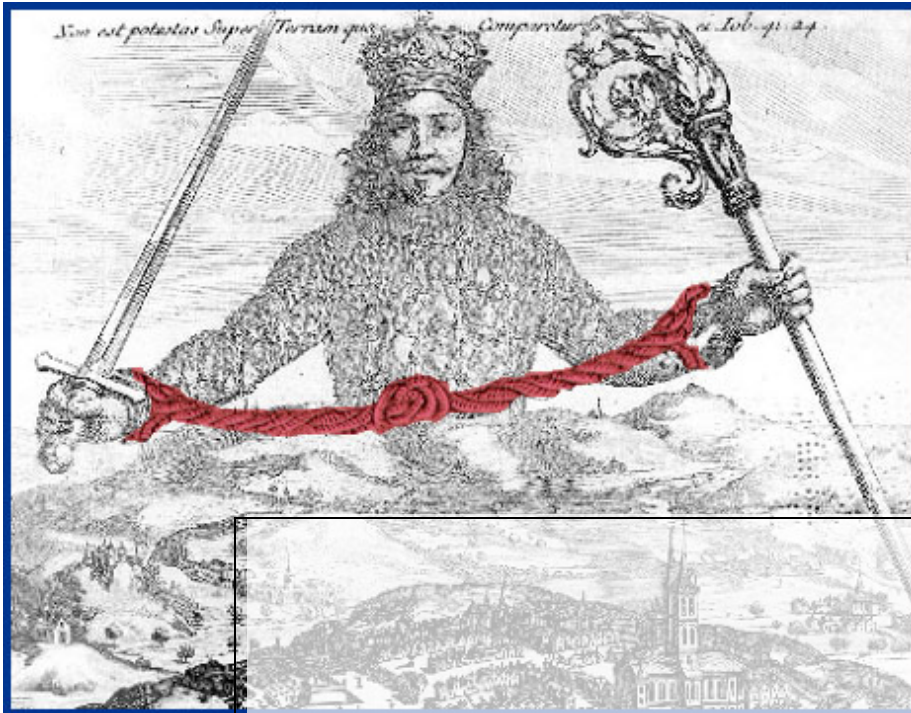
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*Globalization, Environmental Damage and the
Corona Pandemic -
Lessons from the Crisis for Economic,
Environmental and Social Policy*

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Abstract

The rapidly expanding corona pandemic in 2020 has largely brought the world to an economic stagnation. The impact on the environment, especially on air quality, from almost suspended air traffic, idle industry and economic lockdown is enormous, but also the economic and social consequences of the crisis. This state of stagnation hardly appears to be economically and socially sustainable. However, we should ask ourselves right now what we can learn from the situation in order to question globalization, better intercept future comparable crisis situations and take the step towards more sustainable development on an ecological, economic and social basis. The paper identifies the areas of externality management to improve environmental quality, digitalization and network expansion as well as basic income as central concepts that need to be addressed in and after the crisis. Concrete concepts are suggested and discussed at the end of the paper.

Keywords: corona crisis management, basic income, environmental politics, pandemics, globalization, public policy

JEL classification: H12, H23, H53

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1. The corona pandemic and its effects

At the end of December 2019, cases of a new and unknown lung disease from the Wuhan City region in the province of Hubei in China were reported to the World Health Organization ((Lu et al., 2020); (Wang et al., 2020); (WHO, 2020a); (Zhu et al., 2020)). The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or known as COVID-19 is a zoonotic coronavirus, which is transmitted from the animal to humans and now between humans (Ahmad et al., 2020). On March 11, 2020, the WHO classified the global disease as a pandemic (WHO, 2020b). As of April 30, 2020, the Center for Systems Science and Engineering (CSSE, 2020) counted 185 countries worldwide as affected by the pandemic. As of this writing, the pandemic continues. As of April 30, 2020, 3.196.664 diseases and 227.723 deaths were registered worldwide. A higher number of unreported cases is assumed due to low test capacities and unreported cases of illness. The United States with 1.040.488 confirmed diseases are currently most affected, followed by Spain with 236.899 and Italy with 203.591 diseases. Many countries are just at the beginning of the pandemic.

The different degrees of affected regions and the severity of the course of the disease as well as mortality are attributed to various parameters. In addition to the measures taken in the respective country and their success rate, infrastructure parameters such as the provision of intensive care bed, individual disease profiles and sociodemographic characteristics such as age, as well as the environmental conditions in the respective country, in particular air pollution, play a major role ((Anjum, 2020); (Conticini, et al., 2020); (EPHA, 2020); (Guojun et al., 2020); (Pansini & Fornacca, 2020); (Wu, et al., 2020)). Findings from environmental epigenetics also show that transgenerational epigenetic inheritance of diseases such as asthma, allergies, cancer or obesity has increased as a result of exposure to environmental toxins (Guerrero-Bosagna & Jensen, 2015). People who have these pre-existing conditions, such as cancer or obesity are more likely to have a severe to fatal course with the current COVID-19 disease (RKI, 2020).

Numerous countries have taken drastic measures to curb the spread of the virus. Entry restrictions up to border closings, exit restrictions or entire lockdowns were decided in order to reduce the social interactions to a minimum and thus to reduce the spread of the disease. International air traffic, tourism as well as traffic, the production of non-system-relevant goods, the operation of restaurants, entertainment facilities and a wide variety of shops were partially completely discontinued. In addition to the effectiveness of the restrictive measures on the spread of the virus (WHO, 2020c), significant improvements in environmental quality were also observed in various areas. The reduced economic activity led to a significant improvement in air quality in regions particularly affected by air pollution ((Anjum, 2020); (Benchetti et al., 2020); (Dutheil et al., 2020); (Vaughan, 2020)). Satellite pictures from China showed significant reductions in nitrogen dioxide (NO₂) emissions in the period between January and February 2020, in which the country's corona measures also contributed to the massive reduction in the country's economic activities (NASA, 2020). According to more recent data, however, they rose to the level before the pandemic in March (Carbonbrief, 2020). Although these increased again due to the resumption of certain industries, overall emissions decreased by around

200 million tons of carbon (25%) within four weeks after the Chinese New Year (Carbonbrief, 2020).

The outbreak of the corona pandemic and the rapid spread, as well as the severe course of illnesses in connection with poor air quality made many scientists ask about the connection between infectious diseases, economic activities and the general question of sustainable development ((Corlett et al., 2020); Dutheil et al., 2020); (Lucchese & Pianta, 2020); (Vaughan, 2020)). Not only the positive observations of the apparently rapid recovery of some natural conditions due to the minimal economic level, but also the rapid spread and unexpected harshness of the virus pose questions about the future of the global economy. In the face of the Corona crisis, society has had to experience the limits of globalization.

Financial markets around the world are nosediving in response to lockdowns and the spread of the pandemic. The European Central Bank (ECB, 2020) has therefore already announced € 750 trillion for the Pandemic Emergency Purchase Program (PEPP) in a press release dated March 18, 2020. The Economic Outlook report of the OECD in March (2020) shows the economic consequences of the corona pandemic. Assuming mellow pandemic patterns, annual global GDP growth is expected to decrease from 2.9% in 2019 to 2.4%. For China, growth is expected to drop below 5%. In particular, effects on confidence, the financial markets, the travel sector and the supply chains will also contribute to further slumps in growth in the G20 economies. These prospects are strongly correlated with the further course of the pandemic and become less optimistic the longer the pandemic continues. A global growth rate of 1.5% in 2020 could even occur in the event of an ongoing crisis (OECD, 2020). Governments are encouraged to take quick and effective action. In addition to restoring global health, financial protection of social groups and companies as well as accompanying macroeconomic measures to restore economic demand and thus to promote growth are on the agenda.

However, not only the global financial markets, but also the individual economies are increasingly in economic misery. Many workers lose their jobs, companies have to switch to short-time work or close it completely, and many freelancers, especially artists and cultural workers as well as small businesses, can no longer finance themselves. For this purpose, the individual countries have designed different measure packages. The German government, for example, is providing a multi-billion-dollar aid package. In addition to supporting the health sector and fighting pandemics, payments to cushion the loss of income for families, companies, freelancers and individuals are promised and large economic structure funds with guarantees and loans are set up (BMF, 2020). However, numerous cases occur in which those affected need help, but are not covered by government measures, e.g. people whose share of household income is relatively small will lose their professional independence.

The corona pandemic as a global threat means that the world is obviously in a health crisis that is increasingly developing into a financial, economic and, above all, social crisis. In connection with globalization, Gills (2020) even speaks of three crises in which we are currently; the capitalism crisis, the ecological crisis and the corona pandemic as a health

crisis. The implications that we can derive from this must address globalization directly and fight the emergence of these three crises.

The aim of this paper is to draw implications from the corona pandemic for the future of economic, environmental and social policy. In particular, implications with a focus on the German and European economy are to be derived. The focus is on the connection between globalization, environmental damage and pandemics. Only a combination of economic, environmental and social policy objectives as a strategy after the crisis can contribute to ensuring a sustainable resumption of economic activities. It is important to reduce the likelihood of outbreaks of further pandemics by effective, environmental policy regulation, and to strengthen the economic and social robustness of the individual countries in the event of pandemics.

In the second section, the relationship between globalization, environmental damage and the emergence and spread of infectious diseases that can develop into pandemics is presented. This is followed by a brief overview of the bottlenecks identified during the corona pandemic and the measures that have led to the successful management of the crisis situation so far. Implications should then be derived from them, which contain impulses for future economic, environmental and social policy after the crisis.

2. The link between globalization, environmental damage and the emergence of pandemics

The connection between economic growth and environmental damage is by no means a new discussion, but has already been addressed by numerous researchers (e.g. Brock & Taylor, 2005). Likewise, the human-made effects on climate, biodiversity, air quality, and other environmental parameters have recently been a threat to long-term human health ((Burkle, 2020); (Qiu, 2017); (Watson & McMichael, 2001); (McMichael et al., 1999); (IPPC, 1990)). It is therefore not surprising that some researchers see the connection between the corona pandemic and globalization ((Karabag, 2020); (Yacoub & El-Zomor, 2020)) and question how a sustainable development could look like. Let us consider the three states of crisis in which the global economy finds itself: first, the ecological climate crisis, second, the systemic capitalism crisis of neoliberal globalization, and third, the health crisis, triggered by the pandemic of COVID-19 disease (Gills, 2020).

First of all, it is important to understand what globalization means in order to then be able to discuss the connection between globalization, environmental damage and the development and spread of diseases. We also want to link this to the Corona crisis in this section. Lee (2004) fixes the concept of globalization on three types of change, spatial, temporary and cognitive. The change at the spatial level includes the free movement of goods, services, information and people across national borders. Along with this, however, is the movement of emissions and environmental externalities that arise on a national level and become a global or at least nationwide problem. Global networking not only favors trade and the mobility of people in private as well as on the job market, but also poses the question of global externality management in order to counter climate change and environmental damage. In the event of an outbreak, this free movement of goods, services and people ultimately accelerates the extremely rapid spread of the same

through to the development of a pandemic, as we did with the SARS disease in 2003 ((Qiu, 2017); (Lee, 2004); (Syed et al, 2003)) and have now seen on the basis of COVID-19 disease. The critical phenomenon is well known and should have led to measures to increase resilience and restrictions in the free movement of goods after the first SARS crisis. However, the collateral damage to health, the environment and the social system was apparently assessed as being manageable or too minor. In any case, adaptive economic, social and political learning did not occur.

The temporary and cognitive changes that Lee (2004) attributes to globalization are just as relevant to environmental damage and pandemics as they are to dealing with pandemics and the perception of regulatory restrictions to slow the spread. With temporary changes Lee (2004) describes the time perception and time management of people who in this context raise questions of individual sovereignty, which we will come back to in our socio-political part. Modern communication technologies and increasing pressure to keep up with the rapidly developing environment require more and more time optimization from individuals. With the economic lockdowns and forced slowdown, the corona pandemic now presents individuals with the need, but also a new option, to use their available time, which is more difficult for some than others ((Barry, 2020); (Vanderkam, 2020)). It seems that the increasingly fast-paced world is overwhelming some individuals to take advantage of free time that is not determined by external appointments or entertainment events. Lee (2004) describes cognitive change as looking at the world around us. Above all, the influence of media, advertising, but also of politics, religion and research affects the wishes and needs, values and beliefs¹ as well as the aspirations and level of knowledge of the individual. These changes in the course of globalization lead to ever increasing pressure to grow. Changes in perception of time put pressure on individuals not to miss anything. Combined with the needs for consumption set by the media and companies and the increasingly cheaper products due to the spatial overcoming of distances and production in third countries, growth is emerging. Blum et al. (2019) address the problems with growth in a sustainable economy and differentiate between structural and psychological growth factors.

Structural growth is primarily due to the problem of the imputed assessment of GDP as a welfare indicator and the ignorance of environmental damage in this calculation (Blum et al., 2019). This is particularly evident in the current crisis because most of the measures in the Corona crisis are aimed at maintaining growth or boosting it after the crisis, and do not consider alternative ways that are not linked to economic growth (e.g. (BMF, 2020); (ECB, 2020); (OECD, 2020)).

By contrast, psychological growth drivers are linked to the temporal and cognitive changes in globalization. Individuals are subject to money dependency in order to meet their culturally induced demands for material self-fulfillment (Paech, 2016, p. 65). They live according to the principle to be able to afford as much as others (Paech, 2016, p. 64) and in a constant fear of the less (Paech, 2016, p. 66). The satisfaction of these consumer needs demands enormous economic growth. This growth is only possible through the use

¹ See also: Postlewaite (2011).

and overuse of natural resources such as air, water and raw materials and through the exploitation of people in developing and emerging countries. Stengel (2011) sees the psychosocial function of consumption, which produces a materialistic consumption and lifestyle, as the strongest driver of the ecological crisis. Decades of increasing globalization and its consequences have contributed to a global, ecological crisis and brought about the current pandemic as an expression of years of environmental destruction and human intervention in ecological systems (Gills, 2020).

One answer to the three crises mentioned is the provision of (global) public goods: „Global threats need a global response“ (Fiedler, 2020, p. 165). Globalization has created numerous institutions that ensure the mobility of people, goods and services and consequently promote free trade, but it has failed to create common, collective rules for environmental standards, labor markets and health policy, as well as strategies for the emerging redistribution problem through common social policy (Lucchese & Pianta, 2020). This reflection on global collectiveism is more necessary than ever in the current global crisis situation, not only in relation to the corona pandemic, but against the background of future developments (Burkle, 2020). „We must move now rapidly towards a post nationalist mentality, based on our common human interests“ (Gills, 2020, p. 2). „We need to radically rewrite the rules of globalization. Health, welfare, labor rights and the environment must be protected by international standards, which should be binding for the international movement of capitals and goods“ (Lucchese & Pianta, 2020, p. 102). „Controlled globalization would be an optimal solution - with international aid and cooperation, necessary for minimizing the repercussions of natural catastrophes, coupled with a mechanism of learning on the part of the authorities of particular nation states“ (Brzechczyn, 2020, p.90) . These quotes should also be seen in connection with the particularly flaring demand for social solidarity. This leads directly to the question of how one can shape a corresponding reform and transformation policy or movement based on these new normative challenges.

To this end, measures and ways are to be suggested in the next section to promote a socio-ecological transformation in Germany and Europe in order to counter the crises of globalization in the long term.

3. Implications from the crisis - what are the next steps?

Nonetheless, the ecological crisis is the most serious of the three crises mentioned in Section 2 in the long term and, unlike the Corona pandemic, will not subside in the medium term. It will therefore continue to be necessary, to stick to climate change efforts, further reduce emissions and take measures to rethink civil society and politics. However, the crisis of global capitalism, the social crisis, e.g. by increasing insolvencies, increasing debt, increasing poverty and unemployment and inequality, currently further exacerbated by the pandemic (Gills, 2020). When resuming economic activities and emerging from the health crisis, care must therefore be taken not to act at the expense of the other two crises, but rather to find a solution mechanism for the causes of all three.

Gills (2020, p.1) rightly calls for global rethinking: “We shall need new forms of collective human consciousness; a new type of global social covenant; new forms of appropriate

technology; and new forms of appropriate lifestyle ". However, a path of nationalism and populism should in no way be chosen that amounts to the isolation of the individual countries ((Fiedler, 2020); (Yacoub & El-Zomor, 2020)). In European politics in particular, it is now important to take a path together that creates a stable community of values that is better prepared for crises and supports each other in and out of the crisis (Neumärker, 2020b). In the long term, both fiscal policy issues such as the assumption of the financial burden of the corona pandemic and a common environmental and social policy direction must be the EU's target. Europe could thus play an important pioneering role internationally as a model for common standards in the areas of health, welfare, self-determination of self-determined citizens and environmental policy (Lucchese & Pianta, 2020, p.101).

In this section, opportunities are to be suggested to shape a socio-ecological transformation in Germany and Europe in order to counter the ecological crisis in the long term, which is exacerbated by globalization, but also to stop the capitalist crisis, which is also caused by the Globalization is being strengthened in order to prevent or at least better intercept health crises arising from globalization in the long term.

3.1. Reduction of environmental externalities

As already mentioned, the course of the disease of COVID-19 depends on various parameters. It has been shown that the course of the disease in patients from areas with high air pollution is increasingly emerging as serious (Pansini & Fornacca, 2020). Conticini et al. (2020) find evidence of the relationship between high mortality due to COVID-19 disease and air pollution in the respective region of the patient. Wu et al. (2020) found significant evidence for the USA, namely that an increase of 1 $\mu\text{g}/\text{m}^3$ particulate matter in the air leads to a 15% higher death rate for COVID-19. There are also utilitarian researchers who ask whether the state-ordered quarantine (especially in China) saved more lives in total than the COVID-19 disease due to the rapidly falling air pollution (Dutheil et al., 2020). Burke (2020) estimates 77,000 less deaths from reduced air pollution as a result of the lockdown over a period of 2 months (January-February). Empirically, Guojun et al. (2020) demonstrate the relationship between better air quality in China and the corona pandemic. In Europe, particulate matter pollution alone caused around 412,000 premature deaths in 41 European countries in 2016 (EEA, 2019). This is by no means intended to be a positive assessment of the corona pandemic, but these figures clearly show the health-related relevance of improving air quality in many countries and thus a trade-off between environmental quality and economic power that is neglected in economic, health and social policy terms.

Because air pollution is not only acutely relevant to health policy, but is also an expression of the increased environmental damage caused by globalization and industrialization. In addition to health effects, economic losses due to polluted air should not be underestimated. Not only increased pressures on the health system due to rising costs, but also lower labor productivity of previously stressed workers and lower yields in agriculture and forestry (EEA, 2019) have to be priced in as a consequence of air pollution.

Further standards must therefore be set and tightened that reduce air pollution sustainably ((Guojun et al., 2020); (Sofia et al., 2020)) and are appropriately flanked in social policy terms. For example, the introduced carbon taxation must be checked for its effectiveness or through other approaches, such as personal carbon trading ((Raux et al., 2015); (Starkey (2012); (Seyfang et al., 2007))) or the climate bonus can be rethought and debated.

Sofia et al. (2020) derived numerous recommendations in their study on reducing air pollution. In addition to the well-known areas such as transport and energy consumption in the household sector, they also identify other sectors that can be useful for a strategy after the corona pandemic. A change in nutritional behavior with a lower proportion of animal products can also save a significant amount of emissions and other external costs ((Blum, 2020); (Sofia et al., 2020); (Xue et al., 2019); (Ranganathan et al., 2016); (Wissenschaftlicher Beirat für Agrarpolitik, 2012)). On the health level, in addition to the indirect effects of improved air quality due to changes in eating habits, there is also a direct reduction in nutritional risks, such as cardiovascular diseases or obesity ((Wissenschaftlicher Beirat für Agrarpolitik, 2012); (Gold, 2004)), so that additionally the health system could be relieved (European Commission, 2008). Factory farming itself is also criticized for favoring the emergence of pandemics (Samuel, 2020). This could, for example, revive the discussion on the taxation of animal products. Approaches such as those from FÖS (2020, 2013) or Blum (2020) could help using fiscal instruments to influence the promotion of more sustainable eating behavior in a socially acceptable manner. In addition to the absolute reduction in the animal portion of the diet, the efficiency of animal husbandry and in the agricultural sector in general can also be improved, for example by shorter transport routes (Sofia et al., 2020) or the reduction of waste (Xue et al., 2019).

The promotion of regional production and consumption plays a central role in reducing externalities. This applies not only to the reduction of emissions by shortening the delivery routes and reducing the storage and cooling times of individual goods. The pandemic taught us above all that in times of border closings and economic lockdowns, entire supply chains can break off. So, it can happen that, starting with individual goods that can be dispensed with, essential goods are no longer available, such as medication or suitable protective clothing for nursing staff in the health crisis ((Karabag, 2020, p.2); (Yacoub & El-Zomor, 2020, p.11)) or even basic foodstuffs are suspected to be undersupplied. A strong global relocation of production and manufacturing facilities is cheaper, but carries a higher risk that important goods will no longer be available in times of crisis. It has been shown that the greatest advantages of globalization due to the consequences thereof, namely a pandemic, no longer apply in lockdowns (Fiedler, 2020, p. 165). A cost-benefit assessment of essential goods and services must therefore be made as to whether regional provision would be possible and sensible (Yacoub & El-Zomor, 2020, p.13). Regional production and the associated regional consumption also have socio-political advantages. The return of the production facilities, especially to Europe, can reduce unemployment and give more people, especially in poorly developed regions of Europe, the opportunity of a professional future. Possible price increases are part of the

cost-benefit assessment to reduce the three crises of globalization and in consumer behavior also as a result of a relatively increased willingness to pay for goods that are in short supply. Resilience and sustainability then play a more important role in the individual as well as socio-political target system compared to maximizing economic growth.

3.2. Digitalization and worldwide networking

Digital systems have become very important in the corona pandemic. They allow information to be generated and disseminated quickly and ensure interpersonal communication in times of social distancing. In the crisis, digital opportunities have proven to be particularly useful in the areas of the labor market and the education system ((Fiedler, 2020, p.165); (Sutkowski, 2020, p.6)). Companies had to realize that business trips across the globe can also be mastered with a video conference on the whole. The use of video conferences has also proven to be suitable for politicians in order to hold necessary crisis meetings. Many employees can easily carry out their work in the home office without the company suffering any losses due to employees who have suddenly become lazy or who need to be controlled. Pupils and students can access learning content from anywhere in the world at any time through asynchronous learning, digital teaching models and digital classrooms. All of this was not made possible by the crisis, but the crisis has shown through the pressure to change that the long-standing skepticism regarding the adaptation of the technical possibilities was unfounded. This can and must have consequences after the crisis. Business trips, commuting to work, presence in schools and universities and similar situations must be questioned as to their strict necessity. This not only facilitates the rapid containment of a disease in health policy crises, but also has an ecological and socio-political impact. Avoiding air travel, commuting and even the possible reduction of office space obviously has an impact on global emissions and resource consumption and can therefore lead to very rapid and significant improvements in air quality. These improvements affect both the climate and the health of the population in regions heavily affected by air pollution. In terms of social policy, this also has an impact on different sections of the population, such as families: for example, parents can organize childcare better without a state childcare facility due to relaxed home office conditions. This is also shown by the efforts of the German Federal Minister of Labor Heil from the SPD party, who is currently working on a draft law on the right to home office (Deutschlandfunk, 2020).

It is becoming increasingly clear that Germany has failed to expand digital networks for too long ((Dalg, 2020); (Gerginov, 2020)). Remote regions have extremely weak internet connections, under which a home office or home schooling seems tedious to impossible. Connections break down due to the high demands of streaming portals and video conferences. Germany is lagging behind in international comparison. For the future after the crisis, this also means the necessary advancement of the network expansion. Only this can meet the requirements of digitization and realize the ecologically valuable opportunities of video conferences, home offices and decentralized work.

The situation in the education sector has also revealed that there are significant grievances in the education system with regard to equipping students with technical

means. Many cannot perceive contact-free learning, such as digital lessons at home. Low-income households in particular do not have the technical possibilities or the know-how to optimally support their children in home schooling ((FRG, 2020); (GEW-BW, 2020)). Interest groups even see the current situation in home schooling as a danger of worsening discrimination against certain social classes. Due to the advancing digitalization, the shortage of teaching staff and the future challenges of globalization, digital learning will gain in importance. However, this requires high investments in the public education sector in order to provide schoolchildren with the technical possibilities that poorer households in particular do not currently have. The current crisis clearly shows the need for a socio-political transformation against the worsening of social inequality and educational (in)justice.

3.3. Basic Income in the crisis – an approach

The economic lockdown in the Corona crisis has had extreme social consequences. In Germany, many workers had to switch to short-time work, especially smaller companies are facing bankruptcy, mini-jobbers are losing their livelihood, the considerable increase in personal bankruptcies, especially due to rent and loan obligations, is feared, and the state has to pay billions in aid packages (BMF, 2020) to step in and still fail to help everyone enough.

Even worse is the economic situation for people in countries where there is hardly a social security system like e.g. in Germany. In Italy, groceries have already been looted as the population can no longer earn wages and needs food (Euractiv, 2020). The discussion about Eurobonds in order to distribute the borrowing of countries within Europe is met with strong rejection in some countries ((Pena et al., 2020); (Yacoub & El-Zomor, 2020, p.12)). What are the arguments against political decision-makers and their leadership styles such as however, judging moral hazard behavior in the past does not help the people of Europe. A common European community must bear its common consequences, particularly in times of crisis (Neumärker, 2020b). Lucchese & Pianta (2020, p.101) even advocate a common financial policy for the European Union in the long term.

The discussion about the idea of a universal basic income is becoming louder as a possible solution, especially now in times of crisis ((Merz, 2020); (Petition 108191, 2020)). Regardless of whether you are a supporter or opponent of a basic income, you should think through the functionality of such a construct in a crisis as we are now and consider its introduction beyond the crisis as a partial replacement for traditional social policy.²

Let us consider a universal basic income as "an income paid by a political community to all its members on an individual basis, without means test or work requirement" (van Parijs, 2004, p.8). All sanctions as under Hartz IV are also no longer applicable. This unconditional income is additionally "paid in cash, rather than in kind" (van Parijs, 2004,

² To be able to adequately question and analyze the inadequate suitability of mainstream economics, basic income and its (non) monetary effects, along with the laziness thesis and insufficient financeability, one of the authors has stated in other publications (Palemo Kuss & Neumärker, 2018; Neumärker 2018). Regarding the basic concept of the "new ordoliberalismus" in this regard, cf. Neumärker (2017).

p.8) and "paid on a regular basis, rather than as a one-off endowment" (van Parijs, 2004, p. 9). For example, the beneficiaries of the basic income could be all citizens of a country or the European Union.³

The amount of this basic income would have to be chosen in times of crisis in such a way that the minimum standard of living of a person can be maintained. Here you can start conceptually with the supply of food and essential goods. The amount of the monthly payment per person could be determined on the basis of average consumer spending by private households. In 2018, a one-person household spent an average of € 1.706 per month on private consumption (Destatis, 2020). In order to assess a minimum level of living standard, all consumption expenditure that is not absolutely necessary in the crisis could be excluded. This affects, for example, expenses for restaurant visits, leisure and cultural offers and other goods & services. If you limit the minimum security to expenditure on food, clothing, housing, health and mobility, the need is reduced to € 1.213 for an individual. The average cost of living and energy is € 662 (Destatis, 2020). These decrease accordingly in multi-person households (Neumärker, 2020a).

In addition to the basic expenses for food and minimum consumption, payments such as rents, loan interest and repayment obligations and liabilities that have already arisen are problematic. If people lose their jobs due to the crisis or have less money available due to short-time work, they quickly run into financial need if current expenses still have to be paid but earnings collapse. The same applies to companies and freelancers who, for example, have to cease their business as a result of the crisis or suffer severe losses as a result of declining consumer activity. So, let's also use a second tool to deal with the aftermath of the crisis, namely the temporary suspension of financial obligations such as rent payments, loan servicing and other payment of bills, like wage payments or payment for goods and services that existed before the crisis began⁴. Let us therefore suspend these obligations unbureaucratically for everyone during the period of the crisis and extend contractual agreements by the period of suspension. Nevertheless, everyone is paid a corresponding net basic income⁵ to cover the inevitable consumer spending, unconditionally and unbureaucratically. By suspending the financial obligations, this could now be reduced by the average expenditure on rental payments and would therefore still be € 551 for a one-person household. Since children and adolescents generally still live with at least one parent in the household, the consumption expenditure required for this group, for example for food or mobility, is reduced. Many basic income concepts therefore propose around half of the basic amount for adults for children (Mein Grundeinkommen, 2020).

Now you have to look at the next level, with companies, landlords, credit institutions and all those who no longer receive rents due to this suspension, get paid bills or make profits by providing credit. Their running costs are also suspended and all employees and owners receive at least their basic income instead. Ultimately, this mechanism means that all

³ At this point, however, we do not want to deal in detail with the conceptual design of basic income.

⁴ See, for example, Kaas (2020) with a similar proposal.

⁵ The gross basic income includes the payment obligations mentioned, the net basic income is the amount upon suspension of interest payments for renting, leasing, lending, etc.

those whose economic activity is hampered by the crisis and who are unable to continue to obtain monetary resources are compensated for it. If appropriately designed, their level of living and care would not decrease during the crisis. In addition, state crisis loan assistance is no longer required in order to pay current rent and loan obligations. The resulting significant redistribution consequence from income earners shut down for health policy reasons to those with unearned income from renting, leasing and lending would not occur. Such an unconditional net basic income would counter the asymmetrical treatment of usual aid programs due to the assumed need to be able to pay rent and loans by providing symmetrical help to everyone.

Nevertheless, there are those who are classified as systemically important in the crisis and continue to participate in the labor market. They also receive a basic income unconditionally and in addition to their existing work income. Current payments and costs are also suspended for them. Basic income is an additional source of income for them and acts as compensation for their social commitment, which is still necessary. In addition, the net basic income has the immeasurable advantage of being able to take full advantage of a crisis with many uncertainties and constantly emerging social and economic policy challenges that also fail to achieve the best target-accuracy planning for loan assistance and transfer payments (targeting, earmarking, etc.).⁶ Ultimately, we end up with the state, which in the current crisis already has enormous amounts of money for cash payments, short-time work benefits, loans etc. must move. In addition, capital owners and landlords are affected, which in the current crisis are the only ones that can continue to skim off profits at the expense of everyone else. The underlying symmetry regulation through the net basic income leads on the one hand to equal treatment, on the other hand to breaches of contracts. Contract protection is, however, normatively underpinned by an interpretation of the suspension of payments from the social commitment of property in significant crisis situations (Neumärker, 2020a). The contract extension also simulates that the crisis time is excluded.

A suitably designed system of an unconditional basic income can even turn out to be less extensive in fiscal terms than the previously introduced aid measures if administrative effort and costs are saved with the same payment volume. With an amount of € 550 for adults and € 275 for children, a financing volume measured against the German population (as of December 31, 2018) would total € 42.76 billion⁷ necessary (Statista, 2019). This would be significantly less than the measures currently decided and their financing volume of € 353.3 billion and additional guarantees of € 819.7 billion (BMF, 2020). In addition, the amount of children in Germany is already partially covered by child benefit. Such a basic income can emerge as crisis-proof through a suitable source of finance, for example through VAT financing in combination with an environmental tax dividend (climate premium) or a wealth tax. If Hartz IV payments and pension payments

⁶ Unforeseen and (un)deliberately covered events (e.g. because they are not classified as necessary to save budget, since the group concerned is politically uninteresting), which do not allow target accuracy, are adequately covered by the basic net income as an ex post governance rule.

⁷ Calculated according to the absolute numbers of adults (≥ 13 years) and children (< 13 years): $(72,48 * 550) + (10,53 * 275) = 42.759,75$ (in € million).

are also offset or replaced, the only social security benefit left is health, e.g. could be maintained via a tax-financed health fund or require the additions to the net basic income in order to be able to obtain the necessary health care services.

The suspension of current financial obligations is normatively justified by the maintenance of a basic income. In the long term, the mechanism could be used flexibly as an unbureaucratic instrument in times of crisis in order to ensure that citizens are provided with care immediately and without prior or subsequent needs tests. After the crisis, the basic income mechanism could be built up in the context of increasing economic power, for example as a socially acceptable share of GDP (share as a common good) towards a participatory gross basic income and then melted back to net basic income in the subsequent crisis. To a certain extent, this basic income concept would be an automatic crisis and prosperity mechanism that stands in the way of the traditional transfer system, which tends to be overregulated and presumptuous, which only *seems* to be accurate and appropriate to the individual case. At the European level, a solidarity income, which is provided by the European community of values (Neumärker, 2020b) and the economy, could be a suitable instrument for securing minimum needs across the EU or the euro area, in order to quickly and effectively help citizens and companies in times of crisis securing the EU or the euro area as an advantageous structure for all citizens. If the European basic income is saddled on the national systems, one speaks of the euro dividend. In the long term, this could be a European coordinated VAT surcharge (e.g. (van Parijs, 2013, 2019, 2020)) or a tax on the integration gains (Neumärker, 2020b) as a toleration premium for each member citizen, which tolerates or supports asymmetrically distributed economic integration advantages and thus the liberal economic integration of Europe as a European shareholder, even if he could not generate any significant advantages himself.

3.4. General Implications

Lucchese & Pianta (2020, p.102) generally advocate an expansion of the welfare state, especially in the areas of health, education, research, old-age security, social security and environmental protection. Concepts such as more regional production could be indirectly promoted through more targeted, political incentives, for example by taxing transport routes in the sense of a carbon tax. In the same way, targeted environmental tax revenue can be used to refinance the additional costs, e.g. in the sense of an unconditional basic income. Much of the air pollution can also be influenced by humans, e.g. through heating, transport or energy consumption (cf. EEA (2017, 2019)). Here too, e.g. fiscal incentives could improve the energy efficiency of buildings (Bencchetti et al., 2020, p.14).

As already mentioned in Chapter 2, global collectivism is necessary to meet global crises. A cooperative approach at local, national and international level will therefore be necessary in order to be able to face pandemics, climate crises and other challenges of the global world in the future (Fiedler, 2020). This can be implemented at several levels and does not always require an international solution. The proposal of the euro dividend should be checked for its transferability to the global level. Development aid could also be converted to a *Foreign Aid Basic Income (FABI)* (Neumärker, 2020a) for the self-

determined development of developing countries, which can be reduced to the extent that the developing country concerned has built up sufficient financial power to provide a self-financed basic income.

van den Bergh (2011) deals with the possibility of a working time de-growth in the context of the implementation of environmental strategies. Making the labor market more flexible and reducing weekly working hours due to increasing labor productivity could be an important element in turning away from the pressure to grow. The reduction of weekly or annual working hours in response to the increasing productivity of work can thus help to turn away from the persistent pressure to generate income and the resulting pressure to consume and thus also to reduce health-related work stress.

The COVID-19 disease creates almost equality in terms of the risk of infection of the disease. Social positions do not allow you to buy yourself free from the disease. This equality of risk should also apply to individuals when fighting the crisis. However, this equality can not only be achieved through medical care for patients, but must be implemented as a fundamental element in the welfare state (Lucchese & Pinata, 2020, p.103).

4. Conclusion

Continued economic growth in the wake of globalization has led to an increasing networking of the world's population. This strong connectivity has not only brought advantages, it has also led to an increase in inequality and injustice. This affects both, the environmental conditions in which people have to live, the social standards and the distribution of opportunities, wealth and income as well as working hours and leisure options. The Corona crisis reminds us that for years we have failed to tackle the environmental and social policy crises conceptually and effectively and to combat them with an integrated approach.

This contribution identified three areas in the discussion about possible implications for the resumption of economic activity:

1. Reduction of environmental externalities
2. Digitization
3. Basic Income

In the area of reducing environmental externalities, instruments of externality pricing are particularly not worthy. In addition to the necessary adjustment of carbon taxation and emissions trading as well as the general handling of externalities, e.g. in the field of nutrition, the promotion of regional production should be central to future environmental policy.

Digitalization enables key concepts such as the elimination of business trips, home office and the flexibility of the labor market in terms of working-time de-growth in general. Here, too, it has been shown that there is a considerable need for investment in the expansion of the networks and the necessary infrastructure. Digital change, especially from a socio-political perspective, should in no way help to exclude and discriminate

against social groups. Rather, investments in education and the flexibility of work models are necessary to enable the compatibility of digital opportunities with real work and education structures.

In times of crisis and beyond, basic income is a necessary instrument to ensure that crises are dealt with effectively and quickly. In this article, we outlined the idea of a universal basic crisis income, the conceptual design of which requires further research. Above all, this must focus on the effects of unconditionality compared to the needs test, the imposition of conditions and sanctioning, as well as the traditional policy maxims behind it, of target accuracy and individual case regulation, and ask questions about the effects on the economy. In times of crisis, the proposal made here can be paid out in addition to existing payment flows without tax credit. However, the implementation of a concept going beyond the crisis should include compatibility or replacement of other social benefits and discuss a long-term financing concept.

5. References

Ahmad, T., Khan, M., Haroon, Musa, T., Nasir, S., Hui, J., . . . Rodriguez-Morales, A. (24.02.2020). COVID-19: Zoonotic aspects. *Travel Medicine and Infectious Disease*. Elsevier USA. (in Press) DOI: 10.1016/j.tmaid.2020.101607

Anjum, N. (06.04.2020). Good in The Worst: COVID-19 Restrictions and Ease in Global Air Pollution, Scopus Preprint, DOI: 10.20944/preprints202004.0069.v1

Barry, A. F. (28.03.2020). A Guide To Disaster Preparedness — Coronavirus Edition: Time Management. 20. April 2020 from CleanTechnica: <https://cleantechnica.com/2020/03/28/a-guide-to-disaster-preparedness-coronavirus-edition-time-management/>

Becchetti, L., Conzo, G.; Conzo, P., Salustri, F. (10.04.2020). Understanding the heterogeneity of adverse COVID-19 outcomes: the role of poor quality of air and lockdown decisions. DOI: 10.2139/ssrn.3572548

Blum, B. (13.02.2020). Fleischbesteuerung in Deutschland-Mengen-oder Mehrwertsteuer? Diskussion und Politische Implikationen. *The Constitutional Economics Network Working Papers* (ISSN 2193-7214, No.01-2020), Albert-Ludwigs-Universität Freiburg.

Blum, B., Neumärker, B. K., & Simoneit, A. (2019). Why does Promoting Energy Efficiency not Contradict the Paradigm of Sustainability? A Normative Approach Using the Pareto Criterion. In P. Hamman, *Sustainability Governance and Hierarchy* (Vol. 1, p.83-100). London: Routledge.

BMF. (23.04.2020). Kampf gegen Corona: Größtes Hilfspaket in der Geschichte Deutschlands. Retrieved on 27. April 2020 from Bundesministerium für Finanzen: <https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Schla>

glichter/Corona-Schutzschild/2020-03-13-Milliarden-Schutzschild-fuer-Deutschland.html

BRD. (25.03.2020). Digitales Lernen in Zeiten der Corona-Pandemie: Schüler im Home Office. Retrieved on 27. April 2020 from Die Bundesregierung Deutschland: <https://www.bundesregierung.de/breg-de/themen/coronavirus/digitales-lernen-1734916>

Brock, W., & Taylor, M. (2005). Chapter 28 Economic Growth and the Environment: A Review of Theory and Empirics. In W. Brock, & M. Taylor, Handbook of Economic Growth (Bd. 1, S. 1749-1821). Elsevier.

Brzechczyn, K. (07.04.2020). The Coronavirus in liberal and illiberal Democracies and the Future of globalized World. Society Register, 4(2), 83-94. DOI: 10.14746/sr.2020.4.2.06

Burke, M. (08.03.2020). COVID-19 reduces economic activity, which reduces pollution, which saves lives. Retrieved on 27. April 2020 from G-Feed - Global Food, Environment and Economic Dynamics: <http://www.g-feed.com/2020/03/covid-19-reduces-economic-activity.html>

Burkle, F. (13.04.2020). Political Intrusions into the International Health Regulations Treaty and Its Impact on Management of Rapidly Emerging Zoonotic Pandemics: What History Tells Us. Prehospital and disaster medicine, 1-18. DOI: 10.1017/S1049023X20000515

Carbonbrief. (30.03.2020). Analysis: Coronavirus temporarily reduced China's CO2 emissions by a quarter. Retrieved on 20. April 2020 from Carbonbrief - Clear on Climate: <https://www.carbonbrief.org/analysis-coronavirus-has-temporarily-reduced-chinas-co2-emissions-by-a-quarter>

Chan, J., Yuan, S., Kok, K., To, K., Chu, H., Yang, J., . . . Yuen, K. (24.01.2020). A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. The Lancet, 395(10223), 514-523. DOI: 10.1016/S0140-6736(20)30154-9

Conticini, E., Frediani, B., & Caro, D. (24.03.2020). Can atmospheric pollution be considered a co-factor in extremely high level of SARS-CoV-2 lethality in Northern Italy? Environmental Pollution. Elsevier Ltd. (in Press) DOI: 10.1016/j.envpol.2020.114465

Corlett, R., Primack, R., Devictor, V., Maas, B., Goswami, V., Bates, A., . . . Roth, R. (08.04.2020). Impacts of the coronavirus pandemic on biodiversity conservation. Biological Conservation, 246. DOI 10.1016/j.biocon.2020.108571

CSSE. (27.04.2020). COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU). Retrieved on 27. April 2020 from John Hopkins University: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Dalg, P. (23.03.2020). In der Coronakrise rächt sich der lahmende Netzausbau. Retrieved on 28. April 2020 from Der Tagesspiegel: <https://www.tagesspiegel.de/wirtschaft/zus-schlechtes-internet-fuer-homeoffice-in-der-coronakrise-raecht-sich-der-lahmende-netzausbau/25676508.html>

Destatis. (29.04.2020). Private Konsumausgaben (Lebenshaltungskosten) nach der Haushaltsgröße - Laufende Wirtschaftsrechnungen. Retrieved on 29. April 2020 from Destatis - Statistisches Bundesamt: <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Einkommen-Konsum-Lebensbedingungen/Konsumausgaben-Lebenshaltungskosten/Tabellen/liste-haushaltsgroesse.html>

Deutschlandfunk. (26.04.2020). Heil plant offenbar Recht auf Home-Office. Retrieved on 27. April 2020 from Deutschlandfunk: https://www.deutschlandfunk.de/coronavirus-krise-heil-plant-offenbar-recht-auf-home-office.1939.de.html?drn:news_id=1124573

Dutheil, F., Baker, J., & Navel, V. (09.04.2020). COVID-19 as a factor influencing air pollution? *Environmental Pollution*, 263. Elsevier Ltd. (in Press) DOI: 10.1016/j.envpol.2020.114466

ECB. (18.03.2020). ECB announces €750 billion Pandemic Emergency Purchase Programme (PEPP). Retrieved on 20. April 2020 from European Central Bank: https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200318_1~3949d6f266.en.html

EEA (11.10.2017) Air quality in Europe — 2017 report, European Environment Agency. Retrieved on 28. April 2020 from European Environment Agency: <https://www.eea.europa.eu/publications/air-quality-in-europe-2017>

EEA. (10.12.2019). Cutting air pollution in Europe would prevent early deaths, improve productivity and curb climate change. Retrieved on 28. April 2020 from European Environment Agency: <https://www.eea.europa.eu/highlights/cutting-air-pollution-in-europe>

EPHA. (16.03.2020). Coronavirus threat greater for polluted cities. Retrieved on 20. April 2020 from European Public Health Alliance: <https://epha.org/coronavirus-threat-greater-for-polluted-cities/>

Euractiv. (30.03.2020). 'We have to eat': Sicily police crack down on looting. Retrieved on 28. April 2020 from Euractiv: <https://www.euractiv.com/section/justice-home-affairs/news/we-have-to-eat-sicily-police-crack-down-on-looting/>

European Commission. (2008). The use of differential VAT rates to promote changes in consumption and innovation - Final Report. Bruxelles: European Commission. From https://ec.europa.eu/environment/enveco/taxation/pdf/vat_final.pdf abgerufen

Fiedler, R. (14.04.2020). From Corporationism to Cooperationism: Reversed Globalization, Cooperative Politics and Expanding Online Communication in Post-Pandemic Time. *Society Register*, 4(3), 161-168. DOI: 10.14746/sr.2020.4.3.09

FÖS. (2013). Ökonomische Instrumente für eine Senkung des Fleischkonsums in Deutschland, Beiträge zu einer klima- und umweltgerechten Landwirtschaft. Forum ökologisch-soziale Marktwirtschaft (FÖS). Hamburg: Greenpeace e.V.

FÖS. (2020). Tierwohl fördern, Klima schützen - Wie eine Steuer auf Fleisch eine Wende in der Nutztierhaltung einleiten und Anreize für umweltschonenderen Konsum liefern kann. Forum Ökosoziale Marktwirtschaft (FÖS). Hamburg: Greenpeace e.V.

Gerginov, D. (28.04.2020). Was der Staat versäumt hat: 3 Lehren aus der Corona-Krise. Retrieved on 28. April 2020 from GeVestor: <https://www.gevestor.de/details/was-der-staat-versaeumt-hat-3-lehren-aus-der-corona-krise-886436.html>

GEW-BW. (27.03.2020). Warum digitaler Unterricht in der Corona-Krise unfair ist. Retrieved on 27. April 2020 from Gewerkschaft für Erziehung und Wissenschaft, Baden-Württemberg: <https://www.gew-bw.de/aktuelles/detailseite/neuigkeiten/warum-digitaler-unterricht-in-der-corona-krise-unfair-ist/>

Gills, B. (01.04.2020). Deep Restoration: from The Great Implosion to The Great Awakening. Globalizations. Routledge. DOI: 10.1080/14747731.2020.1748364

Gold, M. (2004). The global benefits of eating less meat. Hampshire, UK: Compassion in World Farming Trust.

Guerrero-Bosagna, C., & Jensen, P. (22.01.2015). Globalization, climate change, and transgenerational epigenetic inheritance: will our descendants be at risk? Clinical Epigenetics, 7(1). DOI: 10.1186/s13148-014-0043-3

Guojun, H., Pan, Y., & Tanaka, T. (03.2020). COVID-19, City Lockdown, and Air Pollution: Evidence from China. DOI: 10.1101/2020.03.29.20046649

IPPC (1990). Climate Change The IPCC Scientific Assessment. Cambridge University Press.

Isaifan, R. (26.03.2020). The dramatic impact of Coronavirus outbreak on air quality: Has it saved as much as it has killed so far? Global Journal of Environmental Science and Management 6(3), 275-288. DOI: 10.22034/gjesm.2020.03.01

Kaas, L. (23.03.2020). Das Kapital in der Corona-Krise. Retrieved on 28. April 2020 from Makronom: <https://makronom.de/das-kapital-in-der-corona-krise-35374>

Karabag, S. (2020). An Unprecedented Global Crisis! The Global, Regional, National, Political, Economic and Commercial Impact of the Coronavirus Pandemic. Journal of Applied Economics and Business Research (JAEBR), 10(1), 1-6.

Lee, K. (16.02.2004). Globalisation: What is it and how does it affect health? Medical Journal of Australia, 180(4), 156-158. DOI: 10.5694/j.1326-5377.2004.tb05855.x

Lu, R., Zhao, X., Li, J., Niu, P., Yang, B., Wu, H., . . . Tan, W. (22.02.2020). Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus

origins and receptor binding. The Lancet, 395(10224), 565-574., DOI: 10.1016/S0140-6736(20)30251-8

Lucchese, M., & Pianta, M. (2020). The Coming Coronavirus Crisis: What Can We Learn? Intereconomics, 55(2), 98-104. DOI: 10.1007/s10272-020-0878-0

McMichael, A., Bolin, B., Costanza, R., Daily, G., Folke, C., Lindahl-Kiessling, K., ... Niklasson, B. (1999). Globalization and the Sustainability of Human Health An ecological perspective. BioScience, 49(3), 205-210.

Mein Grundeinkommen. (11.03.2020). Wie sieht dein Grundeinkommen aus? Retrieved on 29. April 2020 from Mein Grundeinkommen: <https://www.mein-grundeinkommen.de/magazin/wie-sieht-dein-grundeinkommen-aus>

Merz. (2020). Mit dem bedingungslosen Grundeinkommen durch die Coronakrise. Retrieved on 29. April 2020 from Charge.org: <https://www.change.org/p/finanzminister-olaf-scholz-und-wirtschaftsminister-peter-altmaier-mit-dem-bedingungslosen-grundeinkommen-durch-die-coronakrise-coronavirusde>

NASA. (02.03.2020). Airborne Nitrogen Dioxide Plummets Over China. Retrieved on 20. April 2020 from NASA earth observatory: <https://earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummets-over-china>

Neumärker, B. K., (2017). Ordnungspolitik, Neuer Ordoliberalismus und Mainstream Economics. in WISU 46 (2017), p. 830-840.

Neumärker, B. K., (2017). Bedingungsloses Grundeinkommen aus ordnungspolitischer Sicht. in WISU 47 (2018), p. 324-330.

Neumärker, B. K., (2020a). Das Netto-Grundeinkommen als Sozialstaatsreform in Krisenzeiten. The Constitutional Economics Network Working Papers (ISSN 2193-7214, No.01-2020), Albert-Ludwigs-Universität Freiburg (*forthcoming*).

Neumärker, B. K., (2020b). Soziale Nachhaltigkeit und nachhaltige Governance für Europa: Die Euro-Dividende. In Lüdemann, O.; Neumärker, K.J.B.; Schachtschneider, U., Grundeinkommen braucht Europa, Europa braucht Grundeinkommen (*forthcoming*).

OECD (02.03.2020). OECD Interim Economic Assessment, Coronavirus: The world economy at risk.

Paech, N. (2016). Befreiung vom Überfluss. Auf dem Weg in die Postwachstumsökonomie. (9. Ausg.). München: oekom Verlag.

Palermo Kuss, A.H., Neumärker, K.J.B. (2018). Modelling the Time Allocation Effects of Basic Income. Basic Income Studies, 13 (2), 1-15. DOI: 10.1515/bis-2018-0006

Pansini, R., & Fornacca, D. (07.04.2020). COVID-19 higher induced mortality in Chinese regions with lower air quality, DOI: 10.1101/2020.04.04.20053595

Pena, P., Schumann, H., & Poortmans, J. (24.03.2020). Europe Divided Over 'Coronabonds'. Retrieved on 28. April 2020 from Investigate Europe: <https://www.investigate-europe.eu/europe-divided-over-coronabonds/>

Petition 108191. (14.03.2020). Einführung eines Bedingungslosen Grundeinkommens from 14.03.2020. Retrieved on 28. April 2020 from Deutscher Bundestag: https://epetitionen.bundestag.de/petitionen/_2020/_03/_14/Petition_108191.nc.html

Postlewaite, A. (29.03.2011). Social Norms and Preferences, in J. Benhabib, A. Bisin and M. Jackson Handbook for Social Economics, Vol.1, p.31-67. DOI: 10.1016/B978-0-444-53187-2.00002-4

Qiu, J. (02.05.2017). One world, one health: combating infectious diseases in the age of globalization. National Science Review, 4 (3), 493-499. DOI: 10.1093/nsr/nwx047

Ranganathan, J., Vennard, D., Waite, R., Dumas, P., Lipinski, B., & Searchinger, T. (2016). Shifting Diets for a sustainable food future. World Resources Institute - Working Paper, S. 1-90. available at: https://www.researchgate.net/profile/Janet_Ranganathan/publication/301541772_Shifting_Diets_for_a_Sustainable_Food_Future/links/5717b3dd08ae986b8b79e1a8/Shifting-Diets-for-a-Sustainable-Food-Future.pdf

Raux, C., Croissant, Y., & Pons, D. (01.03.2015). Would personal carbon trading reduce travel emissions more effectively than a carbon tax? Transportation Research Part D: Transport and Environment, 35, 72-83. DOI: 10.1016/j.trd.2014.11.008

RKI. (24.04.2020). SARS-CoV-2 Steckbrief zur Coronavirus-Krankheit-2019 (COVID-19). Retrieved on 27. April 2020 from Robert Koch Institut: https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Steckbrief.html#doc13776792bodyText2

Samuel, S. (22.04.2020). The meat we eat is a pandemic risk, too. Retrieved on 28. April 2020 from VOX: <https://www.vox.com/future-perfect/2020/4/22/21228158/coronavirus-pandemic-risk-factory-farming-meat>

Seyfang, G., Lorenzoni, I., & Nye, M. (2007). Personal Carbon Trading: notional concept or workable proposition? Exploring theoretical, ideological and practical underpinnings. CSERGE Working Paper EDM 07-03, available at: <http://hdl.handle.net/10419/80280>

Sofia, D., Gioiella, F., Lotrecchiano, N., & Giuliano, A. (27.03.2020). Mitigation strategies for reducing air pollution. Environmental Science and Pollution Research. DOI: 10.1007/s11356-020-08647-x

Starkey, R. (15.01.2012). Personal carbon trading: A critical survey Part 2: Efficiency and effectiveness. Ecological Economics, 73, 19-28. DOI: 10.1016/j.ecolecon.2011.09.018

Statista. (01.12.2019). Bevölkerung - Zahl der Einwohner in Deutschland nach relevanten Altersgruppen am 31. Dezember 2018 in Millionen. Retrieved on 29. April 2020 from statista: <https://de.statista.com/statistik/daten/studie/1365/umfrage/bevoelkerung-deutschlands-nach-altersgruppen/>

Stengel, O. (2011). Suffizienz - Die Konsumgesellschaft in der oekologischen Krise (Bd. 1). Wuppertal: Wuppertaler Schriften zur Forschung für eine nachhaltige Entwicklung.

Sułkowski, Ł. (01.05.2020). Covid-19 Pandemic; Recession, Virtual Revolution Leading to De-globalization? Journal of Intercultural Management, 12(1), 1-11. DOI: 10.2478/joim-2020-0029

Syed, Q., Sopwith, W., & Regan, M. (2003). Behind the mask. Journey through an epidemic: some observations of contrasting public health responses to SARS. Journal of Epidemiol Community Health, 57(11), 855-856. DOI: 10.1136/jech.57.11.855

Van den Bergh, J. (2011). Environment versus growth - A criticism of "degrowth" and a plea for "a-growth". Ecological Economics, 70(5), 881-890. DOI: 10.1016/j.ecolecon.2010.09.035

Van Parijs, P. (01.03.2004). Basic Income: A Simple and Powerful Idea for the Twenty-first Century. Politics and Society. 32, S. 7-39. SAGE Publications Inc. DOI: 10.1177/0032329203261095

Van Parijs, P. (08.07.2013). The Euro-Dividend by Philippe van Parijs Retrieved on 28. April 2020 from Euroincome: <https://euroincome.eu/euro-dividend-philippe-van-parijs/>

Van Parijs, P. (07.03.2019). The Euro-Dividend Retrieved on 28. April 2020 from Twestars: <https://www.twelvestars.eu/post/philippe-van-parijs>

Van Parijs, P., (2020). Die Euro-Dividende. In Lüdemann, O.; Neumärker, K.J.B.; Schachtschneider, U., Grundeinkommen braucht Europa, Europa braucht Grundeinkommen (*forthcoming*).

Vanderkam, L. (01.04.2020). We have a lot more time now. So why can't we get anything done? Retrieved on 27. April 2020 from The Washington Post: <https://www.washingtonpost.com/opinions/2020/04/01/thanks-coronavirus-you-have-time-write-that-novel-you-just-dont-want/>

Vaughan, A. (04.04.2020). Environmental effects - Our pandemic response is cutting emissions, but it isn't a climate change fix. New Scientist, 245(3276), S. 10-11. DOI: 10.1016/S0262-4079(20)30661-8

Watson, R.T., McMichael, A.J. (01.07.2001) Global Climate Change the Latest Assessment: Does Global Warming Warrant a Health Warning? Global Change & Human Health, 2(1). DOI: 10.1023/A:1011914326191

WHO. (05.01.2020a). Pneumonia of unknown cause – China. Retrieved on 02. April 2020 from World Health Organization: <https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/>

WHO. (11.03.2020b). WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Retrieved on 20. April 2020 from World Health Organization: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>

WHO. (26.04.2020c). Coronavirus disease 2019 (COVID-19) - Situation Report 97. World Health Organization. Retrieved on 27. April 2020 from https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200426-sitrep-97-covid-19.pdf?sfvrsn=d1c3e800_6

Wissenschaftlicher Beirat für Agrarpolitik. (2012). Ernährungssicherung und nachhaltige Produktivitätssteigerung - Stellungnahme. Berlin: Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz. From https://www.bmel.de/SharedDocs/Downloads/Ministerium/Beiraete/Agrarpolitik/Stellungnahme-Ern%C3%A4hrungssicherung.pdf?__blob=publicationFile abgerufen

Wu, X., Nethery, R., Benjamin, M., Ma, S., Braun, D., Dominici, F., & Gamble, C. (05.04.2020). Exposure to air pollution and COVID-19 mortality in the United States. DOI: 10.1101/2020.04.05.20054502

Xue, L., Prass, N., Gollnow, S., Davis, J., Scherhauser, S., Östergren, K., . . . Liu, G. (2019). Efficiency and Carbon Footprint of the German Meat Supply Chain. *Environmental Science & Technology*, 53(9), S. 5133-5142. DOI: 10.1021/acs.est.8b06079