



Global Commodity Chains and the Pandemic Labor-Power in Agricultural Sectors in Kenya and Chile

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Abstract

The availability of labor-power is a critical element of all commodity chains. This is especially true of labor-intensive production processes such as agriculture. The COVID-19 pandemic had a major impact on this, as well as on many other aspects of the economy and everyday life. The institutions of the modern world-system responded in various ways to the new situation influenced by COVID-19, taking measures to mitigate and avert the detrimental effects. This paper examines these responses and their impact on the availability of labor-power in the agricultural areas of Nakuru County, Kenya, and O'Higgins Region, Chile. By practically applying world-systems analysis, we shed light on the significance of institutions during periods of stagnation and their impact on the availability of labor-power in global commodity chains. This allows us to draw conclusions about the general impact of institutional responses to stagnation phases at the worker level. We show that the institutions studied responded in very different ways to the stagnation phase affected by COVID-19. As a result, O'Higgins Region experienced a labor-power shortage that Nakuru County had not, which may have a lasting impact on labor-power availability.

Keywords: Global Commodity Chains, World-Systems Analysis, COVID-19 Pandemic, Labor-Power, Gender, Agriculture, Kenya, Chile



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The COVID-19 pandemic created an unprecedented global situation that affected and continues to affect virtually every aspect of our lives. In terms of the economy, some production processes were impacted by the extreme decline in exports and imports, while others were affected by the shortage of labor-power or the closure of shops. Initial results from our own research showed that the impact of the COVID-19 pandemic on the labor market, especially in the export-oriented agriculture sector, varied around the world. For example, the Chilean agriculture sector in O'Higgins Region experienced labor-power shortages that were not observed in Nakuru County, Kenya. This article examines the possible causes of this phenomenon in Nakuru County and O'Higgins Region. It explores how different institutional levels responded to the stagnation phase influenced by the COVID-19 pandemic and their possible impact on labor-power availability.

In recent decades, global commodity chains have been extensively studied (see, for instance, Bair 2014; Gereffi 2018). In the context of growing social inequality and exogenous shocks such as the climate crisis, the COVID-19 pandemic, and the Russian war in Ukraine, interest in this area of research is growing (Tejani and Fukuda-Parr 2021; Gray and Gills 2022; Marlotti 2022; Ciccantell, Smith, and Sower 2023; Oritz 2023). These factors affect different parts of global commodity chains in varying ways. States, firms, and other institutions react differently from region to region. This means that shocks and responses to them have contrasting effects within and across different commodity chains. Recent work on feminist approaches (Barrientos 2001; Barrientos and Dolan 2003; Collins 2014; Nakazibwe and Pelupessy 2014; Ramamurthy 2014) have fundamentally advanced theoretical and empirical work on commodity chains by considering the entire chain. This approach includes households and the reproduction of labor-power¹ since reproduction, and thus the availability of labor-power, is a crucial element in value creation processes (Marx 1887; Dunaway 2001, 2014b; Marx and Engels 2015 [1848]). Exogenous shocks and their impact on commodity chains can be considered in line with the Kondratieff cycle² adopted by Wallerstein (2006). When assessing these shocks and the stagnation phases they cause, it is important to consider their impact on workers and their households. For this reason, in this paper we examine the responses of different institutions to the COVID-19 pandemic and their impact at the worker level and on labor-power availability in Nakuru County, Kenya and O'Higgins Region, Chile.

The application of world-systems analysis seems appropriate not only because of the relevance of the Kondratieff cycle but also because of the connection between the expansion and stagnation phases and Wallerstein's description of how different institutions react to a given situation. Consequently, in this paper we address institutional responses to the COVID-19 pandemic, defined as one of the factors influencing a stagnation phase in the Kondratieff cycle. We explore the impact of these responses on the availability of labor, highlighting the significance

¹ The measures taken to avert the stagnation phase provoked by the COVID-19 pandemic had an impact on reproduction and thus on the availability of labor-power, as our own initial research findings show. Reproduction of labor-power, in the sense of Marx/Engels, refers to the measures necessary to maintain existing labor-power and generate new labor-power (Marx 1887: 162ff).

² The Kondratieff cycle is described in more detail below.

of gender. We do this through an empirical comparison of the agriculture sectors in O'Higgins Region, Chile and Nakuru County, Kenya. However, these regions differ in terms of the size of their agriculture sector. Both regions can be defined as peripheries; because peripheral production processes, such as the agricultural sectors, are among the largest in both areas, and agricultural products are primarily export-oriented. We therefore analyze attempts to avert the stagnation phase influenced by the COVID-19 pandemic within these agriculture sectors among three types of institution: state actors, private firms (operating on a partially free market), and public-benefit organizations (NGOs/trade unions). Based on our initial research, non-state actors complement the institutions described by Wallerstein. Subsequently, we consider the impact of institutional responses on the availability of labor, looking particularly at gender. Our underlying research question is: how do institutional responses to the stagnation phase influenced by the COVID-19 pandemic affect the availability of labor-power in the agriculture sectors of O'Higgins Region, Chile and Nakuru County, Kenya?

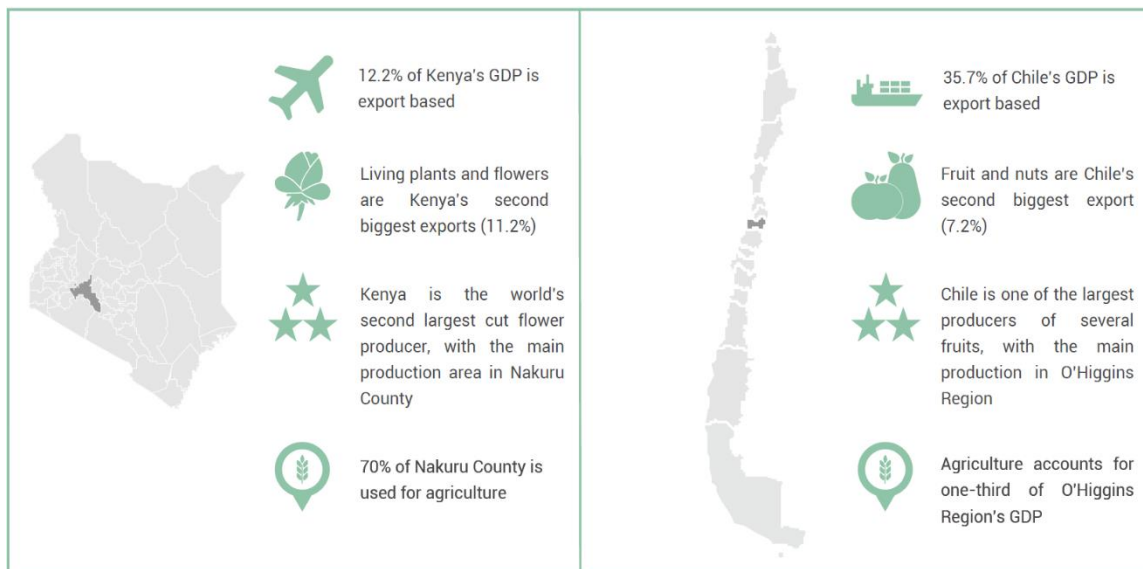
Peripheral Production, Pandemic, and Countermeasures

Here, we present the case studies in detail, along with the theoretical approaches. We consider institutional measures to prevent stagnation influenced by COVID-19 and their impact on labor-power availability in labor-intensive production processes, such as cut flower and fruit production. We must therefore classify the case studies based on their position in the modern world-system. There is also a discussion of the definition of stagnation and the institutions' countermeasures. Additionally, feminist approaches are included to address the gender-specific impact of these countermeasures on labor-power availability.

In line with world-systems analysis, we examine our case studies in terms of their position in the capitalist world-economy (Wallerstein [1980] 2011). The regions considered here—Nakuru County and O'Higgins Region—seem to occupy similar positions (see Figure 1). According to Wallerstein's (2006) definition of the axial division of labor, they can be defined as peripheral, in terms of the degree of profitability of the production processes located there. Peripheral regions produce goods that are labor intense and low paid but used daily (Wallerstein [1974] 2011). This allows us to compare the peripheral production processes in both areas. In the case of Nakuru County, we focus on the cut flower industry in Naivasha. Agriculture is the largest sector in Kenya with about 12.9 million employees (Roser 2023). The country's agriculture is highly export-oriented. Besides fruit and tea, cut flowers are Kenya's largest agricultural export. Cut flowers account for 70 percent of Kenya's horticultural exports (Onsomu, Munga, and Nyabaro 2021). The area around Lake Naivasha in Nakuru County is one of the country's main production areas for cut flowers. It has grown rapidly since the boom in cut flower production following an influx of labor. Over 200,000 people are employed in farms operating in Kenya's cut flower sector (Hivos 2020a). In O'Higgins Region, Chile, the second case study, we focus on the fruit production industry. After copper and other metals, fruit and nuts are Chile's second largest export (7.1 percent of export volume in 2021) (Wirtschaftskammer Österreich Abteilung für Statistik 2022).

Consequently, the goods exported from Chile can mostly be considered products of peripheral production. Economic activities in O'Higgins Region include copper mining and the production of various fresh fruits and by-products. The region is the largest producer of fruits in Chile, most of which are exported (Oficina de Estudios y Políticas Agrarias 2020). Around 200,000 people work in Chile's fruit production sector (Subsecretaria de Relaciones Económicas Internacionales 2021).

Figure 1: Comparison of the Case Studies



Source: Authors' graphic based on data from the World Bank and OECD.

The labor-power availability situation in Nakuru County and O'Higgins Region during and after COVID-19 can be understood by taking a world-systems approach in order to examine the countermeasures taken to prevent the stagnation phase. The world-systems approach looks at the world-economy in terms of cycles and trends. Wallerstein refers to the Kondratieff cycle, which describes developments in terms of two phases: Phase A is about expansion, while phase B involves stagnation or recession. The duration of the cycles depends on "the political measures taken by states to avert a B-phase" (Wallerstein 2006: 31).

A Kondratieff cycle, when it ends, never returns the situation to where it was at the beginning of the cycle. That is because what is done in the B-phase in order to get out of it and return to an A-phase changes in some important way the parameters of the world-system. (P. 31)

According to Wallerstein, stagnation is caused by the reduction in production volumes due to overproduction. As a result, center-typical production often becomes unprofitable and shifts to semi-peripheral and peripheral countries; this can lead to improved wages and living conditions in the affected areas (Wallerstein 2006). This paper expands Wallerstein's definition of the cycle to include external factors. Although the influence of the COVID-19 pandemic would not be

considered a period of stagnation in the original sense—caused by the economy itself—it does meet the other criteria, such as the stagnation of the economy and the adoption of countermeasures by state actors, which can affect the modern world-system in various ways and lead to a change in the structure of the system.

In addition to the axial division of labor, institutions are the supporting elements of the modern world-system (Wallerstein 2006). In this paper, we focus on the institutional level of state actors and private firms. Based on preliminary research, we also include non-state actors. These three types of institution were critical to the social and economic security of workers during the COVID-19 pandemic in both Nakuru County and O’Higgins Region. We examine these institutions in terms of the measures they took to mitigate COVID-19, as well as countermeasures to avert the stagnation phase it influenced. To evaluate the impact of institutional countermeasures on labor-power availability in both regions and assess their effectiveness in preventing a period of stagnation, a gendered commodity chain analysis must be conducted as a complement to world-systems analysis. This takes into account gender as a relevant analytical aspect in the consideration of global value creation processes (Elad and Houston 2002; Dunaway 2014b; Nakazibwe and Pelupessy 2014; Patel-Campillo 2023). In order to avoid “[t]he False Analytic Divide between Production and Reproduction” (Dunaway 2014a: 4), we include both the gender-specific division of labor and the reproduction of labor-power in households.

Before analyzing the preliminary considerations and questions based on the empirical material, we provide a brief overview of the methods used for data collection and analysis, as well as the field phases.

Methods and Data

The empirical findings described below are based on document analysis and ethnography conducted by ourselves. All data was collected by us and then coded and analyzed using qualitative content analysis. The ethnography of the first case study was conducted by Lara M. Espeter in March and April 2022 in the cut flower sector of Nakuru County and in Nairobi, the Kenyan capital, as part of the DFG project “Apples and Flowers.” This fieldwork entailed site visits, field diaries, and 27 guided interviews. All interviews in Kenya were conducted in person, usually at the interviewee’s place of work, and lasted between one and two hours. These interviews were supplemented by two further interviews via videocall with European managers responsible for cut flowers at Fairtrade. Additional information was collected in a second field phase by Espeter in Aalsmeer, the Netherlands. The people interviewed in Kenya were mostly upper management for reasons of accessibility. The workers’ perspective was gained via field visits to individual farms, one interview with the major trade union, and another with a workers’ committee of a flower farm. The fieldwork is complemented by recent studies, such as the Hivos reports (see below).

Table 1: Overview of Interviews Conducted in the Nakuru County Case Study in 2022

Type of Interviewee	Location	Number of Interviews
Upper management of flower farm	Naivasha	10
Union representative	Naivasha	1
Welfare committee of a flower farm	Naivasha	1
Employer organization	Naivasha, Nairobi	5
Supplier company for cut flower farms	Naivasha	4
State actor	Naivasha, Nairobi	3
Airline	Nairobi	2
Freight forwarder	Nairobi	1
Public-benefit organizations & Fairtrade	Zoom	2
Total		29

In the case of the fruit production sector in O'Higgins Region, Chile, we focused specifically on the communes of San Vicente de Tagua Tagua, Marchigüe, and Pichidegua. These communes were visited by Patricia Daniela Retamal five times between 2020 and 2023. The region is located 300 kilometers south of the capital, Santiago de Chile. The data and interviews were conducted by Retamal as part of FONDECYT 1210331 "Extractive citizenships? Citizen practices in extractive territories." This involved 26 individual interviews, participant observation, and group interviews with women working in the sector. The interviewees included employers, public administration workers, union leaders, self-employed women, salaried women, and subcontracted women.

Table 2: Summary of Interviews Conducted in the O'Higgins Region Case Study (2021 and 2023)

Type of Interviewee	Location	Number of Interviews
Upper management of fruit company	Marchigüe	3
Union leaders	San Vicente de Tagua Tagua	3
Public administration workers	San Vicente de Tagua Tagua, Marchigüe	6
Self-employed women	San Vicente de Tagua Tagua, Pailino, Pichidegua, Marchigüe	9
Salaried women	Marchigüe	3
Subcontracted women	Marchigüe	2
Total		26

The interview material from both field visits is supplemented by process-generated data on economic and pandemic development, as well as scientific papers. The 2020 Hivos study is particularly valuable in considering the impact of countermeasures at worker level in Nakuru County.

The data examined in the following sections illustrates the institutional responses of the state, firms, and public-benefit organizations in mitigating and averting the stagnation phase influenced by COVID-19 in Nakuru County, Kenya and O'Higgins Region, Chile. We first examine each case individually. The data provides insights into how various institutions in both agricultural sectors responded to and attempted to mitigate and avert the stagnation phase. Next, we compare the institutional measures taken and their impact on labor-power availability in both sectors.³

Nakuru County's Cut Flower Sector Following COVID-19

To investigate the impact on labor-power availability in the agricultural sector of institutional measures aimed at mitigating the stagnation phase influenced by COVID-19, we first focus on the cut flower sector in Nakuru County, Kenya. The region is one of the major production areas for Kenyan cut flowers, a product which is entirely destined for export. Because of this, the Kenyan cut flower industry was hit hard by the collapse of the transport and market infrastructure during the first wave of COVID-19. This was particularly dramatic as the onset of the stagnation period coincided with the peak selling season between March and May 2020. Below, we examine the measures taken by state actors, cut flower producers, and non-state actors to counteract the stagnation phase influenced by COVID-19 in order to determine their impact on the availability of labor-power in the cut flower industry in Nakuru County.

After the first confirmed case of COVID-19 in Kenya on March 12, 2020, the national government announced initial measures. These were aimed at containing the pandemic and protecting public health (Ministry of Health 2020; Ouma 2021). In a global comparison, Kenya was less affected by the pandemic itself, with just under 350,000 confirmed cases of COVID-19 (as of February 2023). Confirmed deaths from COVID-19 were also low by global standards (Our World in Data 2024d). Nevertheless, the institutional measures taken to contain the pandemic and avert the stagnation period impacted the country's labor-power and its availability. This was indicated by the fieldwork conducted in March 2022 and confirmed by the COVID-19 Google Mobility Trend (Our World in Data 2022).

Export data shows that cut flower exports from Kenya declined from March to June 2020. Prior to the COVID-19 pandemic, Kenyan cut flowers were mainly transported as additional cargo on passenger flights. Consequently, when all passenger flights were canceled due to the COVID-19 pandemic in March 2020, the cut flowers could no longer be exported. In addition, the Dutch auction where about 40 percent of global cut flowers are sold was closed (Fredenburgh 2020).

³ Unless otherwise indicated, all of the following statements in this paper refer to the interviews and field data collected by the authors themselves.

Furthermore, as in many other countries, the Kenyan government-imposed restrictions on the movement of the population. As a result, cut flowers could no longer be transported from the production sites to the airport—another obstacle for the Kenyan cut flower industry. According to interviewees, as well as the literature review, the entire export and sales market for cut flowers collapsed in March 2020 in the wake of COVID-19.

The measures taken by Kenyan state actors must be divided into those aimed at preventing the spread of the pandemic and those intended to prevent economic stagnation. To protect the health of its citizens, in March 2020 the Kenyan government decided to close schools and workplaces, cancel public events, restrict public gatherings (to a maximum of 10 people), impose lockdowns, and require face coverings. It also imposed restrictions on internal movement and introduced international travel controls. The Kenyan government took several measures to improve the economic situation of the country's cut flower industry and thus counteract the stagnation period influenced by COVID-19. For example, Kenyan Airways passenger planes were converted into cargo planes to transport cut flowers after all passenger flights were grounded. In addition, truck drivers were given passes to transport flowers to the airport to circumvent travel restrictions preventing them from leaving their regions. Corporate taxes were also reduced.

Productive firms in Nakuru County's cut flower industry reacted by reducing production at the end of March 2020, after the cancellation of passenger flights made exports impossible. At the end of June 2020, production was increased again thanks to the conversion of passenger aircraft to cargo planes, as well as high demand on the world market. All interviewees agree that the pandemic itself had only a short-term impact on the industry. However, the collapse of logistics also had an impact on those working in the industry:

It has affected things negatively. The impact has been huge.... A number of employees lost their jobs.... When the first case of COVID in Kenya in March 2020 came up, people reacted with fear.... So they decided to close their farms, slash the flowers, prune them back, send all the employees back home. But two weeks after those first cases, the flower orders were coming back. (CEO and Assistant Manager for PR at employer's association 2022)

Cut flower producers in Nakuru County reacted in very different ways to the disrupted logistics. Some of the interviewees continued to produce but reduced their volume, while others stopped production altogether, which in turn affected employment relationships. Reduced hours and a shift system were introduced on most farms both to avoid contact (pandemic containment) and because fewer workers were needed. These measures and the conditions were negotiated between the employers' association and the trade unions. In interviews, they reported agreements between management and workers to introduce a shift system during the first wave of the pandemic:

The COVID pandemic was a challenge to everyone here. We started out well. Despite not exporting...everybody got their salary. We retained all our staff in March and April. When we got to May...it was terrible. We were not selling, and we negotiated with the union, and we came to an agreement that we could make them work part-time. So, half of their workforce would work for two weeks in a month and [the other half] would take two weeks unpaid leave. That's how [we

rotated]. So, at any one point [we were paying] half salary. That's what the company could afford. That happened for three months: May, June and July. By August, things were picking up and everybody was back to work. So we didn't lay anybody off. (Management Flower Farm 2022)

Contrary to the statements of the farm managers, however, both the interviewed union representatives and the international development organization Hivos (2020c) reported a massive wave of layoffs of temporary and seasonal workers in Nakuru County's cut flower industry. This leads us to conclude that the farm management's statements referred only to permanent workers. With regard to permanent workers, the same Hivos (2020b: 6) report states: "Layoffs, salary cuts and unpaid leave were effected in contravention of labor laws—with neither notice nor consultation." In addition to the shift system, cut flower growers in Nakuru County took other measures to contain the pandemic in cooperation with governmental and public-benefit institutions. These included protective masks, disinfectants, and taking workers' temperatures before work. During the period when the industry was most affected by COVID-19 (March to June 2020), neither tests nor vaccines were available. Few measures were taken in response to the stagnation phase, apart from cutting personnel costs. The overall opinion of the farm managers interviewed was that they had to maintain contact with the auction in the Netherlands, direct purchasers, and logistics companies.

Several public-benefit organizations are active in Nakuru County's cut flower industry. These institutions responded in various ways to the COVID-19 outbreak. For example, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, together with Fairtrade, provided hygiene materials such as masks and disinfectants to the farms (from field observations and interviews). According to our own survey, the majority of the cut flower farms in Nakuru County are Fairtrade certified and thus participate in the Fairtrade Premium program. These premiums were used to compensate 100 percent of workers' wages and provide them with meals and food parcels when reduced hours were introduced and workers were laid off at the start of the stagnation phase: "Fairtrade also relaxed their standard to allow us to use the premiums to take care of employees.... We were supporting the payroll" (Management Flower Farm 2022).

For example, the union representatives interviewed stated that some companies were only able to survive the first wave of COVID-19 by reducing their paid workforce and redirecting their premiums. Other foreign public-benefit organizations, trade unions, and some employers also provided financial support for the provision of food to cut flower farm workers, through food vouchers or meals. For their part, the unions also took measures to secure workers' jobs during the stagnation phase influenced by COVID-19 and to prepare for subsequent stagnation phases. They entered into negotiations with employers, as well as with various government actors:

[W]e handled it to the bitter end. Because we worked together with the government through the Ministry of Labor and with employers through their umbrella body [AEA] [to minimize] adverse consequences to jobs...and workers. (Union Representatives 2022)

The union itself described its overarching goal in mitigating the stagnation phase influenced by COVID-19 as ensuring that workers' jobs were secure and that they had enough food for themselves and their families.

What was the impact of the intuitional measures described above on labor-power availability in the cut flower sector in Nakuru County? Empirical data and economic indicators show that the stagnation phase had a direct impact on workers in the cut flower industry for about three months. At the end of June 2020, exports, and therefore production, began to rise again, surpassing previous years' levels. Apart from health protection measures to contain the pandemic, no other measures were identified during the on-site visit in March and April 2022. However, between March and July 2020, a number of measures were taken by the institutions named above that affected the availability of labor-power in the region. Although the influence of COVID-19 on Nakuru County's cut flower industry was short-term, it had a dramatic impact on the workers. Health and containment measures for COVID-19 meant there were fewer workers on farms. This was due to workplace and travel regulations imposed by the government and implemented by the cut flower farms. Together with the suspension of export air traffic, this resulted in layoffs and reduced working hours. The containment measures led to a shortage of labor-power in the factories. Due to state restrictions, fewer people were allowed on the premises and on shuttle buses. However, this allowed companies to reduce the financial burden of labor and thus reduce their operating costs. Interview data also suggests that some companies were only able to survive the stagnation phase because of these measures and financial support from non-governmental institutions such as Fairtrade. In the third week of March 2020 alone, more than 30,000 temporary workers across the Kenyan cut flower sector were laid off and another 40,000 permanent workers were sent home on annual leave (Hivos 2020c).

Food was the main issue raised by workers and public-benefit organizations in interviews. In addition to loss of earnings resulting from layoffs and reduced working hours, there was concern about food shortages due to the closure of company and school cafeterias. The non-state actors and welfare committee interviewed stated that the lack of school meals for children due to the closure of schools was a major challenge for workers. When asked in one of the interviews, "Would you say that these donations were effective for everyone?" a union representative replied, "No, food will never be enough. But most of the employees called that support, but it was not enough.... There is never enough food for people who [are hungry]" (Union Representatives 2022). Their self-stated goal was therefore:

Yeah, we thought of that [shift-]system just because, [...] at the end of the month at least everybody ha[d] something to eat. (Union Representatives 2022)

Studies of the general situation in Kenya during the stagnation phase influenced by COVID-19 suggest that employees on the cut flower farms of Nakuru County "reduced their food consumption, relied on their savings, reduced non-food consumption and acquired more credit" (Ouma 2021: 4).

Uncertainty about the future contributed to the burden on employees. Until July 2020, it was not possible to predict the further development and effects of the stagnation phase and the measures taken. According to the union representatives and public-benefit organizations interviewed, the wages of workers on Nakuru County cut flower farms are sufficient to cover daily expenses. However, they are not sufficient to build a financial buffer for upcoming stagnation phases, including layoffs and reduced-hour schemes.

The impact on the reproduction of labor-power in households, and thus on the availability of labor-power, becomes particularly clear when gender is considered. Temporary and seasonal workers in this sector are mostly men. They perform heavy physical labor, such as building new greenhouses and operating large machinery. These activities are not required on the farms on a permanent basis. Due to the gendered division of labor on cut flower farms, women were most affected and had to shoulder the burden of being the breadwinners (often single parents) for their households (Hivos 2020c). Depending on the management's response, workers quickly returned to work. The predominantly female workforce was particularly affected by the COVID-19 pandemic mitigation measures we studied. They had lower household income due to working reduced hours, and they also bore the brunt of care work, even in cases where there was a man living in the household who would have been available for these activities due to unemployment (Hivos 2020b). Additionally, the care and education of children by public institutions was no longer guaranteed (schools closed in Kenya until January 4, 2021) (Were and Ngoka 2022). This was exacerbated by uncertainty around the pandemic and the health consequences for women and their families:

Women workers entirely rely on their meagre earnings from the farms. [T]he disruptions [to] their jobs have [therefore] sabotaged their livelihoods and well-being [and] intensified unpaid care work for women workers who have lost their jobs. This is further compounded by homeschooling obligations following the closure of schools and higher learning institutions. (Hivos 2020b: 6)

This statement is also supported by our field data. Women workers in Nakuru County's cut flower industry provide the majority of household income, regardless of COVID-19 and whether they are single parents or not.

Despite all the consequences of the stagnation phase influenced by COVID-19, the workforce (whether laid off or working reduced hours) remained in Nakuru County and the cut flower industry. The reasons for this were the lack of alternatives for workers due to the general economic and pandemic situation during the stagnation phase and the support measures provided by employers and public-benefit organizations (part-time schemes, wage continuation, financial and food support). These support measures enabled workers to secure their livelihoods and feed their families despite adverse circumstances. This in turn ensured the reproduction and availability of labor-power in the cut flower industry of Nakuru County. All the measures taken to support the workers allowed them to remain in their place of work and support their families. Their jobs were secured by government measures (rebuilding transportation capacity, reducing corporate taxes) by reducing costs for their employers. There were no large numbers of unemployed permanent

workers. Apart from government announcements of support programs for workers and the unemployed, there was no mention in any of the interviews of monetary support for workers from state actors. The support measures for workers meant that labor-power was available as soon as production resumed or increased.

The Pandemic's Influence on the Fruit Industry of O'Higgins Region

The fruit production sector in O'Higgins Region, Chile, is largely for export. The export orientation of this sector makes it particularly vulnerable to border closures, many of which were implemented worldwide at the beginning of the stagnation phase influenced by COVID-19. We examine the measures adopted by state actors, fruit producers, and public-benefit organizations to counteract the stagnation phase. The aim is to investigate the impact of these measures on the availability of labor-power in fresh fruit production in O'Higgins Region.

With over five million confirmed cases of COVID-19 (as of March 2023), Chile was at a similar level to other countries in South America, as well as the United States, Australia, and Russia. There were 64,000 confirmed COVID-19-related deaths (as of March 2023), which is relatively high relative to the population size, on par with the United States or Italy (Our World in Data 2024c). As of March 2023, approximately 90 percent of the Chilean population had been vaccinated against COVID-19 according to the international vaccination protocol (Our World in Data 2024b). The first case of COVID-19 in Chile was reported on March 3, 2020 (Reuters 2020). At that time, the country was in the midst of a political and social crisis, which had generated the largest mobilizations of people since October 18, 2019. The main demand was structural reforms to reduce economic gaps (Antognini and Paz Trebilcock 2021), along with a call for a new constitution. The pandemic began amid this crisis, and the government issued a health alert together with an economic emergency plan. The institutional measures taken served both to contain the pandemic and to mitigate and avert the stagnation phase affected by COVID-19. These measures included border closures, statewide school closures between March 2020 and July 2021, workplace closures in some sectors beginning in April 2020, and stay-at-home restrictions from late March 2020 through October 2021 (Our World in Data 2024a).

According to the data on exports for the first nine months of 2020, the total volume of fruit exports amounted to 2.84 million tons. This volume was 5 percent lower and their value was 10 percent lower than the same period in 2019. In 2021, the figures increased, suggesting a recovery for fresh fruit exports. Cherries and grapes were the leading fresh fruit exports, with shipments of USD 1,807 million and USD 917 million, respectively, representing a 7.1 percent increase (Banco Central Chile 2022).

The institution of Chilean state actors took several actions in response to the stagnation phase, starting when the Chilean government imposed widespread border closures to contain the pandemic. As a result, many migrant workers from neighboring countries were unable to officially enter the country. In addition to the above-mentioned measures, such as school closures and restrictions on staying at home, specific measures were taken that affected the fruit production

industry in O'Higgins Region. In response to the stagnation phase, the Chilean government took steps to provide financial protection for its population. These included both the Employment Protection Law and the Emergency Family Income Act. The Employment Protection Law (Law 21,227 of April 6, 2020) allowed employers to pay unemployment insurance to the employees who stopped working because of the pandemic. This law was criticized since it constituted an individual loan more than a social protection policy (Antognini and Paz Trebilcock 2021). Moreover, the Emergency Family Income Act (IFE) was implemented for self-employed people. This measure ensured a monthly income to the head of household registered in the social registry of households⁴. In May 2021, the Chilean government announced that IFE payments would be 100,000 pesos (USD 102) per household member. These payments were intended to allow as much of the population as possible to stay above the poverty line for monthly expenses (about USD 250) (Cambero 2021). As of July 2021, 14 of these payments had been made, so each beneficiary household received an average of USD 1,813 (Caro and Toro Huerta 2021). In addition to the above measures to mitigate the stagnation phase, further relief measures were taken to support economically vulnerable households, including the option to withdraw up to 10 percent of savings for individual pensions, or a maximum of USD 5,733 (Caro and Toro Huerta 2021). Direct support to households for basic food supplies complemented the financial interventions.

At the beginning of the pandemic, the Chilean government issued a decree declaring agriculture an essential activity, thus granting workers in the agriculture sector freedom of movement. In addition, practices were developed to prevent the spread of COVID-19 on farms, and criteria were established for hygiene and monitoring worker health (Asociación de Exportadores de Frutas de Chile A.G. 2021). Moreover, the government introduced measures to support the continued operation of the supply chain, which consisted of streamlining procedures and ensuring functions for export (Biblioteca del Congreso Nacional de Chile 2021).

Due to the measures implemented by Chilean state actors to contain and avert the stagnation phase, there were no major restrictions on agricultural production in the country. For this reason, production was not significantly affected by restrictions relating to the health alert (Jensen 2021). The institutional response of fruit producers in O'Higgins Region was to continue production, strictly following the health guidelines. The industry was mainly affected by transportation and tariff restrictions imposed by importing countries, such as China. Chilean cherry production, for example, reported a drop in export volume but growth in terms of value. 88 percent of Chilean cherries are exported to China, where testing for COVID-19 and plant viruses were required, making the export process more expensive. A general shortage of shipping containers exacerbated these export difficulties. The industry addressed this challenge together with the ministry of finance by using special ships that shortened the transport time to China from 30 to 23 days to meet the agreed deadlines (Reyes G. 2022). In contrast, Chilean table grape production dropped by 23.7 percent (Servicio nacional de aduanas 2020). Nonetheless, interviews indicate that the losses did result in production being stopped:

⁴A registry that helps to select and deliver benefits to those who meet the requirements.

In our case, we continued working with all the health requirements. We were constantly visited by the inspectors. As we are one of the top five exporters in Chile, the doors did not close.... What we could not control was the increase in the price of exports, which resulted in an increase in the cost of the product, and therefore our consumers were affected. (Grape Exporter 2022, authors' translation)

As mentioned above, the state imposed health measures on fruit producers to curb the stagnation phase influenced by COVID-19:

We changed the whole work process. In the past, we used to work in teams. Now, everyone was separated by a minimum distance of two meters, which gave us very good results. Everyone learned from everything. The health authorities were very strict. (Grape Industry Entrepreneur 2023, authors' translation)

Despite what the managers claimed, the women workers interviewed reported that they were forced to continue working, at times without the necessary health, safety, and hygiene equipment (La Asociación Nacional de Mujeres Rurales e Indígenas 2020). This was particularly the case for harvest workers who did not have a fixed-term contract and were dependent on a subcontractor outside the company where they were employed. In this type of labor contract, a contractor sets the salary and transports the workers to the harvest area. The subcontracted workers interviewed reported long working hours, low pay, and uncertainty due to the lack of health insurance. According to the interviews, the health measures implemented to contain the stagnation phase depended on the type of contract the workers had. If they were permanent workers hired directly by the companies, they had more protective equipment since the companies were supervised by governmental institutions. If they were subcontracted workers, there was no monitoring or basic protective equipment. There were no layoffs to mitigate or avert the stagnation phase. Instead, companies were faced with a labor-power shortage. There was a lack of migrant workers from neighboring countries due to border closures, while subcontracted workers also withdrew from the labor market.

The main public-benefit organizations in O'Higgins Region are the *juntas de vecinos* (neighborhood committees). They are key actors in Chile that enable social interventions among people living in neighboring areas. In response to the stagnation phase influenced by COVID-19, the presidents of the neighborhood committees organized various campaigns to help coordinate the support provided by the municipalities and agricultural companies. This support consisted of food boxes for all the families in the area. In addition, the committees pooled economic resources to directly support those in need and organized the provision of food to the sick, popularly known in Latin America as *Ollas Comunes* (equivalent to soup kitchens in the United States). Although unionization is very difficult in the fruit production sector,⁵ there were unions that took actions to

⁵ The main difficulty is that workers are aware that union membership in these areas can backfire. For example, they may be fired and not hired by another company. As a result, there is a disincentive to form a union. This was highlighted by one of the businesspeople interviewed: "If you like it, good for you; if not, you can leave. There are no unions here" (Grape Industry Entrepreneur 2023, authors' translation).

mitigate the stagnation phase. The few unions that exist coordinated aid with companies to help sick workers during this period:

Following calls from our union, the company began to visit the sick. This continued after the pandemic, but did not happen before. Now a person who is sick is visited at home. [...] That is a positive development. (Vice-President of Agro Industry Union 2020, authors' translation)

We will now summarize the discussion on the measures implemented by different institutions to counter the stagnation phase influenced by COVID-19 and outline the impact on the availability of labor-power in the fruit production sector of O'Higgins Region.

According to the interviewees, the decisive measure in averting the stagnation phase in fruit production was the designation of agricultural production as a priority for national security. As a result, neither production nor exports were stopped, and only the production volume had to be reduced. Between September 1, 2019, and April 26, 2020, 1,726,883 tons of fresh fruit were exported from Chile (Asociación de Exportadores de Frutas de Chile A.G.), approximately 8.02 percent less than during the same period in the 2017–2018 season (COAGRA 2020). This comparatively small decrease during the stagnation phase was explained in an interview:

Agricultural work continued because the peak of the pandemic was in winter when there is not much agricultural activity.... Without the pandemic, people who work seasonally would have been unemployed at that time. (Worker of the Municipality 2020, authors' translation)

Thanks to minor reductions in production volumes during the off-season, the fruit farms in O'Higgins Region did not reduce worker numbers:

On the contrary, there were people working on the farms. The vans were not just bringing 2 or 3 people during the pandemic; they were full.... There was no lack of people. There was no lack of work unless they did not want to come out of fear, but that did not stop many. (Worker 2020, authors' translation)

However, in O'Higgins Region, measures to mitigate the stagnation phase resulted in a labor-power shortage, especially during harvest time. When there is labor-power shortage, producers run the risk of a crop failure. The availability of labor-power was affected by several factors: worker illness due to physical exertion, poor treatment, or poor pay, as well as the implementation of quarantines and health restrictions that made movement and travel difficult (Jensen 2021). Although regular and permanent workers continued working, temporary and external workers were frequently needed and could not be found. A wave of layoffs and reduced-hour work was therefore not necessary. Interviews indicate that there was a decrease in available labor-power for two recurring reasons. Firstly, the sector's population had aged and some could therefore no longer perform this type of work. The second reason related to one of the measures implemented by Chilean state actors: those who were able to work but did not have a contract were able to access the IFE payment. This was the case for the irregularly employed subcontracted workers. Multiple

interviewees suggested a link between the decline in available subcontracted labor and the IFE grant:

What did the people who received the IFE stopped working do? Explain that to me! They did nothing.... At least my workers did not stop working. Nobody asked me to fire them to receive the IFE. (Grape Industry Entrepreneur 2023, authors' translation)

A union leader interviewed made the connection between the poor working conditions of subcontracted workers and their ability to quit because of the IFE:

I don't know what happened, but the IFE and the economic benefits started, and people adopted an attitude that I found disappointing. They think: "I don't work, and I live with that." This negatively affects the people who do work because they have to do the work of those who do not, and the company pays the same. [...] I say "hire more people." But people stay for a day, a week, a month, and leave and they don't like the treatment, the conditions, the money. What are we going to do? [...] If [the workers] want, I will take action. If [the workers] protest, I don't want to put my job at risk to take charge of you. But if you want to do it and organize in a massive group, do it, because we have already let the company know in many ways and they have not understood. (Subcontracted Worker 2020, authors' translation)

In summary, the causes of the labor-power shortage go beyond the introduction of the IFE as a measure to counter the stagnation period. Nevertheless, a connection can be seen in the interview data collected in that the IFE provided an alternative for subcontracted workers. During the same period, border closures also prevented the official entry of migrant workers from neighboring countries, resulting in both shortages and illegal entry. These workers were observed visiting local churches or seeking help at the town hall for clothing, food, support for their children, and information on how to legalize their entry into the country. This became a problem because the conditions for temporary work are complex and the situation is even more disadvantageous for undocumented migrants. Due to the stagnation phase, workers in the fruit sector faced significant financial and health insecurity, in part due to the closure of work opportunities in other sectors and the loss of employment. At the same time, self-employed people in the fruit production industry also experienced a decrease in income because they could not go to work due to health restrictions. The IFE payments from Chilean state actors provided considerable relief to the respondents. At the same time, however, they had other consequences including higher inflation in the country since there was more money circulating in the national economy. This, in turn, had a negative impact on the purchasing power and financial security of working-class households. The uncertainty caused by the lack of health insurance for subcontracted workers created a great deal of anxiety among workers in this sector since the only way to prevent infection was through individual action. This feeling of insecurity persisted despite the mass vaccination campaign that began in March 2021.

The interviewees agreed that temporary work performed by subcontractors was extensively used by employers, and it was poorly paid. In addition, the work, which consists of tree pruning, fruit picking, cleaning, and packing, was largely carried out by women (Valdes 2020). As noted

above, many of the subcontracted workers in the fruit production industry of O'Higgins Region are female. As in other parts of the world, they are also the ones who do most of the housework and care work, even in cases where they are employed. Based on 2017 CENSOS figures, 97 percent of female respondents and about 2.5 percent of male respondents in O'Higgins Region reported that they take care of housework (Instituto Nacional de Estadística Chile 2018). These numbers show that women are crucial in the reproduction of labor-power within households. Due to the pandemic, their responsibility for the health of the family increased alongside additional work caused by school closures, a lack of school meals, home schooling, etc. In addition, during the stagnation period, the financial situation of women changed due to their gendered employment. In contrast to Kenya, the IFE payments allowed women to abandon subcontracted work with poor working conditions and pay⁶ and devote more time to the work required at home and their own health.

In conclusion, subcontracted workers were less willing to work for fruit producers during the stagnation phase influenced by COVID-19 due to the measures imposed by Chilean state actors, the general working conditions that existed even before the pandemic, and the unequal treatment of workers in the distribution of financial relief during this period. The actions of the economic and political institutions led to a discernible shortage of available labor-power in the fruit production sector of O'Higgins Region.

Comparing and Analyzing the Availability of Labor-Power

We will now compare the case studies and possible causes for differences in the availability of labor-power in the cut flower sector of Nakuru County and the fruit production sector of O'Higgins Region.

Both the fruit production industry in O'Higgins Region and the cut flower industry in Nakuru County were affected by export difficulties during the stagnation phase influenced by COVID-19 as a result of border closures, flight bans, and import regulations imposed in response to the pandemic. In both cases, countermeasures were taken by state actors and firms to mitigate the effects. In Kenya, these included converting passenger aircraft into cargo planes, while special ships were used in Chile. Measures to contain the COVID-19 pandemic were imposed by state actors and implemented by firms in both cases. In O'Higgins County, these measures depended on the employment status of the workers, which meant that subcontracted workers were less protected from infection than permanent employees. This unequal treatment was not observed in Nakuru County. In O'Higgins Region, it led to a deterioration in the working conditions of the subcontracted workers, which contributed to the decision of some workers to leave their work.

⁶ The female workers interviewed pointed out that the work activities cause back pain, skin problems due to insecticides, and even malformations in fetuses. They are also exposed to high temperatures during the summer. The women said that after completing eight hours of work, they must return to their homes to do all the domestic and care work. When asked if they receive help, their answers were similar: They do most of the work since they are either single mothers or their husbands do similar work but do not feel responsible for housework.

Due to border closures, there was a labor-power shortage in the fruit production sector in O'Higgins Region, compounded by the lack of migrant workers.

One of the major differences between the case studies is that there were no layoffs in O'Higgins Region justified by the stagnation phase. In Nakuru County, on the other hand, the transportation-related slump in exports led to a reduction in cut flower production resulting in reduced hours, shift work, and layoffs of seasonal and temporary workers. In both cases, the employees faced major health and financial uncertainties. In O'Higgins Region, presumably due to the magnitude of the pandemic in the region and the country as a whole, workers mainly focused on their health (avoiding infection) and the financial situation of their households. With low infection rates in Nakuru County, however, the most pressing issues were financial security and food availability. The latter was supported by state actors, firms, and non-state actors in both O'Higgins Region and Nakuru County.

The measures taken to provide financial security to workers during the stagnation period had a significant influence on the availability of labor-power. While in Nakuru County a large proportion of the workers in the cut flower sector were retained thanks to reduced hours and shift work on farms, as well as wage compensation through international non-state actors, the Chilean government's wage replacement allowance (IFE) enabled unemployed workers to secure a large proportion of their own and their households' livelihoods. It is important to underline that these measures primarily affected women workers, as these are the regular workers in Nakuru County and the irregular workers in O'Higgins Region. As a result, these women workers in Nakuru County's cut flower industry were dependent on their employers, while women workers in O'Higgins Region's fruit industry were able to become self-reliant. In general, we can say that the state actors were more proactive in mitigating the stagnation phase influenced by COVID-19 in O'Higgins Region by providing financial support to the workforce than state actors in Nakuru County. In Nakuru County, more measures were taken by firms, who "cared for" the workers together with international non-state actors. To summarize, the state provided financial protection mainly to irregular workers in the O'Higgins region, allowing them freedom of choice during the stagnation period. This measure has had a long-term effect on the availability of labor-power in the sector. In Nakuru County, companies and public-benefit organizations helped sustain the livelihoods of workers in the region's cut flower industry by implementing shift work and compensating them for lost wages. Although the duration of this support varied from company to company, it was short-lived, and the sector eventually returned to its previous state.

According to the feminist approach to commodity chain research (Barrientos and Dolan 2003; Collins 2014; Nakazibwe and Pelupessy 2014), institutional measures have additional effects on labor-power availability. An important aspect of this approach is the consideration of all components within the chains. These include labor-power and households in contrast to, for instance Gereffi and Korzeniewicz (1994), in which labor-power is reproduced in the Marxian sense. From a gender perspective, and thus taking into account the gendered division of labor in the sectors and regions considered, the women workforce felt an additional burden during the stagnation phase influenced by COVID-19 and the measures taken to counteract it. However, this

was caused by different factors in the cases studied. In the cut flower industry in Nakuru County, women are usually the main breadwinners in their households, but this was even more the case during the stagnation phase. This is partly because they are often single parents and partly because, unlike their male counterparts, they often have permanent employment contracts. In O'Higgins Region on the other hand, women are often employed by subcontractors (irregular, seasonal) and thus do not have the same level of protection as men (health insurance, labor laws, pandemic containment). Despite the differences in financial responsibility, the case studies are similar regarding domestic work, which is primarily carried out by women, regardless of whether or not there is a man living in the household. The pandemic containment measures taken by government institutions in both cases—in particular the prolonged closure of schools—increased the workload of women due to the increased need for care and support of dependent children. Consequently, the institutional measures to mitigate the stagnation period combined with the financial situation of women workers and their workloads led them, in O'Higgins Region, to devote themselves entirely to care work and thus withdraw from the labor market. Finally, the availability of labor-power is determined not only by women's own labor in firms but also by the work they do to reproduce labor-power in their households (Dunaway 2014b; Patel-Campillo 2023). In Nakuru County, women workers had to fulfill multiple roles and responsibilities. This did not initially affect the availability of labor-power in the sector under review. However, it likely had an impact on the workers themselves, because school closures, for instance, lasted significantly longer than reduced-hour work. It can be assumed that this had an effect on the well-being of women workers.

Overall, the measures taken in response to this stagnation phase in Nakuru County made it possible to keep workers in the region and in the industry. This was not the case in O'Higgins Region due to the interplay between the gendered division of labor (in households), gendered working conditions and employment relationships in factories, and government support measures. In conclusion, we can attribute the differences in labor-power availability between Nakuru County and O'Higgins Region to institutional responses to the stagnation phase influenced by COVID-19.

Conclusion

This paper examines the reasons for the labor-power shortage in the agriculture sector in O'Higgins Region, Chile during COVID-19, and why there was no such shortage in the same sector in Nakuru County, Kenya. To address this question, we have analyzed COVID-19 as influential for a stagnation phase in the Kondratieff cycle and examined possible causes for labor-power shortage in connection with countermeasures. Institutions in the modern world-system react to such stagnation phases with measures to mitigate and avert the mainly economic consequences, according to Immanuel Wallerstein. We have examined institutional responses to stagnation in each peripheral region, focusing on the export-oriented fruit production sector in O'Higgins Region and the export-oriented cut flower industry in Nakuru County. After describing the pandemic situation and the institutional responses of state, firm, and public-benefit organizations, as well as the impact of these responses on the availability of labor-power in each region, we

concluded with a comparative analysis. This analysis illustrated the extent to which institutional measures to avert periods of stagnation impacted labor-power and its availability in value-added production processes. This allowed us to identify the potential causes that could have led to labor-power shortages in the sectors under consideration. In summary, the impact of the stagnation phase in Nakuru County and O'Higgins Region varied in terms of the availability of labor-power due to the countermeasures implemented by institutions. Consistent with other feminist perspectives on global commodity chains, this work has demonstrated the relevance of gender in the study of global commodity chains. This applies both to the workplace, where gendered divisions of labor result in gender-specific employment relationships, and to the availability of labor-power through domestic reproduction. During the stagnation phase in O'Higgins Region, border closures led to a decrease in the number of seasonal and irregular workers. Additionally, the financial protection provided by IFE allowed women workers to prioritize their health and domestic reproductive work, potentially leading to a retraditionalization trend. The institution state introduced IFE and border closures to mitigate the stagnation phase, while it implemented pandemic protection measures based on employment status. However, these measures led to a labor-power shortage.

In the cut flower sector of Nakuru County, regular employees, mainly women, experienced a reduction in working hours and shift work. Public-benefit organizations provided partial compensation for the loss of earnings. Strong cooperation between companies and public-benefit organizations, such as NGOs and unions, led to workers being retained in the sector. However, there were no alternatives for workers in the region. Public-benefit organizations took measures to ensure food security for the workforce. It can be assumed in both cases that this is the result of inequalities along global commodity chains to the detriment of the producing end (unequal exchange). What is the impact on women workers? Both groups—the workers in fruit production in O'Higgins Region and the workers in cut flower production in Nakuru County—are affected by the dual burden of wage and reproductive work during a period of stagnation. The main difference can be observed in the financial dependence of women workers. In O'Higgins Region, government measures ensured that women workers were not dependent on gender-specific poor working conditions. In Nakuru County, women workers were already the primary breadwinners before the stagnation phase and continued to be so.

Our remarks give rise to further research questions concerning the availability of labor-power in agricultural commodity chains in the modern world-system. First, at the micro level, there is an emerging question around the impact on the well-being of women workers in the periphery due to the double burden of paid employment and care work in times of stagnation. Second, at the macro level, and considering the historical context: Why did the sectors, despite their similar position in the modern world-system, react so differently to the stagnation period influenced by COVID-19, resulting in different consequences in terms of the sector, region, and labor-power availability? Finally, it should be noted that in both Nakuru County and O'Higgins Region, the effects of other events were felt; such as the rising cost of production and living due to the Russian war in Ukraine or the social crisis in Chile, which pre-existed COVID-19. The long-term effects on the availability of labor-power of the stagnation period influenced by COVID-19 and the measures taken to

mitigate it should be monitored further: for example, the long-term impact of the local labor-power shortage in the fruit industry in O'Higgins Region and replacement by migrant workers. According to Immanuel Wallerstein's definition of a stagnation phase, the situation in the world-system after a stagnation is different than before; the interstate system and the positions of regions in the world-system change. A long-term development during this stagnation phase is the shift in logistics links, which currently favors technical commodity chains over those for agricultural products. The stagnation phase influenced by COVID-19 highlighted the importance of stable logistics for producers and workers, as well as the dependence on individual markets.

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