Capital and Unhealthy Diets

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Abstract

Unhealthy diets are responsible for many common non-communicable diseases and are one of the leading causes of health loss in developed capitalist countries. In this thesis, I bring together critiques of production and reproduction under capital to theorise unhealthy diets as a problem created by the capitalist mode of production. Drawing on my reading of Karl Marx alongside the contemporary Marxian scholarship of Patrick Murray and Massimiliano Tomba, I argue that ultra-processed foods have arisen from the real subsumption of food production under capital. Ultra-processed foods can be thought of as *capitalist* foods, a consequence of capital's drive towards maximising surplus value. Further, using the work of early social reproduction theorists including Leopoldina Fortunati and Silvia Federici, I conceptualise unhealthy diets as part of the reproduction of labour-power. I demonstrate that unhealthy diets are not only the consequence of capitalist food production but also the result of cheapening the reproduction of labour-power for workers in the capitalist mode of production. Understanding unhealthy diets as part of the dynamics of capitalist production and reproduction reframes possible solutions. I argue that we must remove food production and retail from the capitalist mode of production so that it is oriented towards need rather than profit. Addressing unhealthy diets as part of the reproduction of labour-power will also require a broader resistance to the capital-relation as such. This thesis offers a reorientation of public health approaches to unhealthy diets, demonstrating that opposition to capitalism is a crucial aspect of population health.

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Introduction

Non-communicable diseases are a major health issue in developed capitalist countries. Diseases such as ischaemic heart disease, type 2 diabetes and various cancers not only cause premature death but also subject millions of people to various forms of ill-health and disability every year. The burden of these diseases is not distributed equally across populations: people of low socioeconomic status are more likely to be diagnosed with non-communicable disease, experience multiple diseases concurrently and experience worse outcomes including death from those diseases.[1] Non-communicable diseases also disproportionately affect colonised peoples – in Aotearoa New Zealand Māori are more likely than non-Māori to be diagnosed with many of these conditions and die earlier as a result.[2] These patterns indicate that non-communicable disease is a social problem and addressing the causes of these diseases demands urgent attention.

The way we eat is a major contributor to our health and determines our risk for many non-communicable diseases. A large body of epidemiological research has demonstrated the links between diet and disease. Diets high in free sugars, salt, saturated fat, and low in fruit and vegetables as well as whole grains and protein have been linked to these non-communicable diseases.[3] In fact, prior to the COVID-19 pandemic it was estimated that unhealthy diets were the number one cause of health loss globally.[4] Ensuring that everyone has access to the components of a healthy diet is therefore a critical social problem.

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[1] Lago-Peñas et al., 'The Impact of Socioeconomic Position on Non-Communicable Diseases: What Do We Know About It?', 159-174.
[2] Grant et al., 'Nutrition and Indigenous Health in New Zealand', 480; Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[3] Swinburn et al., 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: *The Lancet* Commission Report', 791.
[4] Swinburn et al., 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: *The Lancet* Commission Report', 791.

There is a well-established body of evidence that defines a healthy diet. While nutrition experts continue to discover and debate some of the impacts of diet on health, the main pillars of healthy food consumption are quite widely agreed upon. In Aotearoa New Zealand these are summarised in the Ministry of Health Eating and Activity Guidelines, which recommend a diet high in fruit and vegetables, whole grains, and protein, and low in ultra-processed foods, fast food as well as foods with excess free sugars, sodium and saturated fat.[5] It is safe to say that high rates of non-communicable disease are not due to a lack of knowledge or research about what constitutes a healthy diet but rather a failure to translate that research into suitable food systems.

My interest in this health issue stems from several years of studying and working at the University's School of Population Health. During this time, I became curious about the causes of unhealthy diets, particularly because of their far-ranging impact on health. This curiosity was nurtured by the team of population nutrition researchers at the School, who carry out some the most globally influential research on unhealthy diets and non-communicable disease. Many of these researchers are concerned with questions of how our society and economy produce unhealthy diets and excess ultra-processed food consumption. The focus of their research and critique was shifting to the insidious role of transnational food and beverage corporations, questioning the ways in which profit motivated these companies and the consequences of that motivation for food consumption.

Yet after some time I began to feel dissatisfied with how the causes of unhealthy diets were conceptualised in the public health research I was involved in. While many researchers

[5] Ministry of Health, *Eating and Activity Guidelines for New Zealand Adults*, 8-10.

continue to emphasise the importance of addressing the structural causes of ill-health as opposed to the individual or behavioural ones, I found there was insufficient focus on the material conditions of populations and communities and how that affects diets. Despite some efforts to explain the activity of food corporations in terms of political economy, this research still lacked a broader conceptualisation of how unhealthy diets fit into the functioning of the economy as a whole. These inconsistencies also manifested in the solutions proposed by population health researchers, which, despite best efforts, still tended to emphasise individual eating behaviours and failed to question the existence of the profit-hungry food corporations they criticised.

Over time I have also observed some hostility from the general public towards population nutrition researchers and advocates. In particular, current research approaches are sometimes criticised for being condescending or paternalistic, ignorant of people's material conditions and lacking a holistic view of what makes a good, dignified life beyond the components of a healthy diet. The way we eat can be a fraught topic – many people feel sensitive about their diets and resist criticism coming from experts. Food and nutrition advice often descends from a problematic western diet culture, and the field of medicine also has a shamefully fatphobic culture. More broadly, food serves many pleasures beyond its nutritional value, and population health researchers have often neglected to consider its social and cultural importance in their analyses and recommendations. All of these issues contribute to a general distrust of interventions to address unhealthy diets.

Some of these issues arise from broader problems within the discipline of population health. Although many of the questions that the discipline asks and seeks to solve are sociological or economic, they are frequently approached as if they were clinical questions. It seems as

though researchers often feel tightly bound to narrowly defined research questions that allow for empirical studies to be carried out easily. Randomised control trials are held up as the highest form of evidence despite often abstracting from the broader societal context of the research question. Further, population health frequently fails to consider or engage with existing theory that could shed light on the causes of unhealthy diets. The consequence is that much of this research misses the forest for the trees and ultimately fails to resonate with people's lived realities.

In this thesis, I approach the issue of unhealthy diets with these considerations in mind. I have begun with the assumption that unhealthy diets are a material problem. This shifts the focus away from a critique of individual behaviour, instead investigating how behaviour is constrained by the material conditions that people find themselves in. I have also focused on contextualising the way we eat within what makes a good life more broadly. As such, this thesis emphasises what we can do to make healthy diets accessible to all without losing sight of the way that food serves many purposes beyond health.

The objective of this thesis is to investigate how the capitalist mode of production affects the healthiness of diets. In particular, I have attempted to understand unhealthy diets not only as problem arising from capitalist production, but also from the reproduction of labour-power within capital. To do this, I have first drawn on the work of Karl Marx, in particular his critique of the capitalist mode of production in volume one of *Capital*.

Since the end of the Cold War, capitalism has benefitted from a long period of respite from mainstream critique. Sociology scholarship largely shifted away from the work of Marx, and there was little explicit resistance to capital from the general public. Yet since the latest crisis

of capitalism in 2008 and fuelled by the subsequent emergence of the Occupy movement, critiques of capitalism have begun to re-emerge. This has coincided with work on the *Marx-Engels Gesamtausgabe*, which collates and publishes the complete works of Marx and Friedrich Engels. There has since been a renewed interest in reinterpreting, extending and applying Marx's work to understand how crises of capitalism manifest in contemporary society. As Musto writes, Marx is back in fashion.[6] In that sense, this thesis contributes to the growing body of scholarship that is using Marx's work to understand how capitalism functions today.

I have also drawn on the work of contemporary Marxian theorists such as Massimiliano Tomba and Patrick Murray. These theorists rigorously expand on Marx's theorising and help to translate Marx's work for a globalised capitalist world. In particular, I have used the work of Tomba and Murray to further understand Marx's concepts of absolute and relative surplus value and, relatedly, formal and real subsumption. This deeper investigation into capital's value orientation has enabled me to understand how capitalist food production has affected the healthiness of food commodities.

While capitalist food production presents one issue, this thesis also investigates food *consumption* in the context of the capitalist mode of production. Specifically, I address the role of food in the means of subsistence and therefore the reproduction of labour-power. To do so, I draw on early social reproduction analyses from theorists such as Leopoldina Fortunati and Silvia Federici to conceptualise food preparation and consumption as one part of the reproduction of the worker.

[6] Musto, 'Preface', xvii.

As Federici reminds us, social reproduction analyses are not new, nor are they inherently radical. Rather, the concept of social reproduction originated in the context of mainstream economics to describe the processes through which a social system reproduces itself.[7] Yet beginning in the 1970s, strands of anti-capitalist social reproduction theorising emerged. This work built on the gaps Marx left in his analysis of capital. In particular, early social reproduction theorists critiqued Marx's work for failing to consider the work that occurs outside of the workplace to reproduce labour-power. As they saw it, capital depended on this work that predominantly fell to women, yet housework and child-rearing was rarely conceptualised as part of workers' exploitation under capital. The work of these scholars coincided in the international Wages for Housework movement, which sought to reveal the contradictions in capitalism by demanding a wage for their housework.[8]

In this thesis I explain and develop these aspects of Marxian theory and early social reproduction analyses through applying them to the case of unhealthy diets. To do this, I have primarily drawn on evidence from Aotearoa New Zealand as a basis for my arguments. Where there is higher quality evidence from elsewhere, either from systematic reviews or due to a lack of similar data in Aotearoa New Zealand, I have used international research as well. However, many of the trends and associations I describe in this thesis are similar across high-income countries. As such, the theorising in this project is not limited to the case in Aotearoa New Zealand.

This thesis is structured in six chapters. The first chapter describes the empirical basis for the arguments, including the prevalence of non-communicable diseases in Aotearoa New

[7] Federici, 'Social Reproduction Theory: History, Issues and Present Challenges', 55.
[8] Federici and Jones, 'Counterplanning in the Crisis of Social Reproduction', 154.

Zealand and the relationship between food and health. In particular, I focus on the evidence for the harms caused by ultra-processed foods. I also draw links between unhealthy diets and food insecurity, demonstrating that what we eat is fundamentally a material problem. In the second chapter, I outline some of the foundational characteristics of the capitalist mode of production. Using Marx, I describe the way that capital is oriented towards surplus value and the resulting strategies of absolute and relative surplus value. In this chapter I also explore how cheap food is developed for the purpose of reducing the value of labour-power, so that workers can be paid lower wages. The third chapter uses the concept of real subsumption to critique capitalist food production. In this chapter, I draw on the work of both Murray and Tomba to demonstrate that ultra-processed foods have arisen as the result of real subsumption of food production under capital. As such, ultra-processed foods can be considered as specifically capitalist foods.

In the fourth chapter, I shift to a discussion of food as part of the reproduction of labour-power. Here I draw on early social reproduction analyses to understand how food is affected by the reproductive work that capital simultaneously ignores yet relies upon. This chapter also explores the links between food consumption and other aspects of the reproduction of labour-power. The fifth chapter then discusses the concept of difference within the capitalist mode of production. I use the work of Michael Lebowitz and Howard Botwinick to investigate both the diversity in capitalist food production methods as well as variation in the material conditions of the working class. Finally, in the sixth chapter I use the findings of this thesis to critique some of the dominant public health approaches to unhealthy diets. I then offer some potential avenues for addressing unhealthy diets, with a focus on Aotearoa New Zealand.

This thesis is predominantly a contribution to the population health literature that investigates the political economy of unhealthy diets. It is my hope that the arguments in this thesis can reframe the dominant population health approach to causes and solutions to unhealthy diets in developed countries. While this thesis builds on much of the existing population health research, it also offers critiques to current understandings of food systems. Importantly, this theoretical reorientation not only relocates the problem but also reframes potential solutions to unhealthy diets. In doing this, I hope that population health research can reconnect with broader social movements that connect struggles against capital. I believe this is our best chance at reducing ill-health and premature mortality caused by unhealthy diets.

Chapter One: Non-Communicable Disease, Unhealthy Diets and Ultra-Processed Foods

I begin with outlining the empirical basis for my analysis. In this chapter, I first describe why food is important to health, explaining the links between food and non-communicable disease and outlining the impact of non-communicable diseases on people in Aotearoa New Zealand. I then explore ultra-processed foods specifically – how they are defined and why they pose a risk to health – and describe the evidence for ultra-processed food consumption in Aotearoa New Zealand. Finally, I explore the relationship between unhealthy diets and food insecurity, demonstrating that food consumption is largely determined by a person's material conditions.

In summarising this evidence, I provide a grounding for the theoretical arguments in following chapters. It is crucial to establish what we already know about the problem of unhealthy diets and its causes so that we can understand where the theorising must take place. In the chapters following, I build on this evidence base using Marxian theory and social reproduction analyses to explore the ways in which the capitalist mode of production creates the problem of unhealthy diets.

Why is food important for health?

Non-communicable diseases are responsible the vast majority of health loss in Aotearoa New Zealand. These diseases (sometimes known as chronic diseases) are a group of illnesses and conditions that are not infectious and are often caused by aspects of a person's lifestyle, including smoking, food and alcohol consumption. Non-communicable diseases usually develop later in life and include ischaemic heart disease, stroke, cancers and type 2 diabetes.

Since 1990, the number of people both living with and dying from non-communicable diseases has increased dramatically.[9] While people in Aotearoa New Zealand are living longer on average, we are also spending more years in poor health, and many people are managing several chronic diseases at once.[10] As a result, these diseases demand urgent attention.

One of the key characteristics of non-communicable diseases is that most have modifiable risk factors that can be addressed to prevent the occurrence of the disease in the first place. The most recent Global Burden of Disease study estimates that one third of health loss in Aotearoa New Zealand is attributable to modifiable risk factors.[11] The chronic diseases leading to health loss all share a few causes in common, and therefore tackling these risks can keep a person in good health for longer. Not only that, addressing the prevention of chronic disease can also reduce the burden on the health system. As such, prevention remains one of the best tools to address people's health in Aotearoa New Zealand.

One of the most significant modifiable risk factors for chronic disease is the food we eat. Some of the most common chronic diseases causing significant health loss in Aotearoa New Zealand are directly linked to diet quality, including ischaemic heart disease, stroke, diabetes and certain cancers. The Global Burden of Disease study estimated that in Aotearoa New Zealand, direct dietary risks were the second leading cause of health loss in 2017, accounting for 8.6 per cent of total health loss.[12] An unhealthy diet can also cause a whole range of metabolic conditions that put a person at greater risk of chronic disease. For example, high body mass index accounts for 8.2 per cent of overall health loss in Aotearoa New Zealand

[9] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 7.
[10] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 14.
[11] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 10.
[12] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 64.

due to its causal relationship with cardiovascular diseases, cancers, diabetes and musculoskeletal conditions.[13] High systolic blood pressure accounts for 7.3 per cent of total health loss because of the risk it poses for developing cardiovascular conditions, and high fasting blood glucose (6.4 per cent of total health loss) is likely to increase a person's risk for developing diabetes and cardiovascular conditions.[14] Evidently the food that a person eats throughout their life is an important determinant for whether they will develop these chronic diseases.

Using quantitative data to outline such a population health issue can sometimes abstract from the realities of people impacted by these diseases. It is therefore important to contextualise this data. Thousands of families in Aotearoa New Zealand lose parents and grandparents younger than they should. Many children grow up without the presence of elders in their lives because of these diseases. Those living in low socioeconomic conditions are disproportionately impacted by these diseases and are more likely to die younger because of them.[15] Not only that, these non-communicable diseases are preventable with the right efforts. It is shameful for a society to accept such high rates of ill-health and premature mortality from diseases that we ultimately have control over. Unhealthy food consumption is therefore not an issue to be minimised or brushed off as the personal choice of individuals.

[13] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 64.
[14] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 64.
[15] Lago-Peñas et al., 'The Impact of Socioeconomic Position on Non-Communicable Diseases: What Do We Know About It?', 159-174.

What are ultra-processed foods?

A large proportion of these dietary risk factors can be attributed to the increasing prominence of ultra-processed foods in our diets. Ultra-processed foods are a unique category of foods arising from industrial food production. In population health research, the most commonly used system for classifying the processing of foods is the NOVA system, developed by Carlos Monteiro and colleagues.[16] The NOVA system groups all foods into four categories according to the nature, extent and purpose of their processing. Group one is unprocessed and minimally processed foods. 'Minimally processed' refers to natural foods altered by various processes, including drying, crushing, grinding, powdering, roasting, boiling, fermenting and pasteurising.[17] This category includes the edible parts of plants (fruit, leaves, stems, roots), animals (muscle, eggs, milk) as well as fungi, algae and water. Monteiro et al. note that 'in appropriate variety and combinations, all foods in this group are the basis for healthy diets'.[18]

Group two is processed culinary ingredients, which includes oils, butter, lard, sugar and salt. These foods are derived from foods in group one. Their defining feature is that they are rarely consumed by themselves – instead they are usually eaten in combination with other foods to make palatable meals. Group three includes processed foods, including canned vegetables or legumes, tinned fish, processed animal foods such as ham, freshly baked bread and cheese. In this case, processing increases the durability of group one foods or enhances their sensory qualities.

[16] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*.
[17] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*, 6.
[18] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*, 6.

Finally, group four is ultra-processed foods, which are formulations of ingredients typically created through industrial techniques and processes.[19] These processes usually involve several steps and different industries. Food substances are extracted from whole foods – usually a few high-yield plant foods such as corn, wheat, soya, cane or beet. These substances are subjected to some kind of chemical modification and are then assembled along with other food substances, colours, flavours, emulsifiers and other additives. The result is a product that is convenient, ready-to-eat and packaged, with a longer shelf life and an addictive nature. Examples of ultra-processed foods include snacks such as chips, lollies, mass-produced packaged breads and buns, cookies, packaged cakes and cake mixes, and ready-to-eat meals such as frozen pizza and instant noodles. Fast food meals are also frequently made up of ultra-processed products.

While these four categories may overlap for some foods, Monteiro et al. suggest that an ultra-processed food can easily be identified through checking the ingredients list, as almost all products will contain certain ingredients typical of ultra-processing. These include hydrolysed proteins, soya protein isolate, gluten, casein, whey protein, fructose, high-fructose corn syrup, maltodextrin and hydrogenated oil, among others.[20] For the most part, ingredients in ultra-processed foods are unrecognisable as ordinary foods and would not be consumed alone. In addition, it is important to note that almost all foods are processed to some extent, and therefore foods are not unhealthy merely by virtue of being processed. Groups one, two and three of the NOVA classification system are generally healthy for humans. Rather, it is a level of industrial processing that unites a large group of foods in their harmful effects on health.

[19] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*, 8.
[20] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System*, 10.

The impact of ultra-processed foods on health

The NOVA classification system was developed specifically to explain the impact that ultra-processed foods have on health. As Swinburn et al. note, 'although not all ultra-processed food products are bad for human health, almost all the foods that are linked to risks to health are included in the ultra-processed food category'.[21] There are three main ways that the consumption of ultra-processed foods affects health. The first is the individual nutritional profile of ultra-processed foods. The second is due to the way that ultra-processed foods often displace healthier foods in the diet, resulting in nutritional deficiencies. The third goes beyond the presence or absence of individual nutrients – a significant body of research has found that ultra-processed foods have harmful effects on health even when the nutrient profile is controlled for, indicating that there are aspects of industrial processing that are also detrimental to health. In the following paragraphs, I will explore these three pathways.

There are many harmful substances present in large quantities in ultra-processed foods, including added sugars, sodium, trans-fatty acids and saturated fatty acids. Added sugars differ from the sugar naturally present in minimally processed food such as fruit. While a banana contains some naturally occurring sugar, its effects are mitigated by the high fibre content and the other essential nutrients.[22] Conversely, when sugars are extracted from plant foods, refined and then added to ultra-processed foods, they are separated from the protective qualities of whole foods. Not only that, sugar is usually added to ultra-processed foods in

[21] Swinburn et al., 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: *The Lancet* Commission Report', 821.
[22] Ministry of Health, *Eating and Activity Guidelines for New Zealand Adults: Updated 2020*, 54.

much greater quantities than could be consumed via fruit, resulting in an overall increase in sugar intake. Added sugar has been linked to pancreatic cancer,[23] and consumption of sugar-sweetened beverages such as soft drinks and sports drinks is a risk factor for type 2 diabetes and coronary heart disease.[24] Moreover, a high intake of added sugars also contributes to increased body mass index, which is a metabolic risk factor for a range of chronic diseases.[25]

Similarly, ultra-processed foods tend to have a high quantity of sodium. This is added to savoury snacks and convenience foods such as chips, pies and instant noodles. Again, a small quantity of sodium in one's diet is healthy and brings out the flavour in minimally processed foods. Yet if a diet is predominantly made up of ultra-processed foods, it is likely that it includes too much sodium. A high sodium intake has been shown to increase a person's risk of developing cardiovascular disease.[26] Furthermore, high sodium intake also raises blood pressure,[27] which is a risk factor for cardiovascular diseases and has been linked to other chronic diseases such as cancers and diabetes.[28]

Trans-fatty acids and saturated fatty acids are also present in ultra-processed foods and tend to pose a problem when making up a high proportion of a person's diet. Trans-fatty acids occur naturally in small amounts in some animal products, but their presence in food is mostly due to industrial manufacturing processes such as hydrogenation.[29] Similarly, saturated fatty acids occur in animal products and some plants (such as coconut) but are

[23] World Cancer Research Fund, *Other Dietary Exposures and the Risk of Cancer*, 7.
[24] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[25] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[26] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[27] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[28] Ministry of Health, *Longer, Healthier Lives: New Zealand's Health 1990-2017*, 64.
[29] Ministry of Health, *Eating and Activity Guidelines for New Zealand Adults: Updated 2020*, 48.

common in higher quantities in ultra-processed foods.[30] Both types of fatty acids are linked to coronary heart disease,[31] and saturated fatty acids may also increase the risk of pancreatic cancer.[32]

Perhaps more importantly, if a person eats a lot of ultra-processed foods, it is likely that those products are displacing healthier foods in their diet.[33] As a result, essential nutrients are likely missing from that person's diet. Ultra-processed foods are by definition highly processed, which often involves removing parts of a food that are important for health. Such is the case for grains, where refining removes the germ, bran and part of the endosperm layer of the grain.[34] This process removes most of the fibre, oil, B vitamins and 25 per cent of the protein in the grain.[35] There is strong evidence that a diet high in whole grains decreases the risk of colorectal cancer, [36] cardiovascular disease, coronary heart disease and type 2 diabetes.[37] Minimally processed fruit and vegetables are also essential for health, lowering the risk of coronary heart disease, stroke,[38] and a whole range of cancers, including colorectal and breast cancers, among others.[39] Other minimally processed foods – beans and legumes, nuts and seeds, fish and other seafood, and yoghurt – all protect against coronary heart disease and type 2 diabetes.[40]

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[30] Moubarac et al., 'Consumption of Ultra-Processed Foods and Likely Impact on Human Health. Evidence from Canada', 2242.
[31] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11; Mozaffarian, Micha, and Wallace, 'Effects on Coronary Heart Disease of Increasing Polyunsaturated Fat in Place of Saturated Fat: A Systematic Review and Meta-Analysis of Randomized Controlled Trials', 1.
[32] World Cancer Research Fund, *Other Dietary Exposures and the Risk of Cancer*, 7.
[33] Monteiro et al., 'Ultra-Processed Foods: What They Are and How To Identify Them', 938.
[34] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 15.
[35] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 15.
[36] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 8.
[37] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 10.
[38] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 10.
[39] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 8.
[40] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 10.

Ultra-processed foods have also usually had most of their dietary fibre removed through processing.[41] Dietary fibre is present in most unrefined plant foods, including wholegrains such as brown rice, legumes, fruit, vegetables, nuts and seeds. There is strong evidence to suggest that dietary fibre decreases the risk of colorectal cancer,[42] cardiovascular disease, coronary heart disease, stroke and type 2 diabetes.[43] In addition, the refinement processes such as removing fibre can also increase the glycaemic load of a food substance. Glycaemic load refers to the extent to which a person's blood glucose and insulin levels spike after consuming a carbohydrate.[44] There is strong evidence that greater glycaemic load of the diet increases a person's risk of endometrial cancer,[45] coronary heart disease, stroke and type 2 diabetes.[46]

Yet the effect of ultra-processed foods on health extends beyond the mere nutrients contained within them. When nutrients such as added sugar, sodium, trans fats, and fibre are controlled for in epidemiological studies, consumption of ultra-processed foods is still associated with many chronic diseases.[47] This suggests that there is also something about industrial processing that changes the physical structure and chemical composition of food, contributing to the unhealthiness of these products. Baker et al. propose that this could be due to the contamination of foods with carcinogens during high heat cooking as well as the industrial food additives present in products, which have been linked to intestinal inflammation.[48] In

[41] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 5.
[42] World Cancer Research Fund, *Wholegrains, Vegetables and Fruit and the Risk of Cancer*, 8.
[43] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[44] World Cancer Research Fund, *Other Dietary Exposures and the Risk of Cancer*, 12.
[45] World Cancer Research Fund, *Other Dietary Exposures and the Risk of Cancer*, 6.
[46] Micha et al., 'Etiologic Effects and Optimal Intakes of Foods and Nutrients for Risk of Cardiovascular Diseases and Diabetes', 11.
[47] Elizabeth et al., 'Ultra-Processed Foods and Health Outcomes: A Narrative Review', 1980.
[48] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition', 2.

addition, ultra-processed foods are also less satiating than unprocessed and minimally processed foods.[49] This is compounded by their hyper-palatability and addictiveness, which may lead to overconsumption.[50] Consuming too much food can cause an excess of energy in the diet contributing to weight gain, but also excess intake of harmful nutrients in those foods. As can be seen, the harm of ultra-processed foods goes beyond their nutritional profile.

More broadly, there is considerable evidence demonstrating the close association between consumption of ultra-processed foods and rates of non-communicable disease. Diets with a higher proportion of ultra-processed foods are associated with higher risks of all-cause mortality, type 2 diabetes, cardiovascular disease, cancers, coronary artery disease, cerebrovascular disease, irritable bowel syndrome, asthma, frailty and depression.[51] In children, exposure to ultra-processed foods is associated with asthma, blood lipids and metabolic syndrome.[52] In short, there is a compelling evidence base to suggest that excess consumption of ultra-processed foods poses a major risk for non-communicable disease.

Availability of ultra-processed foods

The mere existence of ultra-processed foods would not necessarily pose a problem for population health. In fact, many of these foods consumed infrequently are unlikely to greatly affect health. However, ultra-processed foods are some of the most widely available and highly consumed foods in developed countries. In Canada, for example, Moubarac and

[49] Fardet, 'Minimally Processed Foods Are More Satiating and Less Hyperglycemic Than Ultra-Processed Foods: A Preliminary Study with 98 Ready-To-Eat Foods', 2344.
[50] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition', 2.
[51] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition', 2; Elizabeth et al., 'Ultra-Processed Foods and Health Outcomes: A Narrative Review', 1975.
[52] Elizabeth et al., 'Ultra-Processed Foods and Health Outcomes: A Narrative Review', 1975.

colleagues found that 62 per cent of the country's dietary energy comes from ultra-processed products.[53] Similar research is limited in Aotearoa New Zealand, although in a study of children aged 12 to 60 months, Fangupo et al. found that almost half of the children's energy intake was made up of ultra-processed foods.[54] Further, over 90 per cent of pre-schoolers consume foods with excess added sugars, sodium and fat, whether those are ultra-processed foods or not.[55] The most recent New Zealand Health Survey also found that 54 per cent of children ate fast food at least once a week, and 6 per cent did so at least three times per week.[56]

There is currently limited data on ultra-processed food consumption in adults, particularly in Aotearoa New Zealand. However, one of the impacts of ultra-processed food consumption is the displacement of healthier foods in the diet. The New Zealand Health Survey found that found that just 30 per cent of adults ate the recommended three servings of vegetables and two servings of fruit per day.[57] The same survey also showed that just 40 per cent of children eat sufficient vegetables.[58]

There is also ample research that quantifies the availability of ultra-processed foods in Aotearoa New Zealand. Ultra-processed foods dominate the packaged food supply – in 2015, Luitin and colleagues found that 83 per cent of the packaged food products in a New Zealand supermarket are ultra-processed.[59] Other research has determined that almost 70 per cent of

[53] Moubarac et al., 'Consumption of Ultra-Processed Foods and Likely Impact on Human Health. Evidence from Canada', 2247.
[54] Fangupo et al., 'Ultra-Processed Food Intake and Associations With Demographic Factors in Young New Zealand Children', 305.
[55] Gontijo de Castro et al., 'Child Feeding Indexes Measuring Adherence to New Zealand Nutrition Guidelines: Development and Assessment', 2.
[56] Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[57] Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[58] Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[59] Luiten et al., 'Ultra-Processed Foods Have The Worst Nutrient Profile, Yet They Are The Most Available Packaged Products in a Sample of New Zealand Supermarkets', 530.

the total packaged food supply in New Zealand is ultra-processed.[60] These results indicate the widespread availability of ultra-processed foods as grocery products.

The broader food environment is also dominated by ultra-processed foods. Research demonstrates that fast food suppliers proliferate in Auckland and are particularly concentrated in low-income neighbourhoods.[61] In a study investigating the causes of low fruit and vegetable intake in children in an Auckland community, participants cited the immediate accessibility of Uber Eats as a major barrier to healthy diets for children.[62] Services such as Uber Eats make fast food even more accessible, not only to children but to whole populations in urban areas. Furthermore, unhealthy foods and beverages are also widely marketed to children, not just through traditional means such as television and physical billboards, but increasingly via social media as well.[63] Together, this research demonstrates the widespread availability and accessibility of ultra-processed foods in developed countries such as Aotearoa New Zealand.

Unhealthy diets and food insecurity

Despite the widespread availability of ultra-processed foods, unhealthy diets are not distributed equally across the population. In most high-income countries, ultra-processed food consumption and other key aspects of unhealthy diets are most concentrated amongst people of low socioeconomic status. In Aotearoa New Zealand for example, the annual health

[60] Mackay et al., *How Healthy are Aotearoa New Zealand's Food Environments?*, 21.
[61] Shand, 'Healthy Food Environments'.
[62] Gerritsen et al., 'Improving Low Fruit and Vegetable Intake in Children: Findings From a System Dynamics, Community Group Model Building Study', 7.
[63] Mackay et al., *How Healthy are Aotearoa New Zealand's Food Environments?*, 24-33.

survey has demonstrated significant socioeconomic inequities in food consumption. Children living in the most deprived neighbourhoods are more likely to consume fast food than children living in the least deprived neighbourhoods.[64] Soft drink consumption in children is also patterned by socioeconomic status – those living in the most deprived neighbourhoods are twice as likely to consume at least one soft drink per week, and nearly four times as likely to consume at least three soft drinks per week than those living in the least deprived neighbourhoods.[65] Qualitative research in an Auckland community has also demonstrated that cost is a major barrier to adequate fruit and vegetable consumption in children.[66] This research suggests that material resources are a crucial factor in consuming a healthy diet.

Furthermore, there are strong links between the healthiness of diets and food security. Graham and colleagues define food insecurity as 'the absence of sufficient, nutritionally adequate, safe foods, as well as the inability to acquire such foods in socially acceptable ways.'[67] While food insecurity can mean going hungry, it also means facing extremely constrained food choices and compromising on food quality. For some families, this may involve eating rotting food or consuming food from bins that has been discarded by others. Food insecurity is a serious problem in Aotearoa New Zealand. According to the 2009 Nutrition Survey, the prevalence of food insecurity in New Zealand had jumped from 28 to 41 per cent over the previous decade.[68]

[64] Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[65] Ministry of Health, 'New Zealand Health Survey: Annual Data Explorer'.
[66] Gerritsen et al., 'Improving Low Fruit and Vegetable Intake in Children: Findings From a System Dynamics, Community Group Model Building Study', 7.
[67] Graham et al., 'Hiding in Plain Sight: Experiences of Food Insecurity and Rationing in New Zealand', 385.
[68] University of Otago and Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008-09 New Zealand Adult Nutrition Survey*, 262-3; Smith et al., 'Balancing the Diet and the Budget: Food Purchasing Practices of Food-Insecure Families in New Zealand', 278.

Food insecurity is broadly associated with poorer nutritional outcomes.[69] Research in Aotearoa New Zealand has shown that food insecurity is associated with a lower intake of fruit and vegetables.[70] In Canada food insecurity is linked with increased ultra-processed food consumption,[71] pointing to the lower cost and convenience of these types of foods. For many food-insecure families, rationing food is crucial for survival. While this sometimes involves going hungry, it can also involve purchasing cheap 'filler' foods with minimal nutritional benefit.[72] For example, carbohydrates such as white bread and pasta serve as a quick way to bulk out a meal.[73] As Graham et al. point out, for those experiencing food insecurity, the nutritional value of their food is less of a concern than eating food at all,[74] demonstrating that material resources pose a major barrier to consuming a healthy diet.

The evidence covered in this chapter demonstrates that unhealthy diets are a serious material problem for countries such as Aotearoa New Zealand. Unhealthy diets, and particularly the excess consumption of ultra-processed foods, are largely responsible for the high rates of non-communicable diseases such as cardiovascular disease, type 2 diabetes and cancers we see in developed countries. These diseases cause immense suffering and premature death, particularly for people living in high socioeconomic deprivation. As evidence suggests, consuming a healthy diet largely depends upon a person's material resources, and unhealthy diets are a problem closely related to food insecurity. This suggests that the problem of

[69] Smith et al., 'Balancing the Diet and the Budget: Food Purchasing Practices of Food-Insecure Families in New Zealand', 278.
[70] Smith et al., 'Balancing the Diet and the Budget: Food Purchasing Practices of Food-Insecure Families in New Zealand', 280.
[71] Hutchinson and Tarasuk, 'The Relationship Between Diet Quality and the Severity of Household Food Insecurity in Canada', 1016.
[72] Graham et al., 'Hiding in Plain Sight: Experiences of Food Insecurity and Rationing in New Zealand', 392.
[73] Graham et al., 'Nutritionism and the Construction of "Poor Choices" in Families Facing Food Insecurity', 1869.
[74] Graham et al., 'Nutritionism and the Construction of "Poor Choices" in Families Facing Food Insecurity', 1864.

unhealthy diets is intertwined with the function of the economy, and therefore deserves to be analysed as such.

In the following chapters, I will use this evidence base to critique the political economy of unhealthy diets from a Marxian perspective. While the arguments in my thesis are theoretical, it is important that they take this body of empirical population health literature as their starting point. Throughout this thesis I will continue to draw on this literature as the basis of my theorising.

Chapter Two: Surplus Value

Now that I have established the evidence base for the harms caused by unhealthy diets and ultra-processed food consumption, I will move to an analysis of the capitalist mode of production. As described in chapter one, unhealthy diets are associated with food insecurity. People experiencing socioeconomic deprivation are more likely to consume unhealthy diets and ultra-processed foods and are less likely to eat sufficient fruit and vegetables. This evidence suggests that unhealthy diets are a material problem and should be analysed in the context of the capitalist economy. In this chapter I introduce Marx's critique of the capitalist mode of production.

The capitalist mode of production is defined by its driving force: the maximisation of surplus value. The effects of capitalism – on work, on commodities, on society – all spiral out from this central purpose. In this chapter, I will use Marx's work in volume one of *Capital* to describe the origin of surplus value and its two forms: absolute and relative surplus value. Using the writing of Marxian theorists Tomba and Murray, I will explore the relationship between absolute and relative surplus value. Most importantly, I will demonstrate that expanding relative surplus value depends on addressing the value of the means of subsistence, of which food is an important part. Capital, regardless of its industry, has an incentive to cheapen food in order to drive down wages. In the final section, I will explore how public health experts should treat the existence of cheap food.

The driving force of capitalism is surplus value

The capitalist mode of production is propelled by capital's drive to valorise itself, to create value from value. In volume one of *Capital*, Marx demonstrates how this occurs when a capitalist purchases commodities with money, and then sells those commodities for a greater sum than they began with. He explains this process with the general formula for capital, M-C-M′: money, transformed in the production of commodities, exchanged for a greater quantity of money.[75]

If we assume that commodities are bought and sold at their value, where does this extra value arise from? According to Marx, it is through the one commodity whose use has the 'peculiar property' of creating value: labour-power.[76] There are a particular set of circumstances that enable labour-power to be bought as a commodity on the market. For this to be possible, the seller of the commodity, the worker, must be free in two senses. First, they are free in that they are not bound to a landlord or owned as a slave, and second, they lack access to the means of production to create their own products to exchange as commodities.[77] These conditions are set up through a violent process that Marx, following Adam Smith, terms primitive accumulation. The result of that process is a class of free workers who, in order to survive, must sell the only commodity they have ownership over: their labour-power.

Like all other commodities under capital, labour-power is twofold in that it has both a use-value and an exchange-value. The exchange-value of labour-power is what the capitalist purchases it for on the market, the monetary expression of which is the wage. However, the

[75] Marx, *Capital: A Critique of Political Economy, Volume One*, 257.
[76] Marx, *Capital: A Critique of Political Economy, Volume One*, 270.
[77] Marx, *Capital: A Critique of Political Economy, Volume One*, 271.

exchange-value is merely the form of appearance of labour-power as a commodity. Like other commodities, the value is determined by the socially necessary labour time required to produce that particular commodity. In the case of labour-power, that includes the cost of everything required to ensure that the worker can replenish themselves to allow them to work the next day. It also includes the resources required to raise the next generation of workers and to care for the elderly. This parcel of goods, including food, clothing, fuel, housing and furniture, is termed the means of subsistence. The value of labour-power is therefore determined by the value of the means of subsistence.[78]

We know that the capitalist purchases labour-power on the market at its value, exchanging it for a wage which enables workers to buy what they need to survive. Yet what the capitalist puts to work is the use-value of the commodity labour-power. Here, Marx highlights the peculiarity of labour-power as a commodity: the capitalist can buy labour-power at its value, but its use-value allows for the worker to work beyond the value of their means of subsistence. This is the source of surplus value, in the sphere of production, from the surplus labour of workers. During the working day, the worker first produces value equivalent to their means of subsistence, engaging in what Marx calls necessary labour time.[79] But because the capitalist is the purchaser of both labour-power and the means of production, there is nothing stopping them from demanding that the worker continues to work.[80] After all, the capitalist can threaten to fire the worker, leaving them without access to the means of subsistence. In this second part of the day, the worker carries out surplus labour, creating surplus value that ultimately belongs to the capitalist.

[78] Marx, *Capital: A Critique of Political Economy, Volume One*, 276.
[79] Marx, *Capital: A Critique of Political Economy, Volume One*, 325.
[80] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume 1*', 246.

Absolute and relative surplus value

The quantity of surplus labour that workers carry out, producing surplus value, is not fixed. As Marx states, 'capital has one sole driving force, the drive to valorise itself, to create surplus-value'.[81] Capitalists, as capital personified, are therefore constantly seeking ways to maximise surplus value through engaging workers in more and more surplus labour. There are two ways through which this is achieved. The first is what Marx calls absolute surplus value. Maximising absolute surplus value involves increasing the total amount of surplus labour that workers engage in to increase the total quantity of surplus value produced. This requires an increase in the absolute amount of time that workers are working beyond the value of their labour-power.

Capitalists use several strategies to increase absolute surplus value. One is through lengthening the working day and requiring workers to simply work longer hours. Another strategy is through incorporating more workers into the workforce, for example through forcing children to work, incorporating women in the workforce, and expanding the capital-relation into new parts of the world through colonisation. Thirdly, capitalists may try to extend the period of time for which a worker must work in their lifetime by raising the age of retirement. Attempts to increase absolute surplus value may also include things like shortening time for meal breaks, which also has the effect of increasing the absolute quantity of surplus labour that workers engage in.

[81] Marx, *Capital: A Critique of Political Economy, Volume One*, 342.

Increases in absolute surplus value have a myriad of consequences for the way we eat, mostly relating to our capacity to reproduce labour-power. As capital appropriates more of workers' time, either through lengthening the working day or incorporating more people into the workforce, the less time workers have outside of work to reproduce themselves. This in turn constrains workers' options for planning meals, shopping for groceries, preparing food and eating. As such, workers are increasingly dependent on unhealthy convenience foods and fast food. I will explore these consequences further in chapter four, using the context of social reproduction analyses.

There are limits to the extent that capitalists can increase absolute surplus value. Historically, organised working class resistance, through strikes and other means, has placed constraints on the claims of capitalists. Resistance has resulted in regulation of the working day, mandated breaks and setting workers' entitlement to superannuation at 65. The capitalist also has some concern for the physical limits of workers' bodies. Ultimately, capitalists depend on workers turning up to work day after day – after all, it is work that creates surplus value in the first place. If the working day is too long and workplace conditions are too gruelling, the worker will be unable to replenish their labour-power for the next day of work. Long working days may also cut the life of the worker short. Therefore, there is only so much absolute surplus value that capitalists can extract from workers.

Fortunately, capitalists have a second way of increasing surplus value, through what Marx calls relative surplus value. This enables capitalists to increase surplus value without extending the time extorted from workers. Collecting relative surplus value is possible when capitalists can improve the productivity of their workers beyond the social average, enabling more commodities to be produced within a set amount of time. Marx presents several ways in

which productivity can be improved. This could be through increasing the cooperation between workers or increasing the social division of labour so that each worker completes a smaller task over and over again. The other possible method for increasing productivity is through improvements in machinery and technology which can lessen the burden on the worker, enabling them to create more commodities in a set amount of time.

The concept of socially necessary labour is crucial for understanding how capitalists extract relative surplus value. Marx demonstrates that the value of a commodity is determined by the socially average labour time required to produce a particular commodity. This means that the value of a commodity is not specifically determined by the labour actually expended in a single productive process.[82] Rather it is a social value – the amount of labour that is required, on average, across the economy for the production of that commodity. Marx sums this up as 'the labour time required to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society.'[83] If the productivity of a single business is higher than the social average, this produces a differential between the socially determined value of those commodities and the labour time required by that particular capitalist. As such, the capitalist can sell their larger quantity of commodities at their socially determined value, even though the individual commodities were produced for much less. In doing this, they are able to extract relative surplus value – exploiting labour with a higher productivity level than the social average.[84]

[82] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 290.
[83] Marx, *Capital: A Critique of Political Economy, Volume One*, 129.
[84] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 291.

As Murray argues, the possibility for relative surplus value arises from the twofold nature of labour; the distinction between concrete and abstract labour.[85] This distinction corresponds to the dual nature of the commodity, which holds both a use-value and an exchange-value. As Marx states, the use-value of a commodity is qualitative, it is what gives it utility and distinguishes it from other commodities. The utility of the commodity is created through concrete labour, by the very specific nature of the labour that went into making it. In contrast, the exchange-value of a commodity is quantitative; it is what enables the direct comparison of commodities with each other. The quality that enables the comparison of commodities is abstract labour: the socially necessary labour time as averaged across the entire economy. When capitalists introduce measures to improve the productivity of workers in their company, more use-values can be created within the same amount of time. Marx states that when we refer to productivity, we always mean the productivity of concrete useful labour.[86]

However, any relative surplus value gains that a capitalist has made are fleeting. As soon as new improvements in productivity are adopted by other capitalists, the socially necessary labour time for the production of commodities will fall. As a result, the value of the commodities will drop, and there will be no difference for a single capitalist to extract relative surplus value. This tendency towards equilibrium means that capitalists are constantly seeking improvements in productivity above and beyond their competitors. Advances in technology or methods of working are closely guarded so as to maintain the relative difference required for extracting relative surplus value. As Marx states, 'capital therefore has an immanent drive, and a constant tendency, towards increasing the productivity of labour'.[87]

[85] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume 1*', 248.
[86] Marx, *Capital: A Critique of Political Economy, Volume One*, 137.
[87] Marx, *Capital: A Critique of Political Economy, Volume One*, 436-7.

Fortunately for capitalists, relative surplus value arises in a second form as a result of improvements in productivity. While maintaining a relative difference is what Murray calls the 'powerful *immanent* tendency of the capitalist mode of production',[88] there is a secondary source of relative surplus value. Efforts to increase productivity above and beyond competitors incites a 'race to the bottom', where competing capitalists continuously undercut each other with improvements in productivity. This drives down the socially necessary labour time for the production of particular commodities. Over time, the value of commodities decreases, including those that make up the means of subsistence. Workers require less money to cover the cost of their food, clothes, furniture and other necessities. This in turn enables capitalists to reduce workers' wages, keeping them in line with what they need to spend to reproduce themselves. This reduction in necessary labour time enables capitalists to collect more surplus value. In essence, the capitalist seeks to reduce the amount of time that the worker spends working for the value of their labour-power, enabling them to lengthen the time they spend creating surplus value for the capitalist.

Cheapening food commodities to drive down wages

This form of relative surplus value has important consequences for population diets. Food commodities are a crucial part of the means of subsistence, and they too are subject to the strategy of relative surplus value. Food companies are constantly seeking new ways to make the food production process more efficient so that more food can be produced at a lower cost.

[88] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume 1*', 249.

Developments in cooperation, machinery and technology make food processing more productive, reducing the labour-time required to produce each commodity. This is often enabled by the centralisation of capital, resulting in massive transnational corporations that have the resources and cooperation possible for major developments in food processing.

Food commodities have drastically changed since capital has taken over their production. During the mid-nineteenth century, food was increasingly produced industrially. The introduction of mechanisation enabled the mass manufacture of bread, biscuits, cakes, sauces and meat products at lower costs.[89] Population diets changed as a result. More recently, advances in food science technology have created ultra-processed foods – those palatable foods made from cheap ingredients and additives described in chapter one.[90] These foods are the consequence of the food industry's constant drive to increase surplus value through improving productivity and thereby reducing the value of labour-power. Ultra-processed foods exemplify capital's tendencies towards cheap, efficient production which comes at the expense of the food's quality. In chapter three, I will further explore the effects of capitalist food production on the quality of food resulting from capital's strategy of relative surplus value.

Of course, what makes the second form of relative surplus value possible is when wages are reduced in line with the suppressed value of food. While cheap food, regardless of whether it is ultra-processed, may appear advantageous for feeding workers and reducing food insecurity, these gains simply enable capital to reduce real wages and collect more surplus value. Crucially, this means that low-paid workers are given no choice but to subsist on these

[89] Monteiro et al., 'Ultra-Processed Products are Becoming Dominant in the Global Food System', 21.
[90] Monteiro et al., 'Ultra-Processed Products are Becoming Dominant in the Global Food System', 22.

unhealthy ultra-processed foods. For many low-paid workers in Aotearoa New Zealand, eating ultra-processed foods is a choice constrained by their low wages enabled by the existence of this cheap food in the first place.

This pattern is visible in the most recent New Zealand Adult Nutrition Survey from 2008-9. The survey found that adults living in high socioeconomic deprivation were more likely to eat refined white bread,[91] fast food,[92] and consume insufficient fruit and vegetables[93] in comparison to those living in lower deprivation. This suggests that low-waged workers are not afforded the same choice of foods as those with higher wages or income from capital. The proliferation of ultra-processed foods demonstrates capital's ability to keep workers alive and labour-power sustained on cheap food.

The success of this relative surplus value strategy is evident in data showing changes to the labour-income share. This concept describes the way that the income generated by the economy is distributed between the labour share and the capital share.[94] As Rosenberg demonstrates, the labour share of income in Aotearoa New Zealand fell from around 60 per cent in the early 1980s to 46 per cent in 2002.[95] While it has since climbed slightly, this trend demonstrates the way that capital is collecting an increasing proportion of the value generated by workers.

[91] University of Otago and Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey*, 224.
[92] University of Otago and Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey*, 258.
[93] University of Otago and Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey*, 219.
[94] Rosenberg, 'Wages and Inequality', 66.
[95] Rosenberg, 'Wages and Inequality', Figure 6.

Cheapening food commodities at the expense of their quality is not unique to ultra-processed foods. In fact, many of the food industry practices we see today are eerily similar to those described by Sébastien Rioux in his article detailing capitalist food adulteration in the nineteenth century in Britain. Rioux argues that food adulteration was commonly employed to reduce the cost of production.[96] For example, bread was often made using spoilt flour; chalk and plaster were used as substitutes for flour and sugar; and oranges would be sold after having their juice pricked out.[97] Rioux even suggests that 'the scale of the fraud was such that generations of people developed new adulterated tastes, culinary preferences and dietary habits, thus normalizing and stabilizing a whole new set of cultural references that later proved to be powerful barriers to the battle for pure food'.[98] Such an issue is being faced in Aotearoa New Zealand today, where many people who have long relied on ultra-processed foods have developed a taste for that type of food despite its detrimental effects on health.

The cheapening of food commodities to reduce wages can manifest in several different ways. One of those is through directly suppressing wages, thus maximising the surplus value collected by capitalists. But surplus value may also be collected in different forms. In volume three of *Capital*, Marx shows how surplus value also takes the form of appearance of rent from landed property.[99] In the process of primitive accumulation, the commons are privatised and held by a small class of landlords, making a landless working class out of most of the population. Because of this monopoly on a scarce resource, landlords are able to charge for access to land in the form of rent. As such, rent is the form through which landlords

[96] Rioux, 'Capitalist Food Production and the Rise of Legal Adulteration: Regulating Food Standards in 19th-Century Britain', 65.
[97] Rioux, 'Capitalist Food Production and the Rise of Legal Adulteration: Regulating Food Standards in 19th-Century Britain', 67.
[98] Rioux, 'Capitalist Food Production and the Rise of Legal Adulteration: Regulating Food Standards in 19th-Century Britain', 68.
[99] Marx, *Capital: A Critique of Political Economy, Volume Three*, 959.

appropriate a portion of surplus value from capitalists: 'Capital-profit (profit or enterprise plus interest) and ground-rent are thus nothing but particular components of the surplus-value'.[100] This is why Jones argues that rent is one of the principal forms of economic exploitation in capitalism.[101]

As Jones states, accommodation rent makes up an increasing share of the surplus value produced by workers in Aotearoa New Zealand. Accommodation rent has seen massive increases year on year, while wages remain relatively stagnant.[102] This manifests as 'an increase in the percentage of income that goes to paying accommodation rent, particularly for those on lower incomes.'[103] Here we can see how cheapening food commodities has made space within workers' wages for landlords to hike rents, thereby collecting increased amounts of surplus value. It is not just capitalists that benefit from workers subsisting on cheap food, but landlords as well. This points to how unhealthy diets in Aotearoa New Zealand are therefore closely related to the worsening housing crisis and increasing dependency on landlords.

Further, the strategy of relative surplus value may also manifest through inflation. In Marx's description, relative surplus value requires that workers' normal wages are lowered, say from $100 to $90 per day, as the value of the means of subsistence decreases. But as Murray points out, workers are likely to balk at the blatant lowering of their nominal wages.[104] This may lead to working class resistance and struggle – a nuisance that capital would rather not

[100] Marx, *Capital: A Critique of Political Economy, Volume Three,* 959.
[101] Jones, 'Rent, Interest, Profit', 74.
[102] Rosenberg, 'Wages and Inequality', 64; Vitz, 'Here's How Much the Cost of Renting Has Increased Since 1993'.
[103] Jones, 'Rent, Interest, Profit', 74.
[104] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 271.

contend with. Instead, inflating commodity prices can suppress real wages in a more subtle manner: 'inflation allows employers to cut wages in value terms while keeping the nominal wage steady or even rising.'[105] In this case, capitalists can collect relative surplus value while wages remain stagnant or even increase slightly, so long as the value of commodities increase at a greater rate. These value increases are not caused by increases in the cost of production, but rather by an increase in the surplus value collected by capitalists. Such an approach is propped up by the general mystique surrounding inflation and lack of consensus about its causes. As a result, capitalists can collect relative surplus value with a lower risk of stoking the outrage of workers.

We are currently witnessing exactly this method of relative surplus value extraction through inflated grocery prices in Aotearoa New Zealand. Groceries have recently ballooned in price: Stats NZ reported that grocery prices had increased by 7.6 per cent in the past year,[106] and Newshub wrote that on average, people in New Zealand have spent an extra four to five thousand dollars on the basic means of subsistence in the past year, including food, rent and fuel.[107] This drastic increase in the cost of living has taken place as the New Zealand Commerce Commission revealed that supermarkets are collecting $430 million per year in excess profits.[108] While many are blaming Russia's invasion of Ukraine for increased food prices, and this may be the case for certain food products, it is undeniable that food companies are also taking the opportunity to maximise surplus value. This is not just limited to supermarkets; the Guardian has demonstrated that food company super-profits are also to blame, with the global food corporation Cargill reporting a 63 per cent increase in profits

[105] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 271.
[106] Stats NZ, 'Annual Food Price Increase Remains High at 6.6 Percent'.
[107] Quinlivan, 'Cost of Living: Food Prices Rise by 1.2 Percent in June, Statistics NZ Says'.
[108] Pullar-Strecker, '$430 Million A Year in Excess Profits But No Supermarket Split'.

from 2021.[109] Correspondingly, household incomes have remained relatively stagnant, increasing by just 4.5 per cent from 2020 to 2021.[110] With incomes unchanging, a family's grocery budget is likely to buy them less food. As a result, many workers are being forced into relying on more cheap, ultra-processed foods[111] while capital collects the extra surplus value.

Understanding the way that relative surplus value affects food consumption changes the way we conceptualise food. First, it highlights the importance of workers' twofold nature as both producers and consumers in the capital-relation. Food is not only a commodity to be bought but is also an essential part of the reproduction of the worker. Attempting to understand the dynamics of New Zealanders' food consumption as an issue siloed from their work and wages will always limit insights. Rather, in conceptualising unhealthy diets as a material problem we must view food as an important part of the means of subsistence and examine the consequences of that dynamic. The development of cheap ultra-processed foods benefit capital in every industry, enabling them to reduce wages for all workers.

The importance of food and diets in the reproduction of labour-power will be further explored in chapter four. While cheapening food is one strategy for reducing wages, capital also relies on the unpaid work that occurs in the home and community to renew labour-power. In chapter four I will use early social reproduction analyses to conceptualise this work that goes into consuming a healthy diet.

[109] Neate, 'Soaring Food Prices Push More Cargill Family Members on to World's Richest 500 List'.
[110] Stats NZ, 'Household Income and Housing-Cost Statistics: Year Ended June 2021'.
[111] Hawkes et al., 'From Food Price Crisis to an Equitable Food System'.

Should public health celebrate or object to the existence of cheap food?

At present, there is some confusion and debate over how public health experts should conceptualise cheap food. This is also a site of conflict between those on the political Left and those working in population health. In the following section I will sketch the outlines of these debates. I will then reiterate my own argument, following Marx, around the purpose of cheap food and how both public health experts and those on the Left should approach it.

There are two dominant positions on cheap food in the literature. The first, as claimed by mainstream population nutrition and obesity experts as well as varying food sociologists and journalists, suggests that food commodities have become artificially cheap. This argument is most strongly associated with journalist Michael Pollan[112] and is also posed by food sociologist Michael Carolan in *The Real Cost of Cheap Food.*[113] These authors suggest that industrial food commodities do not encompass the entire cost of their production. When consumers purchase cheap, ultra-processed foods, they are avoiding the real cost of the commodity they pay for. Rather, the 'true' cost of food commodities is instead absorbed by the natural environment and the health system (through treating resulting diseases). The implication is that people relying on cheap foods are simply too stingy to pay for 'real' food. Pollan, for example, instead encourages his reader to reframe the price of food and cough up for higher quality, healthier foods.[114]

A similar argument is sometimes made by population health researchers investigating the political economy of ultra-processed foods. In a 2011 article, Swinburn et al. suggest that

[112] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals*, 243.
[113] Carolan, *The Real Cost of Cheap Food*, 74.
[114] Pollan, *The Omnivore's Dilemma: A Natural History of Four Meals*, 257.

where a commodity's price does not reflect its costs and benefits to society, a market failure is occurring.[115] One of these market failures is the external costs posed by ultra-processed foods, including the costs to the health system as well as those to the family through potential reduced income or additional caring duties. In a later paper, Swinburn and authors recommend that a food commodity's effects on the environment and human health should be internalised into its price.[116] In a similar vein, Monteiro et al. propose that ultra-processed products carry a wider cost than the one reflected in their price: 'Obesity and related chronic diseases such as diabetes are debilitating and impede ability to work, and their treatment, for those without health insurance or access to publicly funded health services, can mean financial catastrophe.'[117]

Prominent food policy researcher Corinna Hawkes offers a slightly different approach in the context of global inflation and dramatically increasing food prices. In a recent article, Hawkes acknowledges that while cheap food may be important for food security, the mechanisms that 'have driven down prices in recent decades have severely weakened the global food system'.[118] Hawkes accurately points out that while globalisation and competitiveness have enabled food to be produced more cheaply, 'the relentless drive to increase efficiency and gain competitive advantage has created risks for the resilience of the food system.'[119] Drawing attention to the way that a commodity's production determines its price, Hawkes argues that production processes are manipulated to achieve cheap food, with major public health consequences. Yet Hawkes then reverts to the same argument as other

[115] Swinburn et al., 'The Global Obesity Pandemic: Shaped by Global Drivers and Local Environments', 806.
[116] Swinburn et al., 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: *The Lancet* Commission Report', 805.
[117] Monteiro et al., 'The UN Decade of Nutrition, the NOVA Food Classification and the Trouble With Ultra-Processing', 12.
[118] Hawkes, 'Rising Prices: Why the Global Drive to Keep Food Cheap is Unsustainable'.
[119] Hawkes, 'Rising Prices: Why the Global Drive to Keep Food Cheap is Unsustainable'.

public health experts, contextualising the cheapness of food in terms of the 'hidden costs' of a food system – 'the prices we pay for food today do not reflect the true cost of producing it.'[120] She concludes that politicians, businesses and consumers must accept that low food prices are part of a bigger problem.

These arguments make two major mistakes. The first is how the value of commodities is determined under capital. As Marx states, 'what exclusively determines the magnitude of the value of any article is therefore the amount of labour-time socially necessary, or the labour-time socially necessary for its production.'[121] When commodities do not incorporate the cost to the environment or the health system this is not a market failure but rather a fundamental problem with value under capital. The answer to this problem is not that commodities must be priced differently but rather that we require a transformation of our economic system to adopt a different form of value.

The second mistake is, of course, the purpose of cheap food overall. Cheap food does not arise independently from the value of wages, as these authors generally assume. Rather, food is cheapened specifically in relation with wages. The idea that consumers must simply 'accept' higher food prices so that they reflect their true cost to the environment and health systems is a dangerous idea. This implies that the existence of cheap food is due to workers' demand for it. Suggesting that consumers must merely chose to purchase more expensive foods ignores that it is cheap food that makes low wages possible, a condition that workers cannot change through simply altering their purchasing behaviours. It is precisely this inaccurate assumption that leads to solutions such as taxes on unhealthy foods so as to better

[120] Hawkes, 'Rising Prices: Why the Global Drive to Keep Food Cheap is Unsustainable'.
[121] Marx, *Capital: A Critique of Political Economy, Volume One*, 129.

account for their true price. Problems with these solutions will be further discussed in chapter six.

In contrast, political commentators on the Left are often quick to defend cheap food. For example, in *Jacobin*, Ted Nordhaus and Alex Smith argue that the Left should celebrate the cheap food commodities that industrial food processing has created.[122] The authors refute advocates of the slow food movement, arguing that cheap and accessible food, regardless of whether it is produced industrially, should be the priority of the Left. They write:

> High food prices means that lower-income individuals and families are forced to prioritize food purchases over other expenditures like education, transportation, energy, and shelter. In other words, while the richest may bemoan cheap food, the reality is that the United States has not yet gone far enough to make food as cheap and abundant as possible.[123]

In their critique of industrial food, Nordhaus and Smith ignore two important aspects of this issue. The first is the empirical reality that ultra-processed foods, a product of the industrial food system they valorise, are responsible for a vast amount of chronic disease. While access to food and reducing food insecurity is an important goal, the Left should be equally concerned with a food system that produces devastating health outcomes and premature death. The second is that Nordhaus and Smith lack a systemic understanding of the economy that would enable them to see that the means of subsistence do not develop independently of wages. Here, Nordhaus and Smith make the same incorrect assumption as public health

[122] Nordhaus and Smith, 'The Problem With Alice Waters and the "Slow Food" Movement'.
[123] Nordhaus and Smith, 'The Problem With Alice Waters and the "Slow Food" Movement'.

experts and journalists such as Pollan. They fail to see that food is cheapened specifically so that capital can pay workers less.

There is significant potential here for both population health experts and those on the political Left to align their demands for a healthier, fairer food system. The price of food is not determined independently from the other mechanisms of the capitalist economy, in particular the wages of workers. As such, the accessibility of healthy food should be understood in relation to the capitalist mode of production as a whole.

This chapter has demonstrated the relationship between cheap food and the central drive of the capitalist mode of production towards surplus value. As Marx's critique of capital highlights, the mechanism of relative surplus value cheapens food commodities. This in turn allows capitalists to suppress workers' wages and reap more surplus value. This surplus value extraction can occur in different ways, through both inflating grocery prices as well as through increasing accommodation rent. As such, cheap food is a necessary aspect of maximising surplus value for capitalists. This tendency fundamentally drives the capitalist mode of production. Low-paid workers do not therefore make explicit decisions to consume cheap, unhealthy food – rather, their dependence on this food is constructed by capital.

Cheapening food commodities to increase relative surplus value requires compromises in food quality. In the following chapter I will explore the consequences of relative surplus value extraction in food production. Using the Marxian concepts of formal and real subsumption, I will describe the way that capitalist food production creates foods oriented towards value as opposed to health.

Chapter Three: Capitalist Food

In the previous chapter, I demonstrated that cheap food is central to the reproduction of labour-power and therefore the capitalist mode of production overall. In laying out that argument, I assumed that cheap food is usually ultra-processed food. But how exactly does the strategy of relative surplus value alter the nature of food products, creating these unhealthy ultra-processed commodities? This chapter focuses on how capital's orientation towards surplus value fundamentally alters the types of foods that are produced.

In the past few years, it has become common for those on the Left to criticise capitalism for all manner of social problems.[124] Even within population health research, it is generally accepted that food production and distribution that prioritises profit comes at the expense of the quality of food.[125] Despite this, there has been a general lack of understanding of the specific mechanisms by which for-profit food production creates unhealthy foods. Moreover, the absence of a specific critique also leads researchers to continue suggesting solutions that maintain capitalist food production, for example taxes and subsidies on specific food products and incentives for corporations to reformulate their products.

In this chapter, I will investigate how capital's strategy of relative surplus value creates ultra-processed foods. In doing this, I will use the Marxian concepts of formal and real subsumption to explain how capitalist food production has given rise to specifically capitalist foods in the form of ultra-processed foods. I will demonstrate that food production that is oriented towards profit cannot adequately address the needs that food must fill. I will show

[124] Fraser, 'Behind Marx's Hidden Abode: For an Expanded Conception of Capitalism', 55.
[125] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition: Global, Regional and National Trends, Food Systems Transformations and Political Economy Drivers', 9.

that feeding everyone in Aotearoa New Zealand with healthy food requires an exit from capitalist food production altogether.

Use-value, exchange-value and inversion

In the capitalist mode of production, all commodities are twofold in nature. First, all commodities must fill a human need through their specific, concrete qualities.[126] This is what Marx calls use-value: 'the usefulness of a thing makes it a use-value'.[127] The nature of that need can vary – it might be something concrete or something imagined, it could be food for survival, art for entertainment, or machinery for creating other commodities. Use-value describes the qualitative nature of a commodity and is realised in the consumption of the commodity.

Specific use-values are created by what Marx calls concrete labour. Concrete labour differs qualitatively between varying workers, professions and skill levels – a tailor's concrete labour is qualitatively different to that of a baker. As Marx states, concrete labour is a condition of human existence that exists in all forms of society; 'it is an eternal natural necessity which mediates the metabolism between man and nature, and therefore human life itself'.[128] Not only that, it is these specific qualities of labour that set up the social division of labour that we see both in capitalism and other forms of society – workers with different skills creating different products and exchanging them.[129]

[126] Marx, *Capital: A Critique of Political Economy, Volume One*, 125.
[127] Marx, *Capital: A Critique of Political Economy, Volume One*, 126.
[128] Marx, *Capital: A Critique of Political Economy, Volume One*, 133.
[129] Marx, *Capital: A Critique of Political Economy, Volume One*, 133.

If commodities are to be exchanged and traded, they require a quantitative measure that allows for their direct comparison. This, Marx says, is the exchange-value of a commodity, 'the quantitative relation, the proportion, in which use-values of one kind exchange for use-values of another kind'.[130] A commodity's exchange-value defines what it is worth in terms of quantities of other commodities. As Marx argues, 'within the exchange relation, one use-value is worth just as much as another, provided only that it is present in the appropriate quantity.'[131] What determines a commodity's exchange-value? Marx says that if we disregard the use-value that makes each commodity unique, there is one property that remains: all commodities are products of human labour.[132] More specifically, it is human labour in general, abstracted from concrete labour, that allows the comparison between commodities of different use-values. The value of a commodity is determined by the abstract labour time socially necessary for its production.[133] This value appears as exchange-value – the quantitative relation between qualitatively different commodities.

The twofold nature of food commodities

Like any other commodity, food products each have their own use-value through which they fulfil a human need. Nutrition is one important aspect of the use-value of food. What we eat has a major impact on our health, both in the present and as we age. As described in the first chapter, we are currently facing an epidemic of non-communicable diseases caused by a lack of nutritious foods over a lifetime. But food fills many other human needs; nutrition is just one of these. The use-value of food could also be its taste, its cultural or religious importance,

[130] Marx, *Capital: A Critique of Political Economy, Volume One*, 126.
[131] Marx, *Capital: A Critique of Political Economy, Volume One*, 127.
[132] Marx, *Capital: A Critique of Political Economy, Volume One*, 128.
[133] Marx, *Capital: A Critique of Political Economy, Volume One*, 129.

or its role in socialising or spending time with family. The environmental impact of a food product is also part of its use-value – human consumption of food is in intimate relation with the natural environment – and therefore makes up a qualitative consideration for how we produce and consume food. The use-value of food is therefore multifaceted and occupies many different qualities beyond nutrition.

Conversely, food commodities also hold an exchange-value, as the form of appearance of its value. The value of a food product is determined by the amount of socially necessary labour-time required to produce that food product. Foods that require more labour time to produce have a higher value and tend to therefore cost more money. The exchange-value of a food commodity allows for its exchange based on the amount of socially necessary labour time required to produce it.

The value of commodities begins to take precedence over use-value when there is widespread social division of labour. Through the increasing division of labour, there is a shift in the purpose of production. Instead of merely selling excess products, people start to produce specifically for the purpose of commodity exchange. According to Marx, this is when commodities acquire their twofold character of use-value and exchange-value. When producers are creating commodities specifically for the purpose of exchange rather than personal use, their concern changes. In what proportions can the products be exchanged? How much can they receive in exchange for their own labour? Marx states that 'it is only by being exchanged that the products of labour acquire a socially uniform objectivity as values, which is distinct from their sensuously varied objectivity as articles of utility.'[134] As a result, the value of a commodity appears as its intrinsic property rather than its use-value.

[134] Marx, *Capital: A Critique of Political Economy, Volume One*, 166.

The prominence of value in the sphere of exchange takes on new significance when commodities are produced capitalistically, that is, where the production process occurs within the capital-relation. This takes place when the means of production are owned by capital and all other people are unable to produce their own means of subsistence. As a result, workers are forced to sell their labour-power to capitalists in exchange for a wage, enabling them to buy their means of subsistence. Capitalists purchase labour-power so that they can set it to work creating commodities.

When the production process is under the command of capital, its purpose is not the creation of commodities to fill specific human needs. Capital does not seek to create use-values, rather 'use-values are produced by capitalists only because and in so far as they form the material substratum of exchange-value'.[135] In owning the means of production and purchasing labour-power, the capitalist has two objectives. The first is to produce a use-value that has an exchange-value, in other words, a commodity that can be sold. The second objective is to produce a commodity with a value greater than the sum of the commodities used to produce it. Marx concludes that the aim of a capitalist 'is to produce not only a use-value, but a commodity; not only use-value, but value; and not just value, but also surplus-value'.[136] In summary, it is value that motivates capitalist commodity production as a whole.

What this means is that under the capitalist mode of production, commodities are not directly produced because we need them. While the use-value of commodities is important, it is only of concern to capitalists to the extent that people will buy them and their surplus value can be

[135] Marx, *Capital: A Critique of Political Economy, Volume One*, 293.
[136] Marx, *Capital: A Critique of Political Economy, Volume One*, 293.

realised. Use-value will therefore always be of secondary consideration to the primary motivation of capitalists: the potential for value. This is why Tomba describes the capitalist mode of production as an inversion where 'production is not primarily organised in order to satisfy human need, but to valorize value'.[137] This inversion has consequences for the nature of commodity production itself, which I will describe in the following section.

Formal and real subsumption

As Tomba writes, the term subsumption refers to the inclusion of something particular under a universal system.[138] In this case, we are referring to the subsumption of the labour process under capital. Marx identifies and contrasts two main types of subsumption: formal and real. He defines formal subsumption as 'the general form of every capitalist process of production'.[139] Formal subsumption occurs when the capital-relation has been formally established between capitalists and workers, enabling the extraction of surplus value without necessarily changing the nature of the production process. As Murray puts it, the social transformation introduced by formal subsumption due to the establishment of the capital-relation is epochal, even though the material transformation is slight.[140] Formal subsumption indicates a fundamentally different social structure with the establishment of the capital-relation, but the true material effects of this are yet to be felt.

[137] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 289.
[138] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 287.
[139] Marx, *Capital: A Critique of Political Economy, Volume One*, 1019.
[140] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 253.

Formal subsumption is sufficient for the extraction of absolute surplus value.[141] To increase absolute surplus value extraction, a capitalist need only make quantitative changes to the production process, either through extending the working day or incorporating more workers. Formal subsumption is sufficient as the nature of the labour process does not need to undergo any change. One of the results of formal subsumption is that the labour process becomes more continuous and intensive while the productivity of labour remains constant.[142]

In contrast, real subsumption involves the qualitative transformation of the production process into forms more suitable for capital.[143] Marx uses the concept of real subsumption to describe the changes to the production process that occur as a result of the capture of relative surplus value.[144] Relative surplus value arises from increases in the productivity of labour, made possible by cooperation between workers, developments in machinery and technology, and advances in science. Consequently, real subsumption brings about a complete and constant revolution in not only the mode of production, but also the productivity of workers and the relations between workers and capitalists.[145] The form of production is altered so that 'a *specifically capitalist form of production* comes into being'.[146] Real subsumption is the material consequence of the inversion of the capitalist mode production, that is, the production of commodities for the purpose of value, rather than use-value.

Marx describes these changes to the production process over three chapters in volume one of *Capital*, covering cooperation, machinery and large-scale industry. These chapters detail the

[141] Marx, *Capital: A Critique of Political Economy, Volume One*, 1026.
[142] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 266.
[143] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 257.
[144] Marx, *Capital: A Critique of Political Economy, Volume One*, 1035.
[145] Marx, *Capital: A Critique of Political Economy, Volume One*, 1035.
[146] Marx, *Capital: A Critique of Political Economy, Volume One*, 1024.

qualitative changes to the production process that occur as part of the capture of relative surplus value. Marx defines cooperation as numerous workers working 'together side by side in accordance with a plan, whether in the same process, or in different but connected processes'.[147] Initially, there is a purely quantitative change indicating merely the formal subsumption of labour as surplus value increases proportionally to the number of workers employed by that particular capitalist. But soon, a greater productive power evolves through the cooperation of workers, a sum greater than its parts.

Cooperation between many workers working together for a single capitalist makes the extended division of labour possible. Marx acknowledged that the division of labour is not specific to the capitalist mode of production.[148] However, the motivation of surplus value means that the division of labour is accelerated until each worker carries out a more specific repetitive task as part of the production of a commodity. This can occur in two ways, either through the combination of various independent trades to produce a single type of commodity or through the splitting up of the labour process into its various operations until each becomes the exclusive function of a particular worker. Over time, a consequence of this division of labour is that workers lose the skill to create a particular product from start to finish.

Finally, it is through machinery and large-scale industry that the production process is fully revolutionised to become a specifically capitalist one. Marx describes the way that machines are introduced to increase the productivity of labour. He defines a machine as 'a mechanism that, after being set in motion, performs with its tools the same operations as the worker formerly did with similar tools.'[149] A machine therefore replaces both the worker and their

[147] Marx, *Capital: A Critique of Political Economy, Volume One*, 443.
[148] Marx, *Capital: A Critique of Political Economy, Volume One*, 457.
[149] Marx, *Capital: A Critique of Political Economy, Volume One*, 495.

tools, requiring workers only to operate or supervise the machine. Using machinery, commodities can be made more quickly and therefore more cheaply, thereby increasing relative surplus value. Correspondingly, it reduces the socially necessary labour time required for a particular commodity so that production of similar commodities by hand or using old technologies is no longer competitive. As a result, the development of machinery forms the basis of large-scale industry which abolishes handicrafts in many sectors.

Real subsumption of food production creates ultra-processed foods

We can see the effects of real subsumption in the industrial production of food. Many of these effects were discussed in relation to the cheapening of food commodities in chapter two. The nineteenth century saw the development of mechanical techniques such as roller milling, pressure rendering and extrusion, and chemical technology such as hydrogenation and hydroxylation.[150] These processes increased the efficiency of food production and enabled the mass manufacture, distribution and sale of products, such as bread, biscuits, cakes, pies, sauces and meat products.[151] Developments in refrigeration around this time also enabled better preservation and storage of food.

But real subsumption does not stop with a single revolution in production. As Marx argues, the pursuit of relative surplus value leads capitalists to constantly increase the productivity of labour. Food production sees continual transformations in the machinery and technology used, always with the purpose of creating cheaper products. Moubarac et al. propose that a

[150] Moubarac et al., 'Food Classification Systems Based on Food Processing: Significance and Implications for Policies and Actions: A Systematic Literature Review and Assessment', 257.
[151] Monteiro et al., 'Ultra-Processed Products are Becoming Dominant in the Global Food System', 21.

new era in food processing began in the 1980s with the advent of new technology and processes. These include high temperature processing, extraction and fractionation as well as fortification, functionalisation and reformulation techniques used to alter the nutritional properties of foods.[152] This latest revolution in food processing has given rise to ultra-processed foods – packaged convenience foods with a long shelf life, minimal nutritional value, appealing flavour and an addictive nature.[153] These foods were described in detail in chapter one.

Ultra-processed foods are largely produced and distributed by the massive transnational corporations that dominate global food production. Nestlé, for example, is the largest food and drink processing company in the world, owning over 2,000 brands in 186 countries, with products that are almost entirely ultra-processed.[154] The reason for this is that changes to productivity require a significant minimum amount of capital. Larger companies are able to pour more resources into developing new technology while different branches of the company are able to share resources through cooperation. As a result, the revolutions in the production process occur more quickly and frequently, until ultra-processed foods evolve as a separate category of food.

Changes in food processing technology have also improved the circulation of commodities. As Marx argues in volume two of *Capital*, all interruptions to the circulation process impact the surplus value that capitalists collect.[155] In the case of food, natural conditions often present an unwelcome disruption in the smooth circulation of commodities. For example,

[152] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition: Global, Regional and National Trends, Food Systems Transformations and Political Economy Drivers', 2.
[153] Monteiro et al., *Ultra-Processed Foods, Diet Quality, and Health Using the NOVA Classification System,* 8.
[154] See https://www.nestle.com/brands
[155] Marx, *Capital: A Critique of Political Economy, Volume Two,* 182.

minimally processed foods are affected by seasons, unexpected weather patterns, degradation and rotting. Capital therefore favours methods of production that can smooth out these disruptions so that surplus value can be collected as quickly as possible. Ultra-processed foods are created in a uniform manner within factories and are formulated for their long shelf life without the need for refrigeration.[156] Ultra-processed foods are therefore suited to the needs of capital not only in terms of production but also of circulation.

In defining ultra-processed foods, Monteiro et al. insist that processing itself is not to blame. Cooking and preserving are forms of processing that are not an issue for human health. Instead, they insist that it is ultra-processing that causes health problems.[157] However, distinguishing between ultra-processed foods and other forms of processed foods is still a tenuous categorisation. I argue that the distinction we should draw is the one between processing to fill human needs and processing for the purpose of surplus value. It is evident that ultra-processed foods are the specific result of the real subsumption of food production under capital. These foods can be considered as capitalist foods. Their production arises not from consumer demand but rather capital's constant trajectory to produce more cheaply, more efficiently, and with the goal of ever more surplus value.

Real subsumption also entrenches the dependence of workers on capitalists beyond their access to the means of subsistence. Murray describes the way that as the social division of labour increases so as to maximise productivity, workers' skills become more and more specialised.[158] Workers lose the breadth of skill required to create a product from beginning

[156] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition', 11.
[157] Monteiro et al., 'The UN Decade of Nutrition, the NOVA Food Classification and the Trouble With Ultra-Processing', 8.
[158] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 260.

to end, which fosters a new dependence on capitalists as the coordinator and manager of the production process. The loss of skill through the extreme division of labour is also visible with the loss of food growing, gathering and cooking skills, particularly among workers living in urban environments. Most workers living in cities in Aotearoa New Zealand are employed to do work that is unrelated to feeding themselves.

Much empirical research in population health has tracked the decline and loss of gardening and cooking skills over the last few generations.[159] While the increased division of labour and specialisation of skills is not necessarily intrinsically damaging, it does entrench workers' dependence on capitalist foods. The loss of skills in gardening and cooking means that even when people have access to land or ingredients, the reliance on capitalist foods remains. This makes it that much harder for communities to remove aspects of food production from the capitalist mode of production.

Understanding the real subsumption of food production also complicates how we frame our exit from the capitalist production of food. Murray warns against what he calls 'use-value romanticism' which assumes that by overthrowing the capitalist and landowning classes, production will somehow redirect itself towards use-values.[160] He argues that this assumption misunderstands the function of real subsumption through which capital has moulded both the production process and its commodities. Real subsumption means that even with the formal abolition of the capital-relation, the fundamentally 'capitalist' changes to food production

[159] Gerritsen et al., 'Improving Low Fruit and Vegetable Intake in Children: Findings From a System Dynamics, Community Group Model Building Study'; Martins et al., 'Parents' Cooking Skills Confidence Reduce Children's Consumption of Ultra-Processed Foods', 4.
[160] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 262.

may remain. Murray suggests that 'a socialist society, then, would face the formidable challenge of undoing much of what real subsumption has brought about'.[161]

In defence of capitalist food production?

The increases in productivity that occur as a result of real subsumption are sometimes used in defence of capitalist food production. This idea is especially prevalent when discussing food, as hunger and food insecurity continue to be an issue globally. As the argument goes, food production has increased under capital and we must simply harness that productivity to direct it where it is needed. Indeed, prior to industrial food production, hunger and nutrient deficiencies were the main diet-related public health problems. Monteiro et al. write that the mechanisation of food production was associated with a reduction in food insecurity and nutrient deficiencies.[162] As Murray notes, Marx also acknowledged that in some ways, the capitalist mode of production has transcended previous limits on need.[163]

However, Murray emphasises that this is a fallacy based on the appearance of productivity under capital. The production of commodities may seem to lack direction, as if it were simply production for the sake of production, leading us to the idea that we can just direct that productivity where we require. But Murray argues that capitalist production is not directionless, rather the drive to increase productivity is selective: 'it is directed where it

[161] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 262.
[162] Monteiro et al., 'Ultra-Processed Products are Becoming Dominant in the Global Food System', 21.
[163] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 268.

conforms to the goal of increasing surplus-value.'[164] Production does not occur for the sake of production but for the very specific purpose of capital accumulation. In this sense, capitalist production is not waiting for us to orient it in the direction we see fit because it already has a direction – towards surplus value. As Marx states, 'the immediate purpose of production is the production of the greatest possible amount of surplus-value'.[165]

Murray also notes that this singular drive transcends the desires of capitalists as individual actors. He writes that productivity, through the greatest possible cheapening of commodities, becomes independent of the wills of capitalists: 'The heedless drive to increase productivity is *imposed* on participants in a capitalist society – capitalists included – by the impersonal demands of capital accumulation.'[166] The consequence of this is that the scale of production is not determined by existing needs but rather is dictated by the mode of production itself.[167]

Understanding this specific direction explains why capitalist food production, with all its efficiency and productivity, has thus far failed to solve issues such as hunger and food insecurity. As of 2020, 690 million people worldwide live in hunger, a figure that has been increasing over the last eight years.[168] Feeding people is a need that the use-values of food commodities should fill, no different from other needs such as taste and nutrition. But capitalist food production does not produce food for the purpose of feeding people, rather its aim is to create surplus value. This means that under capital, the use-values of food will only ever be secondary to surplus value. Attempts to tinker with capitalist food production to

[164] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 269.
[165] Marx, *Capital: A Critique of Political Economy, Volume One*, 1037.
[166] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 270.
[167] Marx, *Capital: A Critique of Political Economy, Volume One*, 1037.
[168] Food and Agriculture Organisation of the United Nations, *The State of Food Security and Nutrition in the World 2020*, viii.

reorient it towards our needs will always fail where needs conflict with surplus value accumulation. As Marx says, 'use-values must therefore never be treated as the immediate aim of the capitalist; nor must the profit on any single transaction. His aim is rather the unceasing movement of profit-making.'[169]

Marx also demonstrates why the productivity of the collective appears as the productive force of capital. The capitalist is responsible initially for bringing workers together, to the extent that they have command over the means of subsistence.[170] With real subsumption and the beginning of the cooperation of many workers, the production process requires coordination, a role that the capitalist takes on. Resulting increases in productivity appear 'as a power which capital possess by its nature – a productive power inherent in capital'.[171] However this productivity does not lie with the capitalist, nor with the capitalist mode of production. High productivity is rather the result of the collaboration of many workers and the development of technology, which is not specific to the capitalist mode or production itself. While it may appear as though capitalism is the only economic system capable of feeding the world's population, there is no reason that we cannot harness current levels of productivity and direct them towards need instead.

An exit from capitalism requires not only the formal transformation away from the capital-relation and new forms of value, but also democratic decision-making about the types of foods that we want to collectively produce. As Murray demonstrates, that formal transformation will not necessarily alter the material nature of products. In that case, there is

[169] Marx, *Capital: A Critique of Political Economy, Volume One*, 254.
[170] Marx, *Capital: A Critique of Political Economy, Volume One*, 451.
[171] Marx, *Capital: A Critique of Political Economy, Volume One*, 451.

much work to be done to plan and build a food system that meets our health needs as well as honouring the other roles that food plays in our lives, cultures and society.

As I have demonstrated in this chapter, capital's profit orientation is fundamentally at odds with producing food that meets the needs of populations. As long as our food production processes exist within the capital relation, we will continue to experience this clash of value and use-value. Currently, this clash manifests as the excess availability and consumption of ultra-processed foods in developed countries such as Aotearoa New Zealand. Consequently, it is crucial that in tackling the issue of unhealthy diets, we make efforts to remove food production and retail from capitalism. This is essential for reorienting production away from profit and towards the multiplicity of uses that food serves in our lives. There are several ways that we could do this, some of which I will discuss in chapter six.

However, capitalism does not just affect unhealthy diets from the perspective of production. While this chapter has demonstrated the problems associated with capitalist food production, the types of foods that we consume are also determined by capitalism. In the following chapter I will build on my argument in chapter two, discussing food as component of the renewal of labour-power for the worker.

Chapter Four: Food and the Reproduction of Labour-Power

In chapter two, I discussed how cheap food is essential for capital's maximisation of surplus value. I described how food commodities are cheapened so that workers' wages can be depressed. This idea was premised on Marx's argument that wages are paid at the value of the means of subsistence, that is, the cost to reproduce the labour-power of the worker. But the reproduction of labour-power requires far more than cheap commodities. What else must be done to ensure that workers can turn up to work every day with renewed energy, to perform labour and surplus labour for the benefit of capital? How should we theorise the cooking and cleaning that must occur as part of day-to-day survival?

This reproductive work, which we term social reproduction, is somewhat neglected in Marx's analysis of capital. According to Marx, workers are paid a wage in exchange for their labour-power, which is determined by the value of the necessary means of subsistence for their reproduction.[172] As Federici notes, Marx assumes that 'all that is needed to (re)produce labor power is commodity production and the market'.[173] Marx fails to see that there is an immense amount of work required to transform the means of subsistence into renewed labour-power – the cooking, cleaning, taking care of a house, raising of children – all of which must be done outside of the paid working day. As such, Marx does not develop an understanding of how capital simultaneously exploits both productive and reproductive work. By extending Marx and drawing attention to reproductive work, we can understand how social reproduction is dictated by capital – who does it, the time available for it, and how it complements the means of subsistence.

[172] Marx, *Capital: A Critique of Political Economy, Volume One*, 276.
[173] Federici, *Revolution at Point Zero: Housework, Reproduction and Feminist Struggle*, 93.

In this chapter I draw on early social reproduction analyses from Fortunati and Federici to theorise the role of reproductive work in consuming a healthy diet. First, I use Fortunati's work to describe the nature of reproductive work under capital. I then explore the ways that capital constructs a reliance on convenience foods and fast foods so as to extract more absolute surplus value from workers. Finally, I discuss how supporting workers' capacity for reproduction can address the healthiness of diets.

The reproduction of labour-power

Capitalism is in part premised on commodified labour-power. Due to their separation from the means of production, workers are forced to sell their labour-power on the market as if it were any other commodity. Like other commodities, labour-power must be created, or rather renewed. Workers cannot work endlessly; they need to eat, sleep and relax. Capital also requires the entire working class to be reproduced – through birth and the raising of children – to ensure the constant availability of new workers. The reproduction of labour-power therefore requires a significant amount of work that occurs outside of the workplace. This work is done by those not in paid employment, for example stay-at-home parents, or in workers' 'free' time outside of working hours.

As Fortunati points out, what is unique to the capitalist mode of production is that it is only workers' labour-power that is bought and sold, not the workers themselves. This differentiates workers in capitalism from slavery, where the worker themselves is someone else's property. Conversely, in capitalism the worker is free but must sell their labour-power

because they lack the means of production to create their own means of subsistence. As Fortunati points out, this distinction is crucial as it demonstrates that workers themselves are not commodities and do not have value. However, as Fortunati states, 'there *is* a *commodity* contained *within* the individual: that *labor power* which as *capacity for production* has exchange-value'.[174]

The reproduction of the worker is therefore not the economic aim of capital.[175] After the sale of their labour-power, workers are free to do as they please – their reproduction is their responsibility. This introduces a rift between the production of commodities and the reproduction of the worker, where capital takes charge of the production of commodities and relinquishes responsibility for the reproduction of the worker. This division fundamentally differs from pre-capitalist economies, where the economic aim of producing use-values for the reproduction of the worker meant that there was no separation of the two.[176]

What is the consequence of this separation? Production, under the direct command of capital, creates value. Workers employed in wage-labour create value for capitalists. Meanwhile, reproductive work appears as part of the private life of workers. In some cases it may appear as leisure, for example cooking dinner to relax in the evening. In other cases, reproductive work may appear as a natural attribute of femininity, for example the raising of children. In their 1975 pamphlet *Counterplanning from the Kitchen,* Federici and Cox drew attention to the unpaid reproductive work of housewives that appears as a personal service to their husbands and children.[177] Reproductive work is also sometimes perceived as a remnant of a

[174] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 10.
[175] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 10.
[176] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 7.
[177] Cox and Federici, *Counterplanning From the Kitchen: Wages for Housework, A Perspective on Capital and the Left*, 9.

pre-capitalist past.[178] This creates the illusion that reproduction is not connected to the capitalist mode of production and that the reproductive sphere is free from capitalist exploitation. These forms of appearance that reproductive work takes on all contribute to a fallacy that reproductive work does not create value.[179]

But as Fortunati argues, 'while production both *is* and *appears as* the creation of value, reproduction *is* the creation of value but *appears otherwise.'*[180] These various forms of appearance of reproductive work merely mask the way that reproductive work in fact creates value for capital. The unpaid work that occurs in the home and community, contributing to the renewal of labour-power is central to the functioning of the capitalist economy as a whole. Capital therefore depends on workers privately renewing the commodity labour-power as part of the reproduction of their whole selves. Moreover, in framing reproductive work as natural or non-value creating, capital can avoid paying a wage for this work. This is why unpaid reproductive work is at the foundation of the capitalist economy as a whole.

This argument was the basis for the Wages Against Housework campaign led by Federici and other scholars and activists in the 1970s. This campaign sought to draw attention to the unpaid reproductive work borne by women, who worked as housewives while financially dependent upon access to their working husband's wage. The campaign refused capital's dependence on unpaid reproductive work by demanding a wage. This strategy not only insisted that capital pay for the labour it exploits, but also served as a measure to make social reproduction work visible so as to end its exploitation by capital.[181]

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[178] Cox and Federici, *Counterplanning From the Kitchen: Wages for Housework, A Perspective on Capital and the Left*, 9.
[179] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 8.
[180] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 8.
[181] Federici and Jones, 'Counterplanning in the Crisis of Social Reproduction', 154.

The work of Fortunati, Federici and other early social reproduction theorists demonstrates that capitalism is not defined simply by the presence or absence of wage-labour. Rather, capitalism is a mode of production with several possible forms of exploitation, one of which is wage-labour. As shown, the exploitation of unpaid yet value-generating reproductive labour is another. As such, while social reproduction appears to take place privately as an aspect of workers' freedom, it is also controlled and commanded by capital. Members of a household responsible for reproductive work, most often women, are no less workers than those in paid employment.

Of course, from the perspective of workers, labour-power is not reproduced for the purpose of capital, but for living itself. While the work that occurs in the workplace and is compensated by a wage is directly for the purpose of capital accumulation, the life-making involved in social reproduction is often done just for life itself. This is evident when we consider food – eating is not limited to its function in replenishing a worker's energy. It also has a significant social and cultural role, and many people enjoy both cooking and eating as a joyful activity in and of itself. Yet this enjoyment is curtailed by capital to differing degrees depending on a variety of factors. The question is the extent to which capital commands the form and nature of social reproduction. How much freedom does the worker have over their own reproduction and ultimately their own life? This can vary considerably across different forms of capitalism and types of workers as well as the class power of the working class. These differences within the working class will be discussed further in chapter five.

In its most extreme form, social reproduction is almost entirely dictated by the needs of capital, even where there is no wage to make this relationship explicit. In this case, capital

relinquishes responsibility for reproduction only to the extent that labour-power is adequately renewed so that it can be reused in the sphere of production. In this case, workers have very little freedom over how they reproduce themselves, and ultimately social reproduction is oriented towards the needs of capital.

Capital's command over diet does not end with the capitalist production of food, as described in chapter three. Rather, food is a crucial part of the renewal of labour-power. The way that workers eat under capital is not only determined by capitalist food production, nor is it merely decided by the wage. It is also affected by the reproductive labour required in food preparation: meal planning, grocery shopping, food storage, cooking, eating and cleaning. The time and effort available for this work required often constrains the possibilities for healthier diets. All of this work is fundamentally determined by the status of workers in the capitalist mode of production and should therefore be theorised in relation to capital accumulation. In the following section I will explore how reproductive work involved in food and eating is currently structured for workers in Aotearoa New Zealand.

Neoliberal capitalism and the reorganisation of social reproduction

Since the 1980s there has been drastic reorganisation of social reproduction in Aotearoa New Zealand and other developed countries. Prior to this, much of the twentieth century was largely organised around a regime of state-managed capitalism, where the working class was organised in a nuclear family structure.[182] Productive work was compensated by a family wage, enabling a housewife to remain in the domestic sphere and take care of the

[182] Fraser, 'Crisis of Care?', 25.

reproductive work for the family. As Fraser argues, this structure was intended to soften the contradiction between production and reproduction inherent in capitalism.[183] This gendered division of labour was temporarily advantageous for capital, securing the renewal of the male worker's labour-power as well as future generations of workers. Yet for many women, this arrangement meant a dependence on men for the money necessary for survival.

In a global attempt to accelerate capital accumulation, the 1970s and 1980s brought a reorganisation of reproduction. Women were recruited en masse into the workforce,[184] with real wages declining so that households were forced to depend on two wage-earners rather than the one as previously.[185] While this reorganisation earned women some financial freedom from men, many women were now responsible for both their paid work and the reproductive work for the household. As Federici argues, 'the second job not only increases our exploitation, but simply reproduces our role in different forms.'[186] This was accompanied by the state shifting the burden of social reproduction on to individuals, families and communities. In Aotearoa New Zealand, state housing was sold off or transferred to the profit-driven Housing New Zealand, forcing low-income families to pay market rents and subjecting them to the whims of private landlords.[187] Many aspects of healthcare were privatised, benefits cut, and student loans for tertiary education introduced.[188] Not only was the burden of social reproduction increased, but the capacity for doing it was diminished.

[183] Fraser, 'Crisis of Care?', 27.
[184] Ministry for Women, 'Labour Force Participation'; see for example increase in usage of early childhood education services since 1988 in Aziz et al., 'The Effect on Household Income of Government Taxation and Expenditure in 1988, 1998, 1007 and 2010', 30.
[185] Rosenberg, 'Wages and Inequality', 64.
[186] Federici, *Revolution at Point Zero: Housework, Reproduction and Feminist Struggle*, 20.
[187] Cole, '"WE SHALL NOT BE MOVED": Community Displacement and Dissensus in Glen Innes, Tāmaki Makaurau', 42-3.
[188] Kelsey, *The New Zealand Experiment: A World Model for Structural Adjustment,* 3-5.

The neoliberal era also brought about revolutions in the nature of the food supply in Aotearoa New Zealand. Since the 1980s, developments in food processing have resulted in more and more convenience food products. There is an increasing availability of cheap food products that require little to no preparation, such as ultra-processed foods.[189] This has been accompanied by an explosion in the availability of snack foods – chips, popcorn, biscuits, sweets – foods that are intended for eating between or in place of meals, frequently straight from the packet for maximum convenience. International research also suggests that households are increasingly reliant on takeaway food.[190] What connects these foods is the way they reduce the amount of reproductive work time required for food preparation. Instead of the time required to plan a meal, grocery shop for ingredients, spend an hour in the kitchen cooking and further time cleaning dishes, a family can make a drive through fast-food order in a matter of minutes. Snacks are designed to be eaten on the go, complementing unsatisfying, low-quality meals or replacing them entirely.

Convenience foods are essential to the expansion of absolute surplus value within capitalism and take on a new form in this neoliberal era. As described in chapter two, absolute surplus value is the total increase of surplus value production, which capital achieves through either increasing the length of the working day or incorporating more workers into the paid workforce as a whole.[191] Importantly, absolute surplus value is dependent on increasing total labour time. Through making convenience foods cheaply available to workers, capital can reduce the time previously required for reproductive work and incorporate it into paid work. This is evident with the mass entry of women into the paid workforce since the 1980s, as

[189] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition: Global, Regional and National Trends, Food Systems Transformations and Political Economy Drivers', 2.
[190] Lachat et al., 'Eating Out of Home and its Association With Dietary Intake: A Systematic Review of the Evidence', 329.
[191] Marx, *Capital: A Critique of Political Economy, Volume One*, 432.

feeding a household no longer required the labour of a housewife at home. Indeed, Baker et al. argue that an increase in women participating in paid work and a shift towards dual worker households has increased ultra-processed food consumption.[192] Cheap convenience foods have been an essential part of capital's recruitment of women into the workforce in Aotearoa New Zealand.

This change in the convenience of food commodities may appear advantageous to workers, especially for women. Less time spent on reproductive work that is unpaid by capital frees up hours of the day for women to earn a wage. The increasing availability of convenience foods and takeaways appears crucial to the liberation of women from unpaid domestic work. But this assumption ignores capital's command over both productive and reproductive work. Capital is ultimately concerned with paying a wage that enables labour-power to be reproduced and no more. With more adults in the paid workforce and less time required for the reproduction of labour-power, capital has the opportunity to depress wages. Since the 1980s we have witnessed a decline in real wages, so that every household is dependent on all adult members to be in paid work to earn enough to survive.[193] Households not only have less time outside of work for their reproduction but also lower wages to spend on the means of subsistence.

Here we can see how capital has constructed a material dependence on convenience foods for low-waged workers. An increasing amount of time that was previously devoted to reproductive work has been appropriated by capital, leaving less time to cook from scratch. Capital has left low-paid workers with few options for how to eat. As Fortunati argues,

[192] Baker et al., 'Ultra-Processed Foods and the Nutrition Transition', 10.
[193] Rosenberg, 'Wages and Inequality', 64.

capital only permits the necessary labour time for the reproduction of labour-power: 'Anything that goes beyond this "sufficiency" becomes waste, a luxury that the proletariat must not permit itself.'[194] Indeed, research confirms that lack of time is a major barrier to cooking meals at home.[195] Evidently, low-paid workers are not making a simple choice to eat convenience foods, nor is it a matter of laziness. Rather, capital has constructed an optimal pathway for surplus value extraction that involves convenience foods for the renewal of labour-power and an increasing amount of time in paid work. Cooking from scratch just because it is healthier does not align with capital's aim of surplus value extraction.

For some low-paid workers, relying on ultra-processed foods may also be a method of claiming back some of the free time that capital constantly seeks to absorb. In this sense, it is not necessarily that workers are absolutely reliant on ultra-processed foods but rather that they make a choice between eating a healthy diet and enjoying a small amount of leisure time. Here, the issue is an economic system that forces this grim choice upon workers, using the illusion of workers' freedom to pretend they have control over their lives. Moreover, population health experts should be careful not to imply that certain workers are more virtuous if they give up these meagre amounts of free time that contribute happiness and satisfaction to their lives and more often than not, the lives of others, just so to cook healthy food at home. Rather, we should aspire to an economic system where the workers have the true freedom to both eat healthy food and enjoy leisure time.

Of course, the convenience of these foods has come at the expense of their nutritional value. The more that workers are forced to rely on cheap, ultra-processed convenience foods, the

[194] Fortunati, *The Arcane of Reproduction: Housework, Prostitution, Labor and Capital*, 19.
[195] Gerritsen et al., 'Improving Low Fruit and Vegetable Intake in Children: Findings From a System Dynamics, Community Group Model Building Study', 7.

greater their risk for chronic disease later in life. This is different to indulging in unhealthy food once in a while – what social reproduction analyses demonstrate is that it is the *reliance* on these unhealthy foods, due to the constraints that the capital-relation places on food choices, that cause chronic disease.

However, as the food commodities eaten by the working class are altered, the conditions for capital accumulation are jeopardised in the long run. Workers facing chronic diseases such as cancers, type 2 diabetes and cardiovascular disease will die prematurely, ending their working life and cutting short capital's potential for accumulation. Not only that, unhealthy diets impact workers' focus and productivity at work in the short term as well. As Marx states, 'capital asks no questions about the length of life of labour-power. What interests it is purely and simply the maximum of labour-power that can be set in motion in a working day. It attains this by shortening the life of labour-power'.[196] Capital's ignorance for the longevity of workers is not only tragic but it also demonstrates the contradictions of the capitalist mode of production as an economic system.

Just as Marx overlooked the role of reproductive work in capitalism, many common critiques of the food system in Aotearoa New Zealand also fail to understand the work required for eating a healthy diet. Frequently, the work involved in preparing food is not adequately conceptualised as real work. Many researchers neglect to acknowledge that there is a finite amount of time for reproductive work, and that the capacity for this work is largely controlled by capital through working hours and the wage. As a result, research findings and proposed solutions to unhealthy diets often fail to resonate with low-paid workers struggling to eat healthy diets. The most obvious example is the oft-repeated public health advice to eat home-

[196] Marx, *Capital: A Critique of Political Economy, Volume One*, 376.

cooked food and reduce takeout and convenience food consumption. This advice, appearing in the Ministry of Health dietary guidelines after being recommended in a panoply of research articles,[197] may be empirically correct on a biological level but fails to acknowledge the material conditions of workers. Instead, it assumes that reproductive work can be effortlessly absorbed into a worker's leisure time outside of paid work.

Difference in social reproduction

Evidently, not all workers are dependent on convenience foods to make up the basis of their diets. In fact, public health advice to prioritise cooking at home may indeed resonate with many workers, especially those that are well-paid. But for these workers, the neoliberal capitalist era has brought about a fundamentally different organisation of social reproduction to low-paid workers, one that has not degraded the quality of reproduction in the same way. Highly paid workers can devote part of their wage to hiring service workers – cleaners, nannies or housekeepers, for example – to take on part of the necessary reproductive work. This reduces the total burden of reproductive work for these households, making possible the time for healthy food to be cooked at home.

According to Federici, the rise in service sector work has come about as the result of women refusing to work for free, forcing employers to confront them at the point of reproduction. She notes that 'with this development we see the reproduction of labor power assume an autonomous status in the economy with respect to the production of commodities'.[198] While

[197] Ministry of Health, *Eating and Activity Guidelines for New Zealand Adults*, 58.
[198] Federici, *Revolution at Point Zero: Housework, Reproduction and Feminist Struggle*, 50.

Federici's assertion is accurate for highly paid women who can outsource the unpaid reproductive work they were previously responsible for, what does it mean for the service workers themselves? While they are paid to do the reproductive work of others, service workers frequently remain burdened with the cooking, cleaning and childcare for their own families and households. While the service sector might appear as an efficient division of labour for those with office jobs, in reality the burden of social reproduction is passed to a different subset of the working class. This is visible in Aotearoa New Zealand, where such jobs are insecure, casualised, underpaid and predominantly filled by migrant workers.

More broadly, outsourcing reproduction to the service sector does not challenge the foundation of capital's exploitation of reproductive work. While service jobs may involve pay for reproductive work, it is rarely a lucrative career path, indicating that capital still depends on the devaluation of reproductive work to facilitate continued accumulation.[199] Social reproduction continues to appear 'as backward residue, an obstacle to advancement that must be sloughed off one way or another en route to liberation'.[200] While this may enable some workers to eat healthy diets, it does not scale for the working class as a whole. Addressing unhealthy diets for all workers, not just those who can afford a cleaner, requires that reproductive work is fully acknowledged and paid as work integral to 'people-making'.[201]

[199] Federici, *Revolution at Point Zero: Housework, Reproduction and Feminist Struggle*, 12.
[200] Fraser, 'Crisis of Care?', 33.
[201] Arruza, Bhattacharya and Fraser, *Feminism for the 99%: A Manifesto*, 68.

Addressing unhealthy diets through support for reproductive work

As I have shown in this chapter, there is considerable work involved in consuming a healthy diet that frequently goes unrecognised. Social reproduction analyses not only draw attention to the magnitude of this work, but also demonstrate capital's dependence on it. Yet capital simultaneously pretends that this work is not in fact work so as to avoid paying a wage for it. As such, capital quietly encroaches on workers' capacity to consume a healthy diet. This idea is obvious to any worker who has resented the task of cooking dinner for themselves or their family after a long day of work yet is inadequately theorised in both public health research and traditional Marxian analyses.

What do these insights mean for addressing unhealthy diets? First, it is crucial that we recognise reproductive work as work as opposed to leisure. Not only that, we must also emphasise that it is work from which capital extracts value. Second, we must reorganise that work in a way that makes healthy diets accessible to the whole working class. This could be done through providing direct material support for this reproductive work, or through the state assuming responsibility for some aspects of reproductive work through the provision of universal services. One example of this is the New Zealand Government's Ka Ora, Ka Ako programme, which provides free lunches to students at low-decile schools. The potential of this programme will be further discussed alongside other solutions to unhealthy diets in chapter six.

This chapter has also highlighted the reciprocal relationship between the varying forms of reproductive work. The work necessary for consuming a healthy diet does not occur in a vacuum – workers' capacity to undertake the labour required to feed themselves is

constrained by other elements of reproduction that capital encroaches on. This means that reducing the burden of other aspects of reproductive work on workers can increase their capacity to consume a healthy diet. Addressing unhealthy diets should therefore not be limited to solutions directly involving food, but rather encompass broad support for reproductive work. One example of this is increasing state support for childcare so as reduce the burden on parents.

As I argued earlier in this chapter, the reorganisation of social reproduction since the 1980s has not had the same effect on all workers. Some highly paid workers have been able to outsource aspects of reproductive work to service workers, which increases their capability for preparing and consuming a healthy diet. In the following chapter I will expand on this idea of difference within the capitalist mode of production.

Chapter Five: Difference in the Capitalist Mode of Production; Difference in Unhealthy Diets.

In my analysis so far, I have assumed a certain degree of homogeneity in how the capitalist mode of production operates. I have described the working class predominantly as a single monolithic category so as to focus on the relation between capital and workers. My arguments so far many have also given the impression that capitalism has a tendency towards all workers subsisting on the ultra-processed foods. While these assumptions were necessary to sketch the substance of my argument, there are evidently dramatic variations in how capitalism functions in concrete reality. Workers experience vastly different material conditions. Further, processes of production also differ dramatically – there is no single version of food production under capital.

In this chapter I will use the work of Tomba, Lebowitz and Botwinick to analyse the empirical variation that we observe in the capitalist mode of production. I will first focus on difference in the types of capitalist food production, demonstrating that formal and real subsumption coexist within capitalism. I will then discuss reasons for the variation that we observe in the wages of the working class, including variation between countries, between types of jobs, and along the lines of gender and ethnicity. This chapter is not an exhaustive examination of the types of difference in the capitalist mode of production, rather its purpose is to illustrate how difference is integral to the normal functioning of capitalism.

Difference in types of food production

The first form of difference that I will address is difference in types of food production and food products. It is obvious that the food supply both in Aotearoa New Zealand and globally is not restricted to ultra-processed foods. While these types of unhealthy convenience foods have undoubtedly become widespread, not every worker is forced to subsist on them. If the development of ultra-processed foods is so advantageous for capital, how can we explain the persistent presence of many healthier foods in the food supply? Would we not have already seen the total transformation of the food supply?

According to Tomba, such an assertion misunderstands the nature of capital. When reading Marx, it is easy to assume that capitalism follows a linear pathway of development: first involving the formal subsumption of labour and absolute surplus value and then evolving into real subsumption, with capitalists collecting relative surplus value. Following this line of reasoning would indeed lead us to believe that ultra-processed foods should now be the primary type of food worldwide. But Tomba refutes this idea, arguing that it universalises the specifically European experience of capitalist development.[202] Instead, Tomba posits that capitalism depends on difference. This includes both difference in the nature of production as well as difference in the working class itself.

Tomba argues that absolute and relative surplus value necessarily exist in relation to each other.[203] This means that relative surplus value does not replace absolute surplus value as capitalism develops, but rather the forms coexist and complement each other. There are two

[202] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 294.
[203] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 292.

ways that capital extracts relative surplus value from workers: through differentials in productivity and through decreasing the value of the commodities making up the means of subsistence. Both occur through developments in the productivity of labour, but the first depends on the concept of socially necessary labour time.

As I outlined in chapter two, Marx states that the value of a commodity is determined by the labour time that is socially necessary for its production. When individual capitalist firms adopt new technology and more productive processes, they reduce the labour time required for the production of their own commodities. Yet as long as other firms have not adopted these more productive processes, the socially necessary labour time remains high. For the more productive firm, there is a differential between the socially necessary labour time for a particular commodity and the labour time that that firm specifically requires to produce it.

As Tomba argues, it is precisely this differential, this relative productivity, that allows for the more productive firm to collect relative surplus value. As soon as a technological innovation becomes widespread and the increase in productivity of labour becomes the norm, the socially necessary labour is reduced and that opportunity to extract relative surplus value is lost. Capital is always in search of these differences in order to facilitate the transfer of value from areas of high absolute surplus value to those of high relative surplus value.[204] The relationship between absolute and relative surplus value is therefore not one of linear transition but rather one of reciprocity. This 'pushes the global market toward differentiation of the forms of exploitation by stationing technologies and high organic composition of

[204] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 291-2.

capital in some places, and in others, enormous concentrations of living labour, long hours, and high intensity of labour.'[205]

The reciprocal relationship between absolute and relative surplus value means that formal and real subsumption also co-exist in the capitalist mode of production. As Marx explains, formal subsumption is adequate for the extraction of absolute surplus value, while real subsumption is required for relative surplus value.[206] If we assume that the capitalist mode of production develops from absolute to relative surplus value extraction, we may also conclude that real subsumption eventually takes over so that all production processes are qualitatively transformed into forms more suited to capital's profit orientation.[207] But as Tomba demonstrates, capital's reliance on the reciprocity of absolute and relative surplus value requires the coexistence of formal and real subsumption. As capitalism continues to develop, many production processes that exist within the capital-relation, yet remain pre-capitalist in nature otherwise, will continue to exist.

What does this look like in terms of food systems? In chapter three I argued that ultra-processed foods are the outcome of the real subsumption of food production under capital. But of course, ultra-processed foods are not the only type of food produced, neither in Aotearoa New Zealand nor globally. New Zealand continues to produce large quantities of minimally processed fruit, vegetables, meat and dairy products. Moreover, research into the New Zealand food supply also demonstrates that there is a considerable proportion of packaged foods that do not fall into the ultra-processed category.[208] This is because capital

[205] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 293.
[206] Marx, *Capital: A Critique of Political Economy, Volume One,* 1026.
[207] Murray, 'The Social and Material Transformation of Production by Capital: Formal and Real Subsumption in *Capital, Volume I*', 257.
[208] Mackay et al., *State of the Food Supply: New Zealand 2019,* 10-11.

depends on variation in food production, so as to facilitate relative surplus value extraction where possible. Tomba posits that formal subsumption 'denotes how the capitalist mode of production encounters and subsumes existing forms without creating a homogenous world'.[209] In a sense, the continued production of minimally processed food is as much a feature of capitalist food production as ultra-processed foods are.

If capitalism depends on difference, which processes of food production and distribution should we understand as inherent to capitalism? What specifically about capitalism should we critique, and what does it mean for removing food from capitalist production altogether? As both Tomba and Marxian scholar Ellen Meiksins Wood argue, the capitalist mode of production is an abstract structure that can be organised in a number of different forms.[210] What defines capitalism is inversion, wherein 'production is not primarily organised in order to satisfy human need, but to valorize value'.[211] Capital does not merely create its own conditions of existence, but rather inherits many pre-existing relationships of production, property and politics and reconfigures them in this inversion.[212] While capitalism can appear in historically and geographically varying forms, it is defined by this common abstract structure. As such, ultra-processed foods are the result of just one version of the capitalist structuring of food production and consumption.

Does this mean that ultra-processed foods are not a problem internal to capitalism after all? More importantly, is it possible to reconfigure capitalism to guarantee healthy diets globally? This is a tempting proposition for those reluctant to imagine solutions outside of capitalism.

[209] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 287.
[210] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 289; Meiksins Wood, 'Class, Race and Capitalism', 275.
[211] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 289.
[212] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 288.

Indeed, it is entirely possible that we may be able to tinker with corporate food production to mitigate its unhealthy effects. Many of these efforts are well underway in Aotearoa New Zealand and have been extensively researched, including reforms to the Health Star Rating, reformulation to reduce salt, saturated fat and sugar in certain products, limits on the marketing of ultra-processed foods, and taxes on sugar-sweetened beverages.

Yet ultimately, minor adjustments to corporate food production will not change the rotten core of the capitalist economy – this inverted structure that orients all production towards profit rather than need. Ultra-processed foods are unquestionably the result of a profit-driven food system. Moreover, tinkering around the edges of food production takes a myopic view of population health: unhealthy diets are far from the only misery that the capitalist mode of production causes, both in Aotearoa New Zealand and globally. These types of solutions will be further explored in chapter six, where I critique of dominant public health solutions and offer alternative pathways that address unhealthy diets as a feature of capitalism.

Difference in wages within the working class

The second type of difference is that of difference in the wages and overall material conditions of the working class. Thus far, I have assumed that the value of labour-power and the wage that workers are paid are fixed. This assumption was necessary to understand the logic of relative surplus value and increases in productivity, specifically from the perspective of capital. However it is undeniable that there is considerable variation in wages amongst the working class, whether that be within a country, between countries or between time periods.

For example, in Aotearoa New Zealand the minimum wage is $41,600[213] while the Vice-Chancellor of the University of Auckland collects a salary of $755,000[214] – an 18-fold difference in income. Many corporate chief executives are paid salaries in the seven figures.[215] Furthermore, there are striking ethnic and gender inequalities between workers: for example, Pacific women earn on average 27 per cent less than Pākehā men in Aotearoa New Zealand.[216] Evidently, wages are not solely determined by the bare minimum physiological standard of living, as was assumed earlier.

The variation in wages within the working class is important to analyse because it has a significant impact on the food we eat. Many studies have demonstrated an association between low socioeconomic status and risk for chronic disease.[217] Healthier food not only tends to be more expensive, but high wages can also alleviate some of the pressures of social reproduction, allowing for more time to be spent on planning and cooking healthy meals.[218] In this section I will reintroduce the idea of variation in both the value and price of labour-power to better account for empirical difference in material conditions within the working class.

In volume one of *Capital*, Marx generally assumed that there was a definite, fixed quantity of the means of subsistence that determined wages. Although this abstraction was necessary for other arguments made in volume one, it does strike the reader as being blunt – a major assumption that departs from the realities of workers. But as Lebowitz points out, Marx's aim

[213] Employment New Zealand, 'Current Minimum Wage Rates'.
[214] Fyi.org.nz, 'Vice-Chancellor's Salary: Lana McCarthy Made This Official Information Request to University of Auckland'.
[215] Morrison, 'Bosses of Our Biggest Companies Can Earn Nearly 40 Times More Than Their Workers'.
[216] Pacific Waves, 'Pay Gap Akin to Pasifika Working For Free For the Rest of 2021'.
[217] Lago-Peñas et al., 'The Impact of Socioeconomic Position on Non-Communicable Diseases: What Do We Know About It?', 159.
[218] Gerritsen et al., 'Improving Low Fruit and Vegetable Intake in Children: Findings From a System Dynamics, Community Group Model Building Study', 11.

in *Capital* was to understand the capitalist mode of production from the perspective of capital.[219] What Marx demonstrated was that wages are not linked to the quantity of labour performed, as mainstream economists argue, but rather to the reproduction of the worker's labour-power. Capital pays workers a wage because it depends on the renewal of labour-power, treating workers as if they were 'lifeless instruments of production'.[220] However, Marx did also acknowledge that the standard of necessary labour differed at various epochs and between countries as well as fluctuating with supply and demand.[221]

The first cause for variation in wages that I will explore is where the price of labour-power (the wage) departs from the value of labour-power. So far, we have assumed that the wage is determined by the value of the means of subsistence necessary for labour-power to be reproduced. But as Lebowitz explains, Marx was also aware that wages can fluctuate depending on the supply and demand for labour-power.[222] An increase in demand for labour-power will increase its price, resulting in a wage that is in excess of subsistence.[223] Subsequent increases in the supply of labour-power conversely lower the price of labour-power back to its value. For example, in Aotearoa New Zealand we are currently witnessing a shortage of workers with skills in software. Demand for workers with these skills is high and wages for these jobs are well above subsistence. Considerable efforts are being made to encourage students into 'STEM' subjects at university so that with a larger pool of workers to pick from, capital can suppress wages once again to subsistence levels. Lebowitz posits that when the price of labour-power exceeds its value due to variation in the supply and demand

[219] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 104.
[220] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 104.
[221] Marx, *Grundrisse: Foundations of the Critique of Political Economy*, 817.
[222] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 106.
[223] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 106.

of labour, workers appropriate a part of their surplus labour for themselves.[224] Correspondingly, this constrains the surplus value collected by capitalists.

Variations in supply and demand occur within certain industries and between workers with different skillsets, but they also occur across the working class as whole. Aotearoa New Zealand is currently experiencing a low supply of labour-power, manifesting in low unemployment rates across the labour market.[225] Low unemployment rates provide workers with greater bargaining power to demand higher wages from capital. Of course, this constrains the surplus value that capital is able to extract. As such, one way that capital keeps wages low is through what Marx calls the reserve army of labour.[226] This is the proportion of the population that is unemployed, subsisting on the minimal welfare support provided by the state. The reserve army is another source of difference in wages within the working class. Maintaining a reserve army population and ensuring that those in paid work are always granted a more generous standard of living means that wages of others can remain low. Workers are always threatened with losing their job and therefore their standard of living, requiring them to remain compliant with capital.

The second cause of variations in wages is discrepancies between workers in the value of their labour-power. Not only does the price of labour-power fluctuate with supply and demand, but the actual value of labour-power varies between workers. As Lebowitz argues, if wages are significantly above or below the standard of necessity for an extended period of time, there is a tendency for the value of labour-power to either increase or decrease to that level. For instance, if the price of labour-power is below the value of labour-power, the

[224] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 110.
[225] Pullar-Strecker and Gay, 'Unemployment in NZ Expected to Fall to "Record" Low'.
[226] Marx, *Capital: A Critique of Political Economy, Volume One*, 781.

subsistence level that is considered normal and acceptable will contract.[227] Workers may become accustomed to a lower standard of living, and if it is not met with major resistance, capital can maintain lower wages.

Similarly, when wages increase due to increased demand for labour, workers can afford to 'extend the circle of their enjoyments',[228] perhaps purchasing more luxury commodities or saving some money.[229] If wages remain elevated, workers become accustomed to this new standard of living. Moreover, higher wages incite a demand for particular commodities that were not previously used, a demand that capital may have an interest in maintaining.[230] This can in part explain why certain types of jobs, certain skills and even workers of different ethnicities and gender can on average command higher wages than others. Difference in wages along ethnic and gender lines will be further explored later in this chapter.

Here, Lebowitz also points out the important role that labour unions play in fighting for a certain standard of living for workers and maintaining wages at that level. Unions are responsible for using the collective power of workers to resist the constant encroachments by capital. Lebowitz notes that class struggle also plays an important role in determining the material conditions of workers when the productivity of labour increases. When Marx describes the mechanism by which capitalists collect relative surplus value in volume one of *Capital*, he demonstrates that capitalists make improvements to productivity specifically for their own benefit – to increase capital accumulation. This assertion is an important disproof

[227] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 111.
[228] Marx, *Capital: A Critique of Political Economy, Volume One,* 769.
[229] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 110.
[230] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 111.

of the oft-repeated argument by economists that improving living standards requires advances in the productivity of labour.[231]

But Lebowitz also points out that there are cases in which workers also benefit from increases in productivity, as a by-product of capital accumulation. When productivity increases, more use-values are created and their individual value falls: 'If the balance of class forces is such as to keep the rate of exploitation constant, then the effect of productivity increases will be an increase in real wages and no development of relative surplus value'.[232] Even if workers are not able secure the total increase in surplus value, there can be an increase in real wages as well as a greater quantity of relative surplus value for the capitalist. Broadly, this means that the countries and industries where relative surplus value is the predominant form of surplus value extraction generally have much more favourable living conditions.

There are further consequences for wages in industries with high levels of relative surplus value extraction. The increases in productivity that create relative surplus value require developments in machinery and technology. Capitalists must spend more and more money on new and updated technology in order to improve the productivity of labour. Consequently, this tends to alter the proportions of fixed and variable capital in these industries: an increasing proportion of capital is devoted to the means of production and a diminishing proportion is spent on labour-power. As Botwinick explains, firms in these types of industries are more likely to be able to afford to absorb higher wage increases.[233] Union action in these industries is more likely to be successful, producing higher wages for workers in relative surplus value-dependent industries without threatening overall capital accumulation. In

[231] See the New Zealand Productivity Commission's explanation for why increasing productivity is important for wellbeing: https://www.productivity.govt.nz/productivity/
[232] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 115.
[233] Botwinick, *Persistent Inequalities: Wage Disparity Under Capitalist Competition*, 252.

comparison, those firms relying on absolute surplus value extraction face much higher costs if faced with demands for wage increases. In these industries, capital is more likely to quash these demands as they threaten a firm's potential for capital accumulation.[234]

Even when wages do increase with improvements in productivity, the tension inherent to the capital-relation can produce the opposite effect. As Lebowitz points out, increases in wages constrain surplus value, thereby reducing capital accumulation.[235] This in turn reduces demand for labour-power, limiting job opportunities and expanding the reserve army of unemployed workers. Increases in wages are therefore limited to the conditions that leave intact the foundations of the capitalist system and secure its reproduction on an increasing scale. As Marx states, 'the mechanism of the capitalist production process removes the very obstacles it temporarily creates'.[236] As long as adjustments to income levels do not challenge the capital-relation itself, workers' subsistence levels will continue to come second to the needs of capital for its continued accumulation.

What is crucial about the arguments from both Lebowitz and Botwinick is that any gains that workers make in their standard of living are always resisted by capital.[237] Capital 'will push to make an increase in the price of labour-power only temporary whereas workers struggle to make their increased share of civilization permanent'.[238] This is a site of constant class struggle, where capital will take all opportunities to suppress the value of labour-power to the very minimum for reproduction. As Lebowitz asserts, 'class struggle is at the core of changes in the standard of necessity'.[239] This also highlights the limits of class struggle as the answer

[234] Botwinick, *Persistent Inequalities: Wage Disparity Under Capitalist Competition* 252.
[235] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 113.
[236] Marx, *Capital: A Critique of Political Economy, Volume One,* 770.
[237] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 112.
[238] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 112.
[239] Lebowitz, *Beyond Capital: Marx's Political Economy of the Working Class*, 112.

to unhealthy diets. Any gains that are made for workers through union action and workers movements tend to be temporary. As long as the capital-relation remains in place, the wellbeing of workers will remain subordinate to capital accumulation. Moreover, as Botwinick demonstrates, any collective action is more likely to benefit those workers in industries of relative surplus value, rather than workers overall.

How can we account for the differences in wages and living conditions between workers on the basis of gender and ethnicity? Such a question is important to consider, as it helps to explain the ethnic inequalities that we observe both in diet quality and diet-related chronic disease in Aotearoa New Zealand. As Botwinick argues, there are often two dynamics at play that produce these inequitable outcomes: the generation of jobs with substandard working conditions and low wages, and the discriminatory allocation of a disproportionate number of people of colour and women to those low-paying jobs.[240] As demonstrated in this chapter, it is the first dynamic that is internal to capitalism: 'capital can use these differences for its own profit in order to differentiate wages and intensities of exploitation'.[241] The systemic marginalisation of Māori and Pacific people, women and non-white immigrants in Aotearoa New Zealand is illustrative of the way that capital encounters pre-existing racial and gender hierarchies and uses them for its benefit.[242] In other words, capitalism requires some version of difference, and what better opportunity than a hierarchy that can be enforced with existing interpersonal racism and sexism, discrimination, cultural myths and stereotypes?

Notably, this reinforces the importance of abolishing capitalism itself. Here, we should not be aiming for a more equal distribution of healthy diets among various ethnicities. If that were to

[240] Botwinick, *Persistent Inequalities: Wage Disparities Under Capitalist Competition*, 10.
[241] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 298.
[242] Tomba, 'On the Capitalist and Emancipatory Use of Asynchronies in Formal Subsumption', 298.

be the aim, we would run the risk of simply reassigning the type of person that would bear the burden of limited dietary choices and resulting consequences for their health. As Meiksins Wood argues, 'capitalism will always have a working class, and it will always produce underclasses, whatever their extra-economic identity.'[243] Instead, our focus should be on our exit from the economic system that creates and depends on differentiated living conditions in this manner.

This chapter has demonstrated that difference is an integral feature of the capitalist mode of production. The variety in food production that we observe is indicative of the coexistence of formal and real subsumption and absolute and relative surplus value. This results in the simultaneous production of ultra-processed foods alongside healthier, minimally processed foods. Further, capital also depends on differentiating the working class, resulting in a range of material conditions experienced by workers. While in the abstract the capital-relation may be the same for all workers, differences are expressed in their material realities. This is due to changes in the supply and demand of workers, the role of unions, and capital's utilisation of ethnic and gender hierarchies.

In this chapter I have also shown that addressing the diet quality of the whole of the working class requires us to move away from an economic system that relies on arbitrary differences. There is no reason for these inequalities between workers to exist, beyond propping up the function of capital. Further, it is crucial that we exit the economic system that depends on such inequality, rather than simply reallocating that inequality between ethnicities and genders. There is also significant potential here for further research into how capital's sources

[243] Meiksins Wood, 'Class, Race and Capitalism', 298.

of difference relate to disparities in diet quality and rates of diet-related chronic disease so as to further develop this theorising.

Chapter Six: Solutions to Unhealthy Diets

Thus far, this thesis has focused on locating the problem of unhealthy diets within the mechanisms of the capitalist mode of production. I have discussed not only the problems with capitalist production of food but also the way in which food quality is compromised so as to lower the value of labour-power. In doing so, I have demonstrated that cheap, unhealthy food is a consequence of both the production of commodities and reproduction of labour-power as it occurs within the capital-relation. This is a fundamental reframing of the causes of unhealthy diets in developed countries.

The purpose of this thesis is not merely to reconsider the causes of unhealthy diets for the sake of it. Rather, redefining the problem of unhealthy diets is necessary for opening pathways to possible solutions. In this final chapter, I will re-approach potential avenues for addressing the problem of unhealthy diets in developed capitalist countries, using Aotearoa New Zealand as an example. First, I will discuss the mainstream public health approach to solutions. I will draw on three frequently cited solutions as examples of this approach: government regulation of junk food marketing to children, taxes on sugar-sweetened beverages, and front-of-pack labelling indicating the healthiness of food commodities. The merits and limitations of each of these approaches will be discussed.

Finally, I will explore some potential solutions that build on each argument made in this thesis. I will discuss ways of removing food production and retail from capital so as to orient it towards need rather than profit. Ways of supporting social reproduction more broadly will also be explored so as to alleviate the burden of preparing a healthy diet in the private spheres of individuals and families. Finally, I will discuss potential for resistance to capital in general.

While not an exhaustive list or investigation, this is an indication of areas for future research and exploration, as well as a recognition of some of the existing work taking place in Aotearoa New Zealand.

Solutions in public health literature

Most solutions to unhealthy diets proposed and advocated by public health experts centre around the concept of improving food environments. This idea stems from the concept of the obesogenic environment, a theory proposed by Garry Egger and Boyd Swinburn in 1997.[244] Previously, obesity was thought to be caused quite simply by excess energy (food) intake and insufficient energy output (exercise). Public health interventions focused on educating the population about healthy diets and physical activity, and those with obesity were effectively blamed for being lazy or lacking in self-control. Egger and Swinburn instead proposed an ecological approach to obesity, acknowledging the role of environments and context in determining how a person eats and moves.[245] The authors argued that individuals were making choices within an environment that tended to produce obesity – the obesogenic environment. As such, most solutions to unhealthy diets proposed by public health experts attempt to make some kind of alteration to food environments to improve the healthiness of individuals' choices.

One such solution is the regulation of unhealthy food and beverage marking to children. This has been high on the agenda of public health experts for some time and has recently made

[244] Egger and Swinburn, 'An "Ecological" Approach to the Obesity Pandemic', 478.
[245] Egger and Swinburn, 'An "Ecological" Approach to the Obesity Pandemic', 477.

headlines in the media again with the publication of new research that investigates fast food companies' use of social media for advertising to children.[246] Public health experts argue that children present a special case in terms of marketing, as they are more easily influenced and less likely to understand the harms of unhealthy foods.[247] At present, the New Zealand Government does not regulate unhealthy food marketing to children. Some restrictions are administered by the Advertising Standards Authority, but these are widely agreed to be insufficient for properly limiting the harms to children.[248] Moreover, the Authority is managed by the advertising industry itself, and the burden of reporting code breaches is borne by consumers rather than a regulatory body. Thus far, legislative restrictions to unhealthy food and beverage marketing to children have been introduced in some jurisdictions, including Chile and the United Kingdom.[249]

From a Marxian perspective, marketing plays an important and interesting role in the capitalist mode of production. As discussed in chapter three, all commodities must have both a use-value and an exchange-value. That use-value, the qualitative utility of a production, can be real or imagined.[250] In other words, a commodity must fill some kind of want or need in order to be purchased. With capitalist production oriented towards profit, there is a tendency towards the overproduction of articles that are not necessarily useful or desired by consumers. The role of marketing comes into play here: to create and enforce the use-value of a commodity that is required for both its existence as a commodity and its sale. This allows commodities to meet a need in order to satisfy capital's imperative to accumulate surplus

[246] Small, 'Calls For Tougher Regulations After Study Finds Fast Food Brands Targeting Youths on TikTok'.
[247] Sing et al., 'Food Advertising to Children in New Zealand: A Critical Review of the Performance of a Self-Regulatory Complaints System Using a Public Health Law Framework', 10.
[248] Sing et al., 'Food Advertising to Children in New Zealand: A Critical Review of the Performance of a Self-Regulatory Complaints System Using a Public Health Law Framework', 2.
[249] Sing et al., 'Designing Legislative Responses to Restrict Children's Exposure to Unhealthy Food and Non-Alcoholic Beverage Marketing: A Case Study Analysis of Chile, Canada and the United Kingdom', 2.
[250] Marx, *Capital: A Critique of Political Economy, Volume One*, 125.

value. The purpose of marketing therefore goes beyond displaying commodities to potential consumers. Rather, marketing creates needs in consumers for the use-values of commodities to fill.

Public health experts rightly focus on junk food marketing because it seeks to manufacture a desire for unhealthy products. Marketing can create a need in people for those specifically capitalist commodities that result from the real subsumption of food production under capital. As public health experts argue, this magnifies the demand for junk food. In marketing their junk food to children in particular, profit-hungry corporations can take advantage of children's vulnerability as well as the will of weary parents exhausted by their kids' pestering. Marketing unhealthy food products can therefore be conceptualised as a symptom of capitalist food production.

Introducing restrictions on junk food marketing is therefore well overdue in Aotearoa New Zealand. There is no doubt that food marketing contributes to the desire for and consumption of unhealthy foods, fast food in particular. Indeed, some research has found that statutory regulation of marketing can reduce unhealthy food purchases and change children's dietary intake.[251] Further, similar restrictions on marketing are already in place for other unhealthy commodities in Aotearoa New Zealand – tobacco marketing is prohibited entirely, and alcohol cannot be marketed to children. Restricting unhealthy food and beverage marketing to children is therefore a basic and necessary step towards healthier population diets.

[251] Boyland et al., 'Systematic Review of the Effect of Policies to Restrict the Marketing of Foods and Non-Alcoholic Beverages to which Children are Exposed', 14-15.

It is important to note, however, that restricting marketing to children does little to address the underlying issue: the way that material conditions affect the quality of food consumption. The perspective behind such a solution assumes that people simply need to be convinced of the merits of healthy food and resist their urges to consume junk food instead. Further, marketing restrictions do little to explain the inequities between rich and poor in diet quality. Are wealthier people simply better at resisting fast food marketing? This perspective is fundamentally different from understanding unhealthy diets as a material problem that exists in relation to wages, social reproduction and the cheapening of labour-power.

A second prominent solution to unhealthy diets advocated for by public health experts is taxes on unhealthy foods. The rationale for this solution is that many unhealthy food commodities are too cheap and do not embody their full cost to the consumer, environment or health system, an idea explored more comprehensively in chapter two. Experts acknowledge that cost is a major influence on food choices and that there is a general perception that healthier foods are more expensive than their unhealthy counterparts.[252] Taxes on unhealthy foods decrease the affordability of unhealthy foods relative to healthier ones. This acts as a nudge for consumers to purchase healthier foods.

The most commonly discussed and implemented tax is that for sugar-sweetened beverages such as soft drinks. A sugar-sweetened beverage tax has been implemented in over 46 jurisdictions,[253] and there is moderate evidence to suggest that it reduces demand and consumption for those beverages.[254] There is also some evidence to suggest that such a tax could incentivise companies to reformulate their products to include less sugar so as to avoid

[252] Mackay et al., *How Healthy are Aotearoa New Zealand's Food Environments?,* 42.
[253] Mackay et al., *How Healthy are Aotearoa New Zealand's Food Environments?,* 51.
[254] Von Philipsborn et al., 'Environmental Interventions to Reduce the Consumption of Sugar-Sweetened Beverages and their Effects on Health', 2.

incurring the tax that makes their products more expensive to the consumer.[255] This is also an advantageous outcome for population health, effectively improving the healthiness of the overall food supply and expanding the number of low-sugar alternatives for consumers.

Taxes on unhealthy commodities to discourage consumption are nothing new. In Aotearoa New Zealand, similar taxes are applied to tobacco and alcohol, reducing the affordability of these commodities and discouraging their consumption. In particular, additional taxes on tobacco are sometimes credited for the drop in smoking rates seen in Aotearoa New Zealand over the past decade.[256] As population health research shows, taxing sugar-sweetened beverages has the potential to have a similar effect.[257]

However, there are some issues that could arise with the implementation of a sugar-sweetened beverage tax. Flat taxes paid at the point of consumption have a disproportionate impact on low-income people. Similar criticisms have been made of tobacco taxes and even other regressive taxes, such as New Zealand's Goods and Services Tax (GST). In response to this criticism, public health experts emphasise that unhealthy diets are most widespread amongst low-income people, and it is therefore equitable for the tax to have a greater effect on those consumers.[258] Of course, this is a superficial perception of both health and equity. In advocating such a tax, public health experts effectively justify placing a greater financial burden on low-income consumers as if it is for their own good. This approach fails to consider the causes of socioeconomic inequities in unhealthy diets and does not address those

[255] Von Philipsborn et al., 'Environmental Interventions to Reduce the Consumption of Sugar-Sweetened Beverages and their Effects on Health', 2.
[256] Ministry of Health, 'New Zealand Health Survey Annual Data Explorer 2020-21'.
[257] Teng et al., 'Impact of Sugar-Sweetened Beverage Taxes on Purchases and Dietary Intake: Systematic Review and Meta-Analysis', 1192.
[258] Falbe, 'The Ethics of Excise Taxes on Sugar-Sweetened Beverages', 3.

causes at their root. Moreover, such an approach neglects to contextualise population health solutions within what makes a good, dignified and healthy life.

That said, taxes that decrease the affordability of unhealthy commodities may still be justifiable where the product does not make up an essential part of the means of subsistence. Soft drinks, unlike food products, do not need to be consumed for basic survival but are rather an additional pleasure. Furthermore, there is an increasing availability of soft drinks with artificial sweeteners, which pose far less of a health risk to full-sugar drinks. In that sense, a tax on sugar-sweetened beverages may nudge consumers away from full-sugar options while encouraging the purchase of easily available, healthier alternatives. Taxes should be limited to 'extra' products that do not make up the necessities of feeding oneself and one's family, no matter how unhealthy they are.

Regardless, while taxes can nudge purchasing behaviours, they do not address the fundamental issue posed by cheap, unhealthy food. Taxes are not an appropriate way of adjusting the price of food to reflect its 'true cost' to health and society – merely adjusting the price of food at the point of consumption misunderstands how the value of food is determined. It is also a failure to recognise the relationship between wages and the value of commodities; between production and consumption within capitalism. Solutions to address the problem of cheap, unhealthy food require an understanding of the purpose of cheap food within capitalist societies.

Another public health intervention that is frequently advocated for is front-of-pack labelling. This involves the mandated labelling of packaged food products to indicate their healthiness. At present, all packaged food products sold in Aotearoa New Zealand must carry a nutrition

panel and ingredients list on the rear of the packet. Yet these nutrition panels are often difficult for a layperson to interpret, and food companies frequently manipulate serving sizes to make their products appear healthier. Instead, front-of-pack labelling systems attempt to provide consumers with an easily understandable rating of the healthiness of a food product and allow comparison between products to make a healthier choice. There is also a secondary advantage to mandating front-of-pack labelling – research finds that when forced to display a healthiness rating, companies often reformulate their food products so as to receive a higher score.[259]

Both Aotearoa New Zealand and Australia currently use the Health Star Rating for front-of-pack labelling. Still, its use is not mandatory, which makes comparison between products difficult for consumers. Companies will usually choose not to display the health star if their product receives a low rating. Moreover, the Health Star Rating in its current form has several methodological issues and is easy to misinterpret for consumers. Public health experts are calling for a review of the rating as well as its mandatory implementation.[260]

Improving front-of-pack labelling for packaged food products is bound to make a difference to some consumers' grocery shopping habits but has its limitations as a solution for unhealthy diets. Fundamentally, this solution defines the problem as laying with consumer health literacy. According to this, people consume unhealthy diets because they do not know what healthy and unhealthy foods look like, and therefore a simplified food rating may help. While this may help some consumers to make healthier choices, it is ultimately unlikely to have a

[259] Bablani et al., 'The Impact of Voluntary Front-of-Pack Nutrition Labelling on Packaged Food Reformulation: A Difference-in-Differences Analysis of the Australasian Health Star Rating Scheme', 10.
[260] Mackay et al., *How Healthy Are Aotearoa New Zealand's Food Environments,* 7*;* Lawrence, Dickie, and Woods, 'Do Nutrient-Based Front-of-Pack Labelling Schemes Support or Undermine Food-Based Dietary Guideline Recommendations? Lessons from the Australian Health Star Rating System', 11.

significant effect on the way people eat. Importantly, it does little to address the material conditions that are foundational to unhealthy diets. Instead, this type of intervention relies on creating a better-informed customer who can make more rational decisions about their consumption.

All of these interventions make the mistake of treating consumption as an isolated activity. Marketing, pricing incentives and labelling are solutions that frame the problem as something that occurs at the point of consumption. This reflects the way that mainstream economics tends to separate the spheres of production and exchange, so that activities occurring in the sphere of exchange are analysed in isolation. Instead, the strength of a Marxian approach to understanding unhealthy diets is the unity of both production and consumption. A person's activity as a consumer cannot be isolated from their role as a worker within the capital-relation.

In public health research, there is an increasing focus on the role of transnational food and beverage companies in determining the healthiness of food environments. This emerging field, often known as the commercial determinants of health, examines the global drivers and institutional arrangements that promote corporate interests.[261] Research in this field often investigates the alcohol and tobacco industries alongside unhealthy food commodities. As Wood et al. explain, this research most often investigates the non-market strategies used by corporations to protect and enhance their profit, including political donations, lobbying of governments and regulatory capture.[262] More recently, Wood et al. have investigated the

[261] Wood et al., 'Market Strategies Used By Processed Food Manufacturers To Increase And Consolidate Their Power: A Systematic Review And Document Analysis', 2.
[262] Wood et al., 'Market Strategies Used By Processed Food Manufacturers To Increase And Consolidate Their Power: A Systematic Review And Document Analysis', 2.

market strategies used by food manufacturers[263] and have also theorised the concept of 'corporate power' to understand the activities of these companies.[264]

However, the research surrounding the commercial determinants of health continues to locate the problem of unhealthy diets in the activities of corporations. This research rarely questions why food production is oriented towards profit in the first place. As such, studies are limited to describing the techniques used by corporations to bolster their profit-making as opposed to understanding that profit motive as a root cause. Consequently, this constrains the solutions that are considered possible, necessary and appropriate.

Public health researchers studying political economy continue to focus their solutions on limiting the power of food and beverage corporations, whether that be within the market or over policy-making. For example, Swinburn et al. argue that addressing unhealthy diets requires a reduction in the influence of commercial interests in public policy development,[265] while Wood et al. suggest that stronger competition law would enforce a more appropriate form of market competition, constraining the dominance of those corporations.[266] While these solutions would certainly be positive changes, they fundamentally fail to identify the root causes of the issue and instead address its symptoms. Consequently, these solutions are insufficient for addressing the problem fully and transforming the healthiness of diets for workers. Public health researchers should be cautious not to limit their aspirations for fear of appearing too radical and in doing so, limit the accuracy and potential of their work.

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[263] Wood et al., 'Market Strategies Used By Processed Food Manufacturers To Increase And Consolidate Their Power: A Systematic Review And Document Analysis', 2.
[264] Wood, Baker, and Sacks, 'Conceptualising the Commercial Determinants of Health Using a Power Lens: A Review and Synthesis of Existing Frameworks', 1.
[265] Swinburn et al., 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: *The Lancet* Commission Report', 836.
[266] Wood et al., 'Market Strategies Used By Processed Food Manufacturers To Increase And Consolidate Their Power: A Systematic Review And Document Analysis', 15.

Anti-capitalist solutions to unhealthy diets

Conceptualising the mechanisms through which capitalism causes unhealthy diets also reframes possible solutions. As I have argued, unhealthy diets are caused not only by the capitalist production of food commodities, but also by capital's drive to lower the cost of reproducing the worker. In theorising and planning solutions to unhealthy diets, we should therefore address either one or both of these issues. In this section I will discuss some potential pathways for changing population diets in Aotearoa New Zealand.

First, it is crucial that we take back control for the production and retail of food from the profit orientation of capital. This addresses the issues with capitalist foods discussed in chapter three, where food commodities are created not for their utility but for their profitability. One way of doing this is through the formation of a state-owned supermarket. This proposal has already been raised by the Green Party in response to the Commerce Commission investigation into the supermarket duopoly and super-profits.[267] A state-owned supermarket would remove the profit orientation from food retail. Not only would this lower the cost of groceries, but it would also ensure that supermarkets are designed and operated to meet the needs of communities rather than surplus value. This could change the types of food commodities stocked in supermarkets, prioritising healthier products, as well as the placement of products to encourage the purchase of healthier foods rather than ultra-processed ones.

[267] Menéndez March, 'Support Local Growers to Provide an Abundance of Food'.

A more radical way of approaching this issue is through the state-led production of food. Despite widespread food insecurity, Aotearoa New Zealand produces enough food to feed 40 million people, and food production makes up a significant proportion of the country's gross domestic product.[268] Currently, the majority of that food is exported – over 85 per cent of Aotearoa New Zealand's dairy, beef, sheep meat and kiwifruit is sold overseas.[269] Food production is structured in this way simply because it is more profitable to send food products to international markets than to feed those whose labour produces this food. One way of addressing this is through the state control of food production. In doing so, food could be produced and distributed in a manner that reflects the needs of people in Aotearoa New Zealand as opposed to the most profitable opportunity. Future research could develop ways that state-led food production could take place.

Closely related to this are interventions that lay the groundwork for Māori food sovereignty. In the colonisation of Aotearoa, Māori have been dispossessed from their land through the process of primitive accumulation. Not only has this transformed most Māori into landless workers, dependent on capital for a wage, but it has also forced their reliance on capitalist food production and retail. As a result of ongoing colonisation, Māori are twice as likely to experience food insecurity and less likely to consume a healthy diet when compared to the general population.[270] One way that hapū and iwi are addressing these issues is through growing their own food directly. For example, Papatūānuku Kōkiri Marae in Māngere grows food to provide for the Māngere community.[271] Other research projects are investigating the

[268] Hancock, 'Who's Eating New Zealand?'.
[269] Hancock, 'Who's Eating New Zealand?'.
[270] University of Otago and Ministry of Health, *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey*, 272; Beavis et al., 'Exploration of Māori Household Experiences of Food Insecurity', 346-349; Ministry of Health, New Zealand Health Survey Annual Data Explorer 2020-21.
[271] Te Karere TVNZ, *Urban Marae Continues to Produce Organic Kai for Community During Lockdown*.

potential of Māori food sovereignty to address food insecurity and reduce dependency on the capitalist provision of food.[272]

The immediate challenge with these initiatives is how to provide food for communities at scale. At present, just six per cent of land in Aotearoa is in Māori ownership, and much of this land is unproductive.[273] Growing food to reduce dependence on capitalist forms of production and retail requires a much greater scale than is currently possible. Māori food sovereignty to reduce food insecurity and unhealthy diets therefore depend on the return of Māori land from the Crown. As such, demanding the return of land is a critical public health intervention that not only supports non-capitalist forms of food provisioning but wellbeing for Māori in general. It is absolutely crucial that public health experts give their explicit support to land back movements and include such solutions in their lobbying of government.

Yet solutions to unhealthy diets must extend beyond addressing capitalist food production and retail. As discussed in chapters two and four, food consumption as part of the means of subsistence is also a crucial way that unhealthy diets are created by the capitalist mode of production. Solutions therefore must address food as part of the means of subsistence and food preparation and consumption as part of reproducing labour-power.

One way in which this is already occurring in Aotearoa New Zealand is the provision of free healthy lunches in schools. The Ka Ora, Ka Ako programme was first introduced by the New Zealand Government in 2019 to reduce food insecurity, initially targeting low decile primary schools.[274] In 2020, amidst concerns over increasing food insecurity in the COVID-19

[272] See for example Koroi, Carlson, and Burgess, 'Kai Ora: Restoring Local Māori Food Systems by Restoring Power to Marae'.
[273] Uys, 'Unlocking the Potential of Māori Agriculture Land is Not Simple'.
[274] Ministry of Education, 'Ka Ora, Ka Ako: Healthy School Lunches Programme'.

pandemic, the programme was expanded to low decile secondary schools and now caters for 214,000 students.[275] In providing healthy school lunches, one aspect of reproductive work is shifted away from parents and families and on to the state. School lunches are one less thing that parents and caregivers have to plan and prepare in the meagre time they have outside of work. Further, it separates food provision from the other needs that must be covered by the wage. This serves as a small step away from workers' dependence on capital for their means of subsistence.

Feedback from the programme thus far has been overwhelmingly positive, particularly in terms of reducing food insecurity in students. Teachers have commented that students were previously either going hungry or subsisting on the cheapest junk food.[276] Providing free lunch in schools not only addresses food insecurity, but also ensures that for at least one meal per day, children are consuming healthy food. Importantly, the Ka Ora, Ka Ako programme gives schools flexibility and control over how they provide lunches. Schools are provided with funding and can either use their existing canteens to provide lunches or can contract an external service.[277] Some schools regularly survey students to reduce food waste and ensure that students enjoy the meals.[278] These aspects indicate a more community-controlled version of food provision.

The programme has faced some criticism from the Left, with claims that it would be redundant if the Government has solved child poverty.[279] However, this critique misunderstands what solving poverty can look like. Importantly, not all solutions to poverty

[275] Ministry of Education, 'Ka Ora, Ka Ako: Healthy School Lunches Programme'.
[276] Rashbrooke, 'Ardern's Low-Key School Food Revolution'.
[277] Rashbrooke, 'Ardern's Low-Key School Food Revolution'.
[278] Rashbrooke, 'Ardern's Low-Key School Food Revolution'.
[279] Rashbrooke, 'Ardern's Low-Key School Food Revolution'.

come in the form of higher wages mediated by the capital-relation. Removing the provision of essential services from the capitalist mode of production and collectivising some aspects of social reproduction are also important, anti-capitalist ways of addressing poverty. Public health experts should support the expansion of this programme into all schools and preschools.

Furthermore, there is potential for similar programmes in universities and workplaces, for example through free or subsidised canteens. The Studentenwerke in Germany, for example, provides high quality meals at university canteens around the country at relatively low prices.[280] Its purpose is not to make a profit but rather to provide students with 'good, affordable food'.[281] Studentenwerke receives some government funding in exchange for providing social support for tertiary study.[282] Meals are also cheap due to the scale at which canteens produce food. Universities in Aotearoa New Zealand would do well to implement similar canteens to provide students with healthy meals on campus.

More general support for reproductive work can also contribute to healthier population diets. As I argued in chapter four, food is just one part of social reproduction. The provision of a healthy diet is therefore affected by all other aspects of reproductive work – cleaning, doing laundry and caring for children are some examples. As such, any interventions that can support workers' capacity for reproductive work or lessen the burden of that work that falls privately to individuals and families can be considered a solution to unhealthy diets. This may take many different forms – for example expanded state-supported childcare or

[280] Studentenwerke, 'Canteens and Other Catering Options'.
[281] Studentenwerke, 'Canteens and Other Catering Options'.
[282] Studentenwerke, 'Financing the Studentenwerke'.

shortening the hours of the working day to recognise the reproductive work required outside of it.

Further, because of food's central role in the means of subsistence and reproduction of labour-power, alleviating other pressures on workers and the wage can contribute to creating the conditions for healthier dietary patterns. As such, public health experts should support universal provision of essential services. For example, expanding public housing and free public transport, primary healthcare and dental care are also ways that the pressure on the wage can be alleviated. This in turn will give people more time and money to devote to preparing and consuming food.

Lastly, public health experts should also give their support to more traditional forms of class struggle and resistance to capital. For example, raising the minimum wage and supporting union movements to increase wages and improve working conditions can all address workers' material conditions and therefore their food choices. However, it is also important to note the limitations of this solution. Addressing incomes is often cited as an empowering solution to food insecurity.[283] While increasing incomes will temporarily improve the material conditions of workers, it does not challenge the existence of the capital-relation in the first place. As I argued in chapter five, any gains that workers make in their resistance to capital are always temporary. As long as this type of solution occurs within the capital-relation, it risks being swept away as the balance of class power shifts in favour of capital. Therefore, increasing incomes should occur alongside more transformative exits from the capitalist mode of production.

[283] Graham et al., 'Hiding in Plain Sight: Experiences of Food Insecurity and Rationing in New Zealand', 398; Harris, 'The Rise and Fall of Food Prices: What's Cheaper, Dearer and Why It All Matters'.

It is crucial that future public health scholarship recognises the role of capital in determining unhealthy diets so as to research and advocate for solutions that remove food from the sphere of capital. Uncovering the relationship between capital and diet-related non-communicable disease is important to ensure that public health interventions actually have an impact on these diseases. If future solutions continue to tinker around the edges without addressing the role of capital in determining what workers eat, we will continue to see capitalists profit from the exploitation of workers' health. Unravelling the relationship between capital and unhealthy diets requires the removal of food from the capitalist mode of production. Food must be produced for its utility rather than as a bearer of exchange-value. Furthermore, ensuring that every person in Aotearoa New Zealand has the right to healthy food regardless of their income will ensure that capital's drive for relative surplus value does not affect the quality of diets.

Conclusion

Widespread unhealthy diets pose a serious challenge to population health in developed capitalist countries, including Aotearoa New Zealand. Thus far, attempts to address the healthiness of diets at a population level have been limited and there has been little success in reversing rates of non-communicable disease. In this thesis, I have approached this health issue from a Marxian perspective. In applying Marxian theory to a population health problem, I have constructed a different way of conceptualising unhealthy diets. This, in turn, reframes not only the causes of unhealthy food consumption but redefines the appropriate solutions necessary for addressing population health.

In using Marxian theory, I have demonstrated that we can understand unhealthy diets as a problem that takes a particular form in the capitalist mode of production. As I have shown, capitalism creates unhealthy diets through two avenues, both of which must be addressed in order to reduce rates of non-communicable disease. First, the real subsumption of food production under capital has fundamentally altered the nature of food commodities, creating cheap, ultra-processed foods that are highly profitable yet detrimental to health. As such, ultra-processed foods can be thought of as *capitalist* foods, a consequence of capital's orientation towards value rather than need.

But the effect of the capitalist mode of production on population diets goes beyond food production. In this thesis I have also demonstrated that capital is intimately concerned with how its workers eat. Food makes up a crucial part of the means of subsistence and is essential for the reproduction of labour-power. Capital benefits from the cheapening of food commodities so that wages can be lowered in all industries. Workers subsist on cheap,

unhealthy food so that capitalists can maximise their profits. I have also highlighted the way that capital's ignorance of the work that goes into reproducing labour-power has consequences for healthy food consumption. In capitalist societies, capital encroaches on workers' capacity to adequately reproduce themselves. Capitalism is therefore an economic system that is incompatible with ensuring workers' wellbeing.

The arguments in this thesis were constructed in six chapters. In the first chapter, I established the evidence base for this thesis. I reviewed the population health literature on the relationship between food and health, with a particular focus on ultra-processed foods. I also demonstrated that the quality of food consumption is closely related to food security, indicating that unhealthy diets are largely a material problem. In chapter two, I introduced Marx's critique of the capitalist mode of production. Focusing on capital's drive towards surplus value, I explained the mechanisms of absolute and relative surplus value extraction. I then described how food commodities are cheapened as part of the strategy of relative surplus value, compromising their quality and constraining workers' choices and control over how they eat.

Chapter three developed on the idea of surplus value in the capitalist mode of production, discussing the effects of the real subsumption of capitalist food production. I demonstrated that ultra-processed foods have arisen as a result of capital's orientation towards value as opposed to use-value. These foods can therefore be considered as capitalist foods. In chapter four, I shifted to a discussion of the reproduction of labour-power. I demonstrated that consuming a healthy diet requires a vast amount of work occurring outside of the paid workplace. Since the 1980s in particular, capital has constantly encroached on workers'

capacity to do this work, making it easier to rely on unhealthy convenience foods and fast food.

Chapter five engaged with the concept of difference in the capitalist mode of production. In this chapter, I described how capitalism is characterised not only by difference in types of food production but also by difference in wages within the working class. These types of difference also create variety in diets and health outcomes within the working class. I argued that we must depart from an economic system that depends on differential health outcomes across the population in this way. Finally, in chapter six, I explored the merits and limitations to the dominant public health approach to unhealthy diets through analysing some commonly suggested solutions. I then discussed potential pathways for addressing unhealthy diets that specifically address the problems identified in this thesis.

This thesis is first and foremost a contribution to the population health literature that theorises the political economy of unhealthy diets. While many population health researchers have investigated the activity of transnational food and beverage corporations, few make the link between company profits and capitalism as such. In applying a critique of capital to the case of unhealthy diets, I have demonstrated that the problem of unhealthy diets rests with the capitalist mode of production. Moreover, the strength of my critique of capital means that this thesis goes beyond gesturing vaguely to ‘capitalism’ as a system but rather points to the specific mechanisms within the system that are responsible for unhealthy diets. In doing so, I have opened the space for anti-capitalist solutions that can target unhealthy diets specifically.

This thesis also demonstrates the strength of a Marxian approach to population health issues more broadly. The commercial determinants of health is a growing research area, and many

public health experts are concerned with the way that profit obstructs population health objectives. This conflict between profit and health is visible in many facets of population health research. Despite this, there has been little attempt to use Marxian theory to explicitly question the existence of profit itself. Ultimately, the research that occurs in population health is limited by its refusal to engage with the vast bodies of sociological and political economy theory. This thesis highlights the strength of analysing population health problems using Marxian theory. Population health research would do well to engage more thoroughly with theory to understand the root causes of its most challenging issues.

In this thesis I have understood food consumption within the context of people's material lives more broadly. Through focusing on the material conditions that make healthy food consumption possible, I move away from analysing individual consumption behaviours and towards a more structural approach. Further, I acknowledge the role that food plays in our lives beyond merely its nutritional value. As such, this thesis provides a more materially grounded approach to understanding unhealthy diets that is more likely to resonate with the public.

This thesis also contributes to the existing Marxian literature through combining an analysis of production and reproduction within the capital-relation. As discussed, Marx's work focused predominantly on locating a critique of capital within the sphere of production, and the exploitation occurring in the sphere of reproduction went largely unnoticed for him. Still, much contemporary Marxian literature still tends to emphasise the effects that the capital-relation has within the sphere of production. While social reproduction analyses are a fast-developing area of theorising, they have yet to be brought into connection with the remainder of the Marxian literature.

Through investigating the role of unhealthy diets within the capitalist mode of production, I have brought together traditional Marxian critiques of production as well as early social reproduction analyses of reproductive work. This thesis demonstrates that reproductive work is a fundamental form of exploitation within the capitalist mode of production. One way that that exploitation manifests is through the widespread diet-related chronic disease we witness in developed capitalist countries. Through analysing unhealthy diets, I have shown the inextricable connection between production and reproduction. My analysis demonstrates the strength of critiquing capital in terms of both production and reproduction.

Perhaps most importantly, this thesis reframes possible solutions to the issue of unhealthy diets in Aotearoa New Zealand. Most solutions public health experts advocate neglect to address the structural and economic causes of ultra-processed food consumption. While many of these solutions may make small gains in the healthiness of population diets, they are unlikely to have a transformational effect. Through conceptualising unhealthy diets as part of the capitalist mode of production, I have reframed the way we consider solutions to this population health problem. This thesis demonstrates that many of the interventions that will have a major impact on diets appear to have little immediate connection to food at all. Rather they are related to unhealthy diets through their role in the capital-relation or social reproduction. Public health experts must acknowledge the connections between improving population diets and resisting capitalism.

This research project is of course limited. First, I have not collected or analysed any original data. Despite my use of empirical research to ground and support my arguments, this theorising has not been ‘tested’ as such. However, this was not the intention of this thesis.

Rather, I sought to use Marxian theory to reorient theorising around the causes of unhealthy diets. In doing so, I have opened the possibility for new empirical research that asks questions with the idea of capitalism in mind. There is ample opportunity for further empirical research on this topic that follows from this thesis.

Second, I have not had the opportunity to rebut every possible objection to my arguments in this thesis. Discussions of Marx and alternatives to capitalism tend to be met with some suspicion. This thesis does not attempt to address every possible objection, nor could it anticipate them. In fact, there is plenty of space for discussion about the ways I have used Marx and contemporary anti-capitalist scholarship and applied it to the case of unhealthy diets. This does not invalidate the purpose of this project. Rather, I sought to reframe the problem of unhealthy diets in the context of the capitalist mode of production.

The arguments in this thesis are also limited in some cases by a lack of empirical research in some important areas for me to draw upon. Most obviously, we currently lack up-to-date data on the eating patterns of people in Aotearoa New Zealand in the form of a nutrition survey. More empirical data is also needed to understand the extent of ultra-processed food consumption in Aotearoa New Zealand and the cost of ultra-processed foods relative to healthier food commodities. As such, my theorising has relied on some assumptions about cheap food and ultra-processed food consumption in Aotearoa New Zealand.

Finally, this thesis is also limited by its inadequate focus on the burden of unhealthy diets experienced by Māori in Aotearoa New Zealand. While I briefly discussed this issue in the context of potential solutions in chapter six, I have not done justice to the breadth of the issue and its causes in this project. However, such an investigation goes beyond the scope of this

thesis, as my focus was on the dynamics of the capital-relation more generally. A full analysis of the ways that colonial capitalism has influenced diets for Māori could reveal areas for interventions.

There are several opportunities for future research following this thesis. First, there is potential to use the theorising in this thesis as a framework for studying empirical questions. For example, future research could attempt to quantify the cost of healthy and unhealthy diets while taking unpaid reproductive work into account. Second, there are many other areas of Marxian thought that could be explored in the case of unhealthy diets and food systems. For example, the content of volume two of *Capital* focuses on the circulation of capital, which is crucial to understanding the political economy of ultra-processed foods. Finally, there are major opportunities for research into solutions to unhealthy diets. Future research could explore the possibilities of a state-owned supermarket or other forms of state-led food production.

My objective in writing this thesis was to reorient the way we conceptualise unhealthy diets in population health research and advocacy. In doing this, I have reframed the appropriate and necessary solutions for addressing the way people eat. My hope is that population health research can connect with social movements that resist capitalism more broadly. Finding pathways out of this economic system is our best chance at reducing the death and disease caused by unhealthy diets.

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