5. Welcome to the consumption line: sustainability, social organization and the wage-price gap

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INTRODUCTION

Consumption is the most everyday of acts. It is something we all do. It is a social phenomenon. And yet we typically understand it as a matter of individual action, using metaphors of choice, value and supply to describe its origin and aspiration. We are coming to understand that consumption has tremendous collective consequences for our economy, ecology and society. But we still have trouble understanding that the act of consumption is something that is socially organized, patterned by culture, economy, state and politics, and not merely an act of utilitarian satisfaction by a free-thinking and sovereign consumer.

Some authors have even gone so far as to state outright that a focus on consumption is at best a distraction from the real stuff that moves our lives. As none other than Karl Marx (1956) wrote in the second volume of *Das Kapital*, 'It is sheer tautology to say that crises are caused by lack of effective consumption, or effective consumers,' referring to the Marxist theory of economic crisis. Or, as another translation has it (Mehring, 1935), 'It is sheer redundancy to say that crises are produced by the lack of paying consumption or paying consumers.' For, as Marx goes on to argue (1956):

> [I]f one were to attempt to give this tautology the semblance of a profounder justification by saying that the working-class receives too small a portion of its own product and the evil would be remedied as soon as it receives a larger share of it and its wages increase in consequence, one could only remark that crises are always prepared by precisely a period in which wages rise generally and the working-class actually gets a larger share of that part of the annual product which is intended for consumption.

This view remains influential in some quarters. For example, Gould et al. (2004, p. 303) argue that 'producers, not consumers, are the major driving

factor in the political economy.' Thus, the focus of analysis should be on where the decisions get made, they suggest. The important decisions are what gets produced, not what gets bought, Gould and colleagues contend.

In what follows, we by no means try to reverse the argument. Rather, we contend that production and consumption are social organizational phenomena of equal, and mighty, importance to our economy, ecology and society. But we place our emphasis here on the social organization of consumption, to balance our understanding and analysis. In a way, our analysis centers on observing that the current world economic crisis was by no means preceded by 'a period in which wages [rose] generally,' and in which the working class was getting a 'larger share,' as Marx had it. In this case, at least, it was quite the opposite; real wages fell and workers were getting a smaller share, as inequality increased, making it difficult for all that was produced to be bought and consumed, eventually resulting in the Great Recession and its, as we write, continuing aftermath (see the chapter by John Stutz in this volume). But we do not intend to replace Marx's overproduction argument with an underconsumption argument. Rather, as first outlined in Bell (2009), we argue instead that capitalists must contend with an ever-present wage-price gap that emerges from the double conflict between capital and workers and capital and consumers – or, rather, what we shall be calling worker-consumers. Because of this gap, capital is constantly under unrelenting pressure to speed consumption, as well as production, through the establishment of what we shall call consumption lines in parallel to, and interlocking with, the more familiar concept of production lines. The fate of much of great significance depends upon how we work through these interlocked pressures.

In what follows, we begin by adopting the concept of final consumption to measure the ecological impact of economic activity. We then review the debate on how best to conceptualize the economic organization of this impact. From there, we go on to introduce our theory of the consumption line and its intersections with the pressures of production via the double conflict of the wage-price gap.

ECOLOGICAL CONSEQUENCES OF CONTEMPORARY CONSUMPTION PATTERNS

The ecological boundaries necessary to maintain an environment in which humanity can safely exist are under increasing pressure. For the first time since the last ice age ended about 10 000 years ago, and as a direct result of human industrial activity and modern mass consumption over the last 150 years, geological scale changes are about to directly enter into and

affect human history itself. Three critical environmental boundaries have already been breached (Rockström et al., 2009). First, failure to push the current (as of 2011) 396 parts per million (ppm) level of atmospheric carbon dioxide below the scientifically acknowledged safe upper limit of 350 ppm risks irreversible impacts such as the melting of the Greenland ice sheets and the widespread release of methane gases from permafrost, leading to runaway global warming. Second, biodiversity's current rate of about 100 species lost per million per year far exceeds the proposed safe boundary of ten, significantly damaging and reducing ecosystem services such as resistance against invasive species or pollination of plants. Third, the global nitrogen cycle has been greatly altered by human industrial activity, with about 121 million tons of nitrogen per year removed from the atmosphere (versus a safe boundary of about 35 million tons per year), threatening land fertility and plant life. Additional planetary boundaries close to being breached are ocean acidification, global freshwater use and land usage, all with dramatically negative consequences for today's highly interdependent, globalized social and economic life.

To assess the impact of modern consumption patterns on the breaching of those planetary boundaries, it is necessary to acknowledge that the ecological effects of consumption stretch back along the entire production cycle of a consumed good. As a result, in the context of their effects on the environment, the production and consumption sides of the economy should be viewed as closely interlinked and not just confined to the 'end-consumption' of goods. In what follows we adopt and extend the concept of final consumption as defined by the United Nations Environment Programme (UNEP) (2010) to account for the entirety of environmental effects of material lifecycles. Contrary to the concept of end-consumption, final consumption takes account of all the resources used, greenhouse gases emitted, and waste and pollution created during the lifecycle of a product that ends up being consumed by an end-consumer. Such a consumption lifecycle starts with the original resource extraction, includes the full production chain and ends with the actual consumption and discarding of a good. The ecological impact of the consumption of a soda, is, for example, not limited to waste created by the can, but also extends to the resources depleted by producing the can, the actual drink, and the waste and pollution associated with the production and discarding of the can. Final consumption thus immediately links the production and consumption dynamics of economy and ecology.

PERSPECTIVES ON CONSUMPTION

Adequate transformations of (final) consumption patterns that solve today's ecological problems are usually heavily predicated on specific ontological understandings of the nature and function of consumption. A wide variety of such idealized understandings exist, each taking a different position on the agency and structure of consumption. Disagreements about how consumption patterns arise and reproduce lead to different conclusions about how to transform them. Therefore, before we explain our theory of consumption lines, let us first take a look at the most common perspectives on consumption: the neoclassical, competitive, sentimental and productivist perspectives. None of these perspectives analytically account for the basic interdependence of the consumption and production sides of the economy and its effects on final consumption patterns and the environment.

The neoclassical perspective of consumption is likely the most influential. In it, autonomous and rational agents with consistent and independent preferences consume to fulfill their insatiable demand for goods and services (Varian, 1992). As Schor (1999) notes, in this view demand is only limited by individual budget constraints and by the prices of the desired products. Consumers signal their tastes and desires through the price mechanism in complete and competitive markets (at least when things are going according to the neoclassical ideal). Think of the consumer with a shopping cart (whether a material shopping cart or a 'shopping cart' on a website) grabbing items and heading for the checkout line. Producers observe consumers' demand, and adjust their prices and output in line with that demand. In this way, consumers' choices indirectly shape the quality and quantity of the produced goods. Consumer sovereignty over the economy is (allegedly) very high for, as the phrase goes, 'the customer is always right.' The neoclassical perspective gives little consideration to the significance of social context, networks and collective needs in consumption decisions. Rather, it centers on the assumption of rational calculation by atomized actors pursuing their own preferences, and implicitly equates public goods with private goods.

Almost as familiar is the competitive perspective of consumption. In his 1899 classic *The Theory of the Leisure Class*, Thorstein Veblen emphasizes the competitive and comparative character of modern consumption. Most of us living in affluent countries are long past direct subsistence needs in most of our consumption, says Veblen, especially the rich – whom Veblen called the 'leisure class.' The main motivation for consumption by the leisure class, and those who aspire to it, is the desire to indicate a lofty social position through what Veblen (1899) terms 'conspicuous

consumption,' 'conspicuous waste' and 'conspicuous leisure.' Think of holidays in the Caribbean, Gucci sunglasses or red Ferraris. In Veblen's perspective, status goods are first adopted by the affluent and subsequently mimicked by lower income groups. In contrast to the neoclassical perspective of consumption, the competitive perspective places consumption decisions in a social context. But while it expands the motivation for consumption beyond purely atomistic and individual considerations to a social (and class) dimension, in essence the competitive perspective still rests on the alleged sovereignty of the consumer in pursuit of desires and preferences. Consumption per se occurs primarily because it serves the interests of consumers.

In the sentimental perspective of consumption, consumption is not necessarily rooted in self-interest as in the neoclassical perspective, but is more broadly and deeply embedded in the social context of specific moments of consumption. Sentimental consumption does not need to constitute a signal of social status, but provides a means for supporting feelings of social communion and to 'make and maintain social relationships' (Douglas and Isherwood, 1996). Think of giving flowers, putting on a yarmulke, eating a meal traditional to one's family or wearing a tee-shirt from your Tuesday night volleyball leagues. Goods can embody a feeling of the social presence of those who are not physically there, as in the special value of jewelry handed down from one's mother or the end-table made by one's father – what the Maori people call the *hau* of an object and what we might term, after Stiles et al. (2011) and Bell (1997), the 'ghosts of goods.' Goods consumption can also be a source of political action toward other-oriented ends, as in what Schor and Willis (2008) (see also Schor, 2010) call conscious consumers and what Micheletti and her colleagues (2006) call political consumerism. The consumption of goods, in short, can satisfy social needs by providing a symbolic language for the social communication that lies at the heart of the social world, and by providing a basis for political action, allowing consumers to seek, make and contest identity (Arnould and Thompson, 2005).

The productivist perspective of consumption is heavily predicated on Marx's theory of production. The 'treadmill of production' approach of Schnaiberg, Gould and colleagues (see, for example, Gould et al., 2004) is a leading example. It argues that if producers are making money with a good, other producers will try the same thing, increasing supply and thus forcing prices down, leading producers to either go out of business or try to produce and sell even more to make up the difference – which forces prices down even further, repeating the cycle ad infinitum. Think corn farmers, ever increasing output with bigger equipment, more chemicals and larger farms. The common solution to the treadmill that producers

seek is to force feed their growing output to consumers, so that production comes to shape consumption. The Frankfurt School (Schor, 2007) more explicitly takes the view that capitalists essentially create and manipulate consumers' preferences and behavior at will, and in essence control and guide the direction of consumption patterns. Think corn farmers convincing politicians to subsidize (and in some cases require) the use of corn ethanol in automotive fuel. In such a case, consumption follows supply, regardless of demand, and the consumer is a sheep on the rope of capital. But the political economic need of capital to shape the consumer's context of decision making immediately implies the existence of contention and resistance. However, the traditional Marxist perspective of the unwilling worker and the willing consumer misses the presence of what Bell (2009) calls a double conflict in the economy, which spans the production and the consumption sides of the economy. The capitalist must equally struggle for the worker's labor and the consumer's cash, as we shall detail later.

Several points follow from these four perspectives of (end-) consumption:

- We suggest that each captures an important dimension of consumption. Preferences do matter, but so too do the competitive, sentimental, social and productive contexts in which preferences take form and direction.
- These perspectives are not mutually exclusive but end-consumption is a context-dependent configuration of all of them. One can have a rational preference for a sentimental connection that has competitive consequences as well – say, the purchase of a fancy new laptop for your child, which at once exhibits desire for function, status and family ties.
- The consumption decisions of rational, competitive, sentimental and unwilling consumers follow different logics than the production side of the economy, which does not care whether the preference, status, identity and sovereign concerns of consumers are actually met. All the production side cares about is that the consumer consumes. But, crucially, the worker and consumer are the same people. They are all worker-consumers with the two major points of conflict with capital and the owners of production (Bell 2009) – which alerts us to some important political potentials, none of which are satisfyingly captured by the above perspectives of consumption, and to which we shall return later.
- None of the above perspectives on consumption captures the full ecological impact of the material lifecycle associated with any single consumption good.

For now, let us note that the conceptual question of how certain (final) consumption patterns arise, reproduce and change over time boils down to the empirical question of who does the reproducing and changing – worker-consumers, capitalists or both – and, more conceptually, how the interaction (and conflicts) between capitalists and worker-consumers shape consumption patterns and their environmental impacts. As we shall show, this interaction is essentially a political one.

CONVENTIONAL SOLUTIONS TO THE ECOLOGICAL CONSEQUENCES OF CONTEMPORARY CONSUMPTION

Contemporary strategies aimed at transforming existing consumption patterns and reducing their environmentally destructive impact are conceptually positioned at the two extremes of an ideal end-consumption sovereignty scale and are essentially rooted in the neoclassical perspective or the productivist perspective of (end-) consumption (Figure 5.1). Neoclassical, consumer-based strategies aim to change (final) consumption patterns by focusing on the transformation of consumption behavior at the individual level. Productivist strategies identify producers as the key agents of change and seek to change (final) consumption patterns by transforming production processes and structures. (For the sake of brevity, we largely bracket the temporal and spatial aspects of these two ideal strategies.) Neither of these transformative strategies explicitly incorporates the possibility of (end-) consumption perspectives' analytical conjunctures or the inherent conflicts between worker-consumers and producers and their importance for the shape and direction of final consumption patterns.

Consumer-based Solutions

Due to the globalized nature of many final consumption lifecycles, local consumption patterns usually have complex global ecological repercussions.

Figure 5.1 Degree of consumer sovereignty by perspective

Strategies aimed at transforming global consumption patterns recognize this feature. They identify autonomous individual end-consumption patterns as driving final consumption and thus as the root cause of ecological problems associated with the breaching of planetary boundaries, resource depletion and greenhouse gas emissions. Typically embedded in a neoclassical and thus highly sovereign notion of consumption, such solutions regard consumers' end-demand as driving the (aggregate) supply of goods and services and products' material lifecycles through flexible prices and free markets. From this perspective it is not end-consumption per se that is the problem, but the nature of the environmental impact of the products and services that are demanded, consumed, produced and ultimately discarded.

In short, the key transformative agents in this approach are end-consumers, who should spend their money on less harmful things: compact fluorescents, hybrid cars, organic food and the like. By increasing demand for less material- and energy-intensive products and services, end-consumers can reduce the profitability of environmentally harmful goods and induce capitalist-producers, via the power of the market, to switch to more sustainable and ecologically friendly production practices. The market place and flexible prices become mechanisms through which the consumer implements a transformative agenda through the *50 Simple Things You Can Do to Save the Earth*, to quote the title of a popular book of some years ago (Earthworks, 1989). The scaling up of more sustainable individual habits and strategies restructures material and waste lifecycles, while keeping the fundamental structure of consumption and capitalist market mechanisms and institutions in place. Greater individual environmental awareness and better-structured markets are deemed sufficient to transform ecologically harmful consumption patterns. The innovative capacity and the flexibility of capitalism can be maintained.

Producer-based Solutions

Producer-based approaches argue that consumer-based solutions will inevitably founder in the face of a simple fact: consumers can only buy what producers make. As Gould et al. (2004, p. 300) put it, 'although consumers can accept or reject these products, they have no influence over the allocation of capital to productive technologies.' In this view, the production side of the economy is the dominant driver of end-consumption, and as such, is also the main cause of global emissions and resource extraction.

Solutions proposed in the broad vein of green Keynesianism, for example, do not see the fundamental mechanisms of capitalism as responsible for

ecologically unhealthy final consumption patterns, but instead fault the nature of specific, outdated institutions and resulting production (and by extension consumption) processes as causing environmental problems. Here, the state and producers are the crucial transformative agents. Green Keynesian strategies such as the New Economic Foundation's *A Green New Deal* (Elliot et al., 2008) or Van Jones's (2008) The *Green Collar Economy* take an approach that draws much from Roosevelt's New Deal faith in the progressive state and economy. They argue that by redirecting public and private investments toward sustainable ends, the state, as well as the corporate sector, can restructure the economy in a way that will shift final consumption patterns to ecologically sustainable pathways. The 'greening' of material throughput, increased resource efficiency and widely used renewable energy can all be achieved while simultaneously safeguarding, and indeed taking advantage of, the growth dynamics of capitalism. As a result, we can literally outgrow our environmental problems, while simultaneously restoring employment and reducing social injustice. Natural capitalism – a view closely related to green Keynesianism – takes a more bottom-up approach to producer-based strategies, arguing that it is in the individual interests of capitalists to green both their production processes and their products (Hawken, 1993, 1997, 2007; Friedman, 2008), while maintaining confidence in the potentially benign transformative power of capitalism.

This faith in the potential of sustainable growth to resolve emission and resource-extraction problems in turn is challenged by the proponents of 'no-growth' and 'degrowth' strategies by, for example, Tim Jackson, Herman Daly, Nicholas Georgescu-Roegen and Serge Latouche. Their transformative strategies question whether outgrowing our ecological problems is either desirable or feasible. For instance, Jackson (2009, p. 85) argues that it is too simplistic to assume that 'capitalism's propensity for efficiency will allow us to stabilize the climate or protect against resource scarcity.' Overall, the vision for no-growth or degrowth centers on an economy that is 'better not bigger,' in which qualitative not quantitative growth takes place, poverty is reduced by redistribution and inequality addressed by minimum and maximum income.

No-growth and degrowth strategies share with green Keynesianism and natural capitalism a production-based orientation and a limited view of the conflicts involved in capitalist relations. Their main focus is on the conflict between firms, how firms direct consumption patterns and the resulting effects on the environment. They are strikingly silent on the double conflict between firms and worker-consumers, a conflict that we shall see is central to the form and direction of final consumption's material and waste lifecycles.

The original UNEP concept of final consumption is essentially predicated on industrial ecological input-output perspectives that represent the metabolic circulation of materials and wastes through the economic system, but do not theorize interactions between capitalists and worker-consumers and their collective and interconnected political, economic and environmental processes that direct the circulation of what Mol and Spaargaren (2005) have called 'environmental flows.' Such environmental flows might more accurately be called 'socio-environmental flows' because they originate and reproduce in the social realm and specifically through the conflict between capitalists and worker-consumers. While the protection of the global environment is undoubtedly dependent on a major transformation of production, producers' ability to implement beneficial change will always be eroded unless they are embraced and implemented by worker-consumers who are close to the local consequences of change for ecology, economy and society.

We therefore claim that the transformations of global and local final consumption patterns will be successful in averting ecological crises only if they involve a combination of measures addressing both capitalist and worker-consumer behavior and their collective shaping of material and waste cycles. Inevitably, transformative agents' interests, the structure within which the collective shaping takes place, and actors' ontological understandings of the connections between consumption, production and the worsening environmental situation will significantly influence any such solution. In that respect, Radkau (2008) has convincingly argued that environmental policies historically have tended to become increasingly subject to the 'laws of power' and the preservation of authority as the management of environmental problems moves more to higher levels of social organization.

THE ECONOMIC POLITICS OF CONSUMPTION

Consumer-producer Interaction and Conflict

While the concept of end-consumption can be conceptualized as a context-dependent configuration of the individual consumption perspectives outlined above, it does not capture the full ecological impact of consumption. As discussed above, proposed solutions to environmental problems premised on such notions of end-consumption are inherently limited and are bound to be unsuccessful. By moving from a view of end- to final consumption we conceptualize consumption and production as one single near-decomposable metabolic cycle and explicitly take into account the

entire ecological lifecycle or socio-environmental flows of consumption. Crucially, the outlined existing transformative strategies above neither take into account this entire lifecycle nor the inherent interconnection between consumption and production. In the remainder of this chapter we discuss how the consumption and production sides of the economy combine to shape the socio-environmental flows of final consumption and focus on how socio-technical organization of (end-) consumption makes possible those flows. By doing so we hope to provide a sounder conceptual basis for the search for consumption-focused solutions to the contemporary environmental crises.

We begin with a point made by Bell (2009): the capitalist economy's unrelenting need to expand arises not only from competitive pressures between producers but also out of worker-consumers' own expansionary cycles. Both capitalist and worker-consumer give away to get back more. The capitalist, as an owner of the means of production and employer of worker-consumers, invests money to expand production to maintain (or increase) the rate of profit. The worker-consumer, who sells labor to the capitalist in exchange for wages for consumption and savings, spends money on her own productive capacity both to maintain employment and likely also in the hope of earning more – what Schor (1998) terms the 'cycle of work and spend.' Competitive pressures and the desire to earn profits compel producers to push for low wages and high prices, while worker-consumers push for the exact opposite out of a desire to maximize consumption possibilities. Consequently, the economic interests of worker-consumers and capitalists are in direct conflict in both production and consumption realms. Both do, however, also require each other to fuel their individual expansionary cycles. The worker-consumer needs the capitalist to provide wages and goods, while the producer needs the worker-consumer to provide labor and sales. It is this conflicted codependence of worker-consumers and capitalists on each other that binds together the consumption and production realms of the economy – as well as constantly threatens to shred this binding.

In the context of the ecological impact of consumption, production cannot be understood in isolation of consumption, and consumption cannot be understood without production. While each side of the economy might have varying degrees of power to influence the other's behavior at any point in political history, in practice consumption will never be fully sovereign over production as the neoclassical consumption perspective contends, nor will the producers ever render consumers redundant in the reproduction of capitalism as implied by the productivist perspective of consumption. Rather, in a capitalist economic system, the direction and speed of final consumption patterns (and their ecological impacts) are the

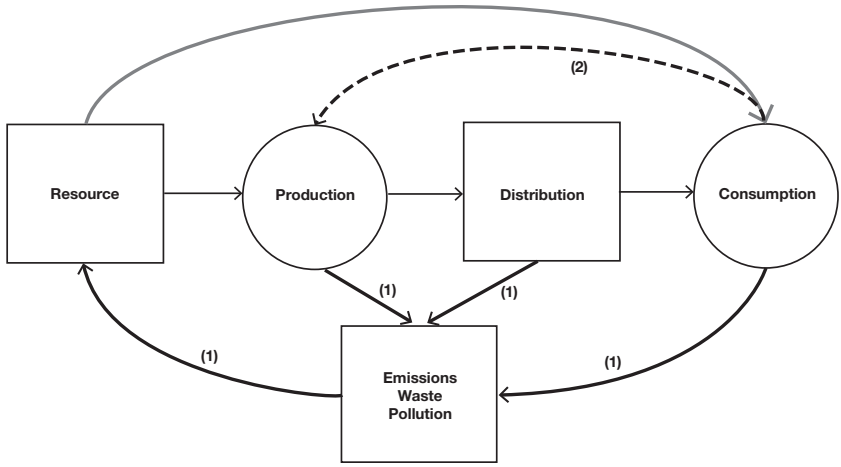

Figure 5.2 The material cycle of the economy

outcome of a continuous and multidimensional conflict and codependence between consumers and capitalists in the production and consumption realms.

Conceptually, final consumption's material and waste cycles 'start' with the extraction of resources. During the production stage, capitalists employ technologies, capital, energy and labor from the worker-consumers and transform raw materials or throughput into products and services, which are in turn distributed to consumers.

Every stage of this cycle (Figure 5.2) produces emissions, waste and pollution (1) that in aggregate stretch planetary boundaries and check the availability of underlying resources and environmental services for further production (and consumption). The flow of the material and waste cycle is controlled, reproduced and grown by contested and contradictory social structures and processes (2) that historically emerge from the (temporary and spatially limited) resolution of the inherent double conflict between worker-consumers and capitalists, as well as the 'problem of the original capitalist' that we shall describe in a moment. Resources are also directly consumed through consumption of many goods, as in the electricity and water required to operate a washing machine or the fuel required to run an automobile, which we indicate with the grey arrow directly from resources to consumption. The manner of the resolution both of the original capitalist's problem and its related double conflict are crucial in linking consumption to the productive side of the economy, in shaping the direction and speed of final consumption

patterns and thus in controlling for (and solving) final consumption-related ecological pressures.

Let us now explain what that original capitalist's 'problem' is. In addition to the capitalist's double conflict for worker labor and consumer cash in both the production and consumption realms, every capitalist faces a dilemma of collective action that equally bridges the production and consumption sides of the economy, and that also has crucial implications for the original double conflict. The dilemma – which capitalists themselves scarcely recognize – is as follows: the incentive of the individual capitalist is to pay worker-consumers as little as possible in the production side of the economy and to get them to pay as much as possible for the goods produced in the consumption side of the economy. This is just straight buy low, sell high logic – buy labor low and sell the products of labor high. And it works out fine for the individual capitalist as long as other capitalists are paying their worker-consumers plenty. The individual capitalist can pay his or her worker-consumers little and still get products sold because other capitalists' worker-consumers can buy them. In effect, the individual capitalist treats his or her own employees as workers and the employees of other capitalists as consumers, in blindness to their analytical and practical unity as worker-consumers in the larger economy. But of course, as in the classic prisoner's dilemma of game theory, each capitalist is locked into the same logic, paying their own worker-consumers little and hoping other capitalists' worker-consumers will be able to buy their products. As a result, in aggregate, capitalists wind up paying worker-consumers less money than they need to buy everything that they have produced, which, in capitalism, capitalists must do: in order to make a profit, capitalists must pay out to worker-consumers less than they take in through sales. But worker-consumers cannot spend any more than what they get paid, leading to the ever-present gulf in capitalist economies that Bell (2009) calls the wage-price gap. The width and precise nature of the wage-price gap at any point in time embodies the balance of power between capitalists and worker-consumers in the double conflict over pay and working conditions in the production realm, and spending and living conditions in the consumption realm.

For consumers to be able to consume and for capitalist market economies to function, this wage-price gap needs to be temporarily bridged in a process that Bell (2009) terms 'stretching,' and which we here separate into 'financial stretching' and 'ecological stretching.' Financial stretching is the socio-technical means that allows capitalists to avoid having to confront their own aforementioned collective action problems of treating their own employees as workers and other capitalists' employees as consumers. Drawing on the work of David Harvey (2006), Bell argues that the

failure to work out the means of financial stretching, and thus the failure to bridge the economy's wage-price gap, leads to recessions and depressions. Practically, financial stretching occurs through the expansion of credit, which, at least temporarily, allows worker-consumers to consume produced goods today in exchange for paying for them tomorrow – and, in fact, paying more for them tomorrow, considering interest. The specific socio-technical means by which financial stretching is achieved are the product of contested resolutions of the conflict of interests between worker-consumers and capitalists in a wide variety of contexts and scales on the production as well as the consumption side of the economy. The historic and context-specific configurations of those outcomes in turn shape the direction and speed of (final) consumption patterns and their ecological impact.

By doing so, financial stretching gives rise to ecological stretching, which essentially comprises the drawing down of tomorrow's natural capital to enable today's consumption, and the natural capital of someplace else – like, for example, the exploitation of fossil fuels, which borrows from the there and then for the here and now. Material flows and their associated ecological impacts associated with financial stretching, in turn, can be seen as the material embodiment of temporary resolutions to the double conflict between capitalists and worker-consumers, and the collective action problem among capitalists. In this sense, it is perhaps helpful to distinguish end- and final consumption from what we might term financial consumption – not the end-consumption of a good at a particular site (say, the dinner plate), not final consumption's full material lifecycle of the good (say, from the farm to the fork), but consumption as a solution to the financial problem faced by the capitalist with production to sell and the worker-consumer seeking to be paid. In the first instance, neither capitalist nor worker-consumer thinks about the ecological stretching of final consumption to provide end-consumption, for their conflicted relationship is defined financially, not ecologically. This avoidance of the recognition of ecological stretching deepens the political problem by submerging it from view.

Consumption Lines

Four central implications follow from the political-economic need for stretching:

- The necessity of economic growth to achieve financial stretching.
- The necessity of economic faith that the growth will happen and credit will be repaid.

- The necessity of financial consumption to stretch and grow ever more and buy all the merchandise.
- The necessity of ecological stretching of final consumption to provide the end-consumption that yields financial consumption.

But how is all this stretching accomplished? What are its socio-technical means, who employs them and how?

To get a better grasp on those questions, let us take a look at how the production side manages its own stretching. In industrial capitalist economies production is arranged by means of what have classically been called 'production lines' that we define as follows: the effort to organize the unruly masses of humanity to produce as many standardized products as possible for as little as possible. Likewise, we can think of consumption being organized along what we term consumption lines that we define in parallel: the effort to organize the unruly masses of humanity to consume as many standardized products as possible for as much as possible. The formation and reproduction of such production lines has been extensively studied, but that of consumption lines less so. In what follows we therefore focus on the means by which the organization of consumption lines achieves stretching.

In combination with existing knowledge concerning the stretching of production lines, we hope that a better understanding of the socio-technical processes that guide consumption lines will give greater insight into the dynamics of existing final consumption patterns and allow for the development of more successful transformative strategies to solve their negative environmental consequences. Significantly, consumption lines are far from being an exclusive domain of (end-) consumers, but instead can be conceptualized as near-stable yet continuously contested configurations of the physical, legal, cultural and economic relations of worker-consumers and capitalists. These relations structure and are structured by different moments of consumption that in turn emerge from the financial problems of capitalism's double conflict: labor cost reducing capitalists aim to steer unruly consumers into bridging the wage-price gap through financial consumption, and wage maximizing worker-consumers aim to expand their utility, status and sentimental gratification through end-consumption. Consumption lines, in summary, are the conceptual, socio-technical resolution of the consumption dimension of the problem of the original capitalist and the associated double conflict between worker-consumers and capitalists. In connection with production lines, consumption lines are thus the socio-technical means that enable stretching, shape final consumption patterns and give rise to the breaching of planetary boundaries.

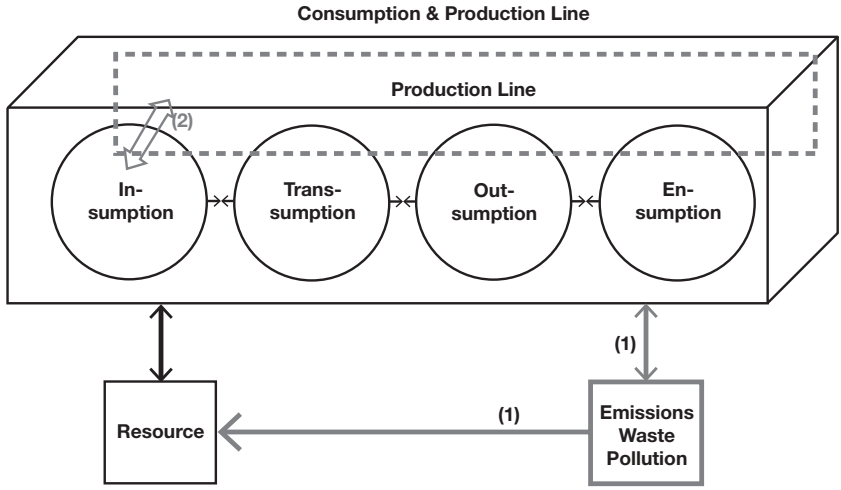

Figure 5.3 The moments of a consumption line

We distinguish four elemental, semi-distinct moments of consumption, each of which is linked to the production line by being a moment of conflict between worker-consumers and capitalists, as well as a moment of opportunity for change: in-sumption, trans-sumption, out-sumption and en-sumption (Figure 5.3).

In-sumption refers to the capitalist challenge of getting consumers into a consumption line and accounts for the kind of structural inducements for consumption that Juliet Schor (1998) described as the 'cycle of work and spend.' Central to in-sumption is advertising and competitive pricing, but it also more subtly entails social organization at the household, community and national levels that makes particular products necessary to the ordinary conduct of a person's day, encouraging people to enter a consumption line. We are reminded here of the story of the high school friend of the son of one us (Bell) who bought a car to get to his after-school job. When this middle-class boy was asked why he needed the job in the first place, he replied, with no trace of irony, 'why, to pay for my car.' In a society with poor public transit and enormous social prestige surrounding car ownership, such circular logic continues to make sense to many people. Advertising for cars represents in-sumption operating through ideas, and the paucity of alternative options represents material inducements to consume. Rather than cut prices and sell more for less, rather than cut production and sell less for more, rather than the truly desperate move of cutting prices and production and selling less for less, capitalists

try to use in-sumption techniques to achieve the happy state of selling more for more, and connecting more consumption to more production. In-sumption thus critically links the production to the consumption side of the economy. Further, the degree of power capitalists have over consumer behavior (and vice versa) is, to a large degree, decided at the in-sumption stage of the consumption line.

Trans-sumption refers to the challenge of bringing the seller and the buyer into direct contact so that goods can actually be exchanged for money. Such an exchange requires formal and informal rules that can be monitored and enforced to minimize the risks of one party reneging on the exchange (for example, long-distance trade). It also requires different technologies that facilitate goods and service exchanges, such as automatic teller machines, and the support structures of those technologies, such as banking regulations. As such, trans-sumption operates at the level of the actual economic transaction, in which the seller presents the good and the buyer plunks down cash for it. Different forms of trans-sumption can differ vastly in their capacity to encourage or discourage consumption in one time or place. For example, the problem of a lack of effective consumption demand over the last 30 years was resolved not only by the introduction of cheap consumer credit, but also new technologies and financial re-regulation that obscured the consequences of cheap and easy credit – consequences that in time undermined what they were supposed to promote.

Out-sumption refers to the socio-technical challenge of getting people through a literal line and out of the door, headed to their sites of consumption, recognizing that the repeat consumer will take into account not only the money spent but also the time and hassle. Store layout, checkouts, line management, retail location, parking lots, transportation infrastructure are all familiar aspects of out-sumption. Much contemporary trans-sumption and out-sumption also takes place via the Internet and associated warehousing and shipping procedures.

En-sumption refers to the challenge of actually consuming a purchased good and employing it in social practice. Such challenges can range from a lack of knowledge of how to use a product (for example, software programs), how to assemble it (such as much modern furniture), to time and space constraints of consumption (resulting in spoilage and jam-packed refrigerators), to changes in taste (rendering goods obsolete), to difficulties of display (undermining the status use of a good), to means of disposing of the consumed good and its waste (filling garage shelves with half-used containers of various toxics such as paint and lawn chemicals, awaiting a garbage amnesty day), as the work of Elizabeth Shove (2003) and her colleagues (Shove et al., 2009) has alerted us. En-sumption easily slips into

in-sumption, turning the consumption line into a circle, as the consumer reorganizes his or her life in ways that the good facilitates or that the good requires, resulting in still more waste, the impact of which can be seen in any of the myriad consumer-sponsored local sales of now unwanted items. The many terms for these sales indicate their ubiquity: yard sales, garage sales, tag sales, jumble sales, rummage sales, church sales and flea markets.

In short, the central struggle between consumer-workers and capitalists during in-sumption is over control, during trans-sumption over trust, during out-sumption over movement and during en-sumption over use. This struggle can take many forms. Although historically conditioned, the number of possible configurations of moments within a single consumption line, and the number of different consumption lines for a single good at any given moment, greatly varies. An individual consumer can, for example, obtain the bible by driving to her closest bookstore, buy the book there and then reading it in the armchair of her living room. Alternatively, she can also buy the bible by downloading it to her e-reader. Just as different consumption lines achieve different ways and degrees of financial stretching, so do they differ in their associated ecological stretching. The resources extracted and emissions produced by moving through the e-book consumption line, for example, will differ from the ones required by the production and transportation of the physical book. Further, consumption lines and their inherent worker-consumer and capitalist conflicts greatly differ through time and space just as do their environmental implications. The number and quality of existing consumption lines associated with the bible in New York City are much greater than they are in Khartoum, and likewise they are probably much greater today in Khartoum than they were in early twelfth-century Paris. Further, due to differences in technology, knowledge, production processes and distribution systems, bible consumption in twelfth-century Paris presumably resulted in a much smaller environmental footprint than contemporary bible production and consumption.

Context-specific configuration of consumption lines and their inherent moments of conflict and potential for change are historically embedded in and imperfectly reproduce four broader structural relations: infrastructure, laws and regulations, (consumer) culture and the monetary system (Figure 5.4).

Infrastructure comprises the human-made and used physical environment and technology that shapes all stages and scales of consumption lines. Infrastructure helps to move people into, through and out of consumption lines, and creates or modifies the physical space in which commodity exchange and actual consumption take place. The physical nature of infrastructure renders such spaces path dependent and creates

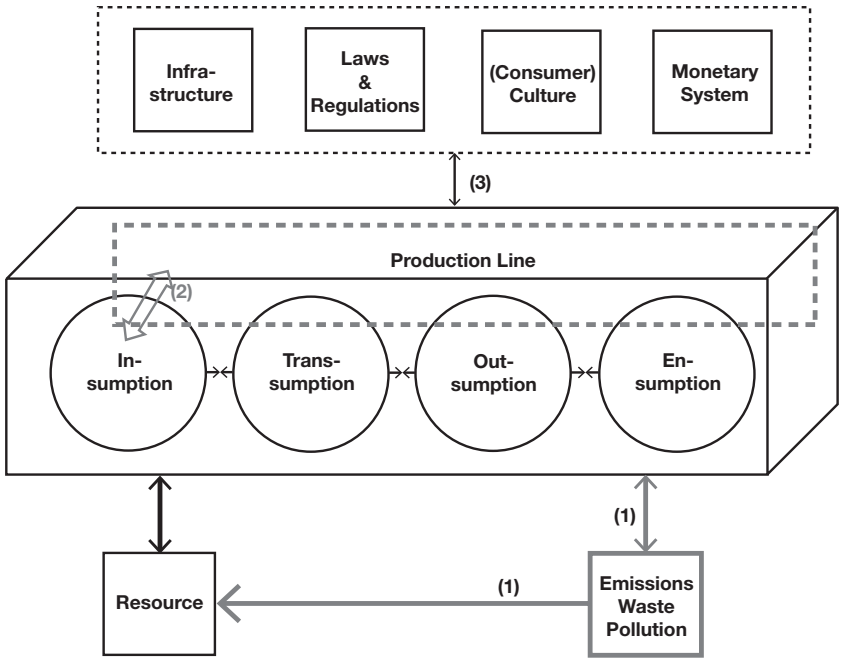

Figure 5.4 The moments of a consumption line and their forms of social relations

material boundaries within which moments of conflict between worker-consumers and capitalists can unfold. Infrastructure then channels the overall direction of consumption lines, the physical configuration of its moments, and the speed at which worker-consumers and materials can move through the different stages. The quicker they do, the more the economy grows but the harder worker-consumers have to work to close their wage-price gaps. As a result, it is the economic interests (often not conscious) of worker-consumers to create and maintain infrastructure that slows down the movement of people and materials, while capitalists will be interested in speeding up that movement. The decisive political and economic role of infrastructure, though, is to stabilize the balance of power in this conflict, giving advantage to one side or another. As we saw earlier, the consumption of shelter and mobility are both significant contributors to global greenhouse gas emissions and energy usage. Once the infrastructure of urban sprawl is in place, for example, it is difficult to change, encouraging en-sumption that in turn encourages in-sumption, as worker-consumers invest in cars and suburban residences to organize

their daily lives, all the while encouraging further social investment in sprawl.

Laws and regulations further stabilize the balance of political and economic power and thus the speed with which goods and consumers flow through consumption lines. Laws that ban or severely restrict the distribution and consumption of certain goods, for example, will usually severely slow down the flow of those goods, and the environmental pressures associated with them. In contrast, regulations that establish standards for goods ensure their reliability, safety and conformability to handling and monitoring procedures. Whether agents adhere to laws and regulations or not is, among others factors, a function of existing monitoring (and enforcement) technologies, and the political will to enforce. These regulations, however, do not necessarily come from government. Under neoliberalism, economic government has increasingly morphed in economic governance, as corporate entities establish the rules of trade that formerly lay under more democratic control.

(Consumption) culture in the form of 'consumerism' comprises the categories and practices through which consumers make sense of their consumption contexts, including the meaning and nonmonetary value they attach to the goods and services they purchase. Consumption culture allows consumers to form subjective meanings around their consumption practices. As we have seen, the degree to which culture influences consumption behavior and channels people through consumption lines depends on the form and degree of the consumer's rationality, competitiveness and sentiments. Examples include the creation of niche consumerism and individualized lifestyles built around a postmodern style of urban consumerism. Compared to the infrastructure and legal relations, (consumption) culture changes more frequently and is generally more flexible in adapting to changes in the different moments of a consumption line.

The monetary system enables the circulation of money, which forms the basis of material exchanges along the consumption line. Besides enabling (or disabling) financial stretching via the credit system, money, in combination with culture, can also transform and fix the meaning of space and time in consumption lines. In modern financial systems, monetary flows are highly flexible and fast moving, and constitute the highest frequency behavior of all four structuring relations.

The physical and social reproduction of consumption lines and the resulting achievement of (financial) stretching is the result of daily negotiations of individual worker-consumers' and capitalists' interests within a given structural context. Individual worker-consumers reproduce existing configurations of consumption lines either by passively embracing or by actively maintaining those structures with variable coherence and

effectiveness. Consumers, for example, consciously or unconsciously make daily decisions regarding whether or not to shop at their local store, whether to drink this brand of coffee or another one and so forth. But we should not confuse 'decisions' with 'choices,' for these decisions are not manifestations of economic free will, but rather of economic politics. It is here that we must look to discover both the prevention and the possibility of change. Cultural processes coproduce the ideological mechanisms that shape the subjectivities of worker-consumers, influencing whether they passively fall in or out of their consumption lines, or whether they challenge the way consumption is organized around them just as they do in their respective production lines. Worker-consumers can, for example, follow the laws and regulations that form the institutional rules that shape consumption lines (as well as production lines), or they can oppose and try to alter them. Likewise individual worker-consumers can reproduce or oppose coercive mechanisms that raise the costs of collective challenges to existing consumption lines. The monetary system ties the welfare of individuals to the effective functioning of the production side of the economy and translates from the political into the economic plane. The reproduction of, or challenge to, the infrastructure of consumption lines occurs at all levels, from state investments in roads and port facilities to corporate investments in retail locations and machinery to worker-consumer investment in housing, transportation and home computers.

Importantly, none of the processes of social and physical reproduction go uncontested. Due to their historic nature, each process in practice exhibits limits, gaps and contradictions that can give rise to unintended or intended changes and blockages to the socio-environmental flows through the consumption line. Contestations of the reproduction of consumption lines at the consumer level arise out of the opposing material interests of capitalists and worker-consumers and the ramification of their differing strategic intentionalities. Advertising, for example, stimulates both our dreams of utility and our suspicions that we are being conned. As well, consumption lines are never perfected. They are always unfinished and at risk of falling apart. Incoherences continually arise out of institutional and physical rigidities and ever-present conflict. Consumption lines are thus never immune from what Bell (2011) calls the 'strange music' of the unexpected. Because of such limits and gaps, existing consumption lines change over time – often in surprising and unintended ways that can lead to the slowing down or even blockage of consumption flows. Enduring consumption lines are those that have been able to 'correct' their unintended, gradual mutations, as well as to adapt to larger, unpredictable exogenous shocks such as natural disasters (see the chapter by David Hess in this volume). They persist through change. While there may be uncoordinated

drift in a consumption line, deliberate intervention by collectivities takes place at different levels and in different guises – from appeals to the state by industry groups and worker-consumer movements, to corporate advertising campaigns and consumer boycotts, to direct conflict through bills sent to courtrooms and collection agencies and through protestors marching on corporate headquarters.

Consumption and Collective Organization

Negotiations over specific, intentional changes to the processes within consumption line moments, the configuration of the different moments and the structural context of consumption lines all involve a complex variety of social, economic and political actors at a wide range of different societal levels (Figure 5.5). Both worker-consumers and capitalists struggle to use their political or any other available clout (5) to shape government policies or any other form of collective decision making (4) that directly or indirectly affect the nature and configuration of the different relations (such as physical infrastructure, the monetary system and so forth) that structure consumption (as well as production) lines.

Consistent with their original collective action problem, capitalists, for example, can generally be expected to lobby for pro-business legislation

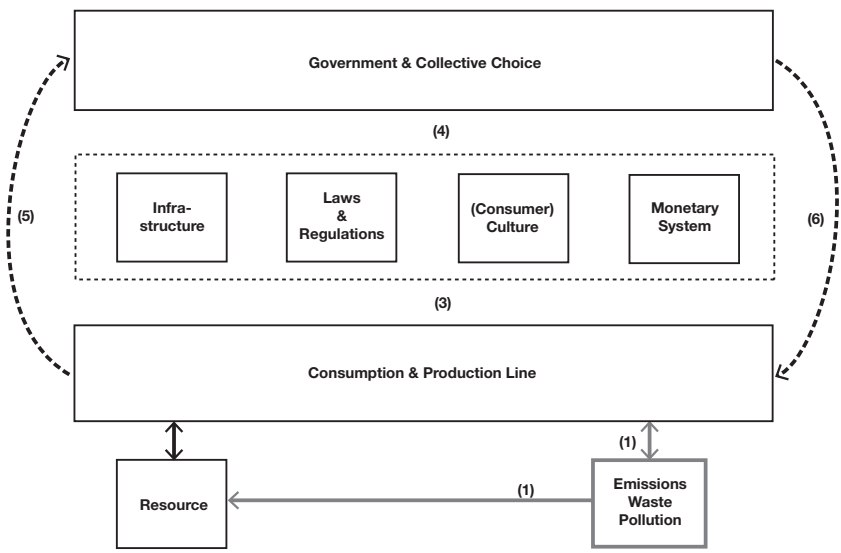

Figure 5.5 The collective organization of consumption and production lines

such as low minimum wages, weak social benefits and lax environmental regulations, while worker-consumers will press for an opposite agenda. Depending on the autonomy of the state, the compromises that are the outcome of those political conflicts between capitalists and worker-consumers will significantly affect the physical and socio-economic reality of consumption (and production) lines, final consumption patterns and resulting ecological stretching. At any moment in time, consumption (and production) lines and their pressures on the environment therefore can be viewed, at a first approximation, as the embodiment of power relations in society, and the lines' changes over time as a rough indicator of changes in those power relations.

As noted in Figure 5.5, the state or other collective organizations can use their resources to directly or indirectly bridge the private wage-price gap and stimulate the economy by engaging in or increasing public consumption (6). The transformation of private into public deficits through financial bailouts and public stimulus following the 2008 financial crisis in the United States, for example, highlights at least temporary capitalist power to induce the state to recatalyse the economy and, thereby, artificially stretch it, once existing consumption lines no longer managed to bridge the wage-price gap. But we would not like to imply here that economic interests are plain, even to those to whom they apply. Capitalists often disagree on both their individual and their collective interests, as do worker-consumers. So while some capitalists and worker-consumers have advocated financial stimulus as a response to the Great Recession, others have advocated austerity, seeking to balance lower sales with lower wages – likely, in our view, to the detriment of both sales and wages.

Barring the situation of a single, all-powerful, all-knowing dictator, not one party in the political and collective societal decision-making process will, however, ever be able to fully shape and control the structure of consumption lines. Political compromises, the providence of context and the unintended consequences of the interaction of consumers (and capitalists) with that structure will nearly always result in consumption (and production) lines that neither entirely block nor completely free up the flow of worker-consumers, goods and moneys through consumption lines.

CONCLUSION

Existing (final) consumption patterns are demonstrably associated with certain material and waste flows that cause significant and growing ecological problems that not only threaten the continuation of the very consumption patterns that cause them but also human civilization as we

know it. Those patterns are neither the exclusive outcome of individual worker-consumer choices nor of isolated demand manipulation by capitalists. Instead, consumption and production are fundamentally interlinked through the material conflicts of worker-consumers and capitalists, and the resulting wage-price gaps in capitalist economies. The need to bridge those wage-price gaps translates into the partly intentional and partly unintentional organization of consumption (and production) lines. The structure of consumption lines (and their associated production lines) in turn shapes consumption patterns that, together with the associated production lines, give rise to the material and waste cycles at the heart of today's deepening environmental crisis. All of this is not a static process but unfolds dynamically. Worker-consumers and capitalists individually and collectively reproduce or challenge the manner that wage-price gaps are bridged and are subject to accidents and contradictions that lead to suboptimal and unintended changes to consumption lines over time. Due to the unpredictability of nature, this leads to even greater uncertainty regarding the impact of those changes on the environment.

How can those growth patterns be transformed to avoid ecological crisis? We view the conflict between worker-consumers and capitalists as the central driver of the emergence, reproduction and transformation of existing (final) consumption patterns and their associated ecological impacts. Once one accepts the existence of a wage-price gap and the need of stretching to bridge it, it becomes clear that consumer- or producer-driven solutions alone will not be enough to alter environmentally harmful consumption patterns. Even if consumers wanted to change their existing consumption habits, the infrastructure, legal, cultural and monetary barriers embodied in existing consumption line configurations, as well as production practices, would make it quite difficult to do so. Likewise, even a most radical greening of capitalist production processes would still not break its dependence on financial stretching to sustain itself, thus continuing to produce ecological stretching and the transgression of our ecological planetary boundaries. Instead, any environmentally sustainable transformative politics must connect consumption and production lines by permanently addressing the wage-price gap and the double conflict between worker-consumers and capitalists.

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