ANARCHIST ACCOUNTING

Accounting Principles for a Democratic Economy

ANDERS SANDSTRÖM

ROUTLEDGE

ANARCHIST ACCOUNTING

This book is about accounting in an alternative libertarian socialist economic system. It explores what information and transactions we need to enable democratic and effective financial decisions by those affected by the decisions. Based on the economic model, participatory economy, the author proposes a set of accounting principles for an economy comprised of common ownership of productive resources, worker and consumer councils, and democratic planning, promoting the model's core values.

The author tackles questions such as how accounting could be organised in an economy with no private equity owners or private lenders and creditors that is not based on greed and competition but instead on cooperation and solidarity. A large part of the book is focused on issues regarding investments; thus, he asks how and on what basis decisions are made about the allocation of an economy's production between consumption today and investments that enable more consumption in the future, and how investments are accounted for. He also considers how investments in capital assets and production facilities would be decided, financed, and valued if they are not owned by private capital owners and if allocation does not take place through markets but through a form of democratic planning. In answering these questions and more, the author demonstrates that alternative economic systems are indeed possible, and not merely lofty utopias that cannot be put into practice, and inspires further discussion about economic vision.

By applying accounting to a new economic setting and offering both technical information and the author's bold vision, this book is a comprehensive and valuable supplementary text for courses touching on critical accounting theory. It will also appeal to readers interested in alternative kinds of economies.

Anders Sandström is a trained accountant with a degree from Uppsala University. He lives in Stockholm, Sweden, where he works as the treasurer at Sveriges Arbetares Arbetslöshetskassa (SAAK), an unemployment office historically connected to the Swedish syndicalist trade union, Sveriges Arbetares Centralorganisation (SAC). Before his sabbatical and political turnaround in 2000, Anders worked as an audit junior at the international audit firm KPMG and later as Head of Accounting and Group Financial Controller in different companies. In 2010 Anders co-founded Parecon Sverige, an advocacy group for a participatory economy, which is an economic system developed as a viable alternative to capitalism.

"Many people might assume that accounting is a capitalist tool, but it can be made radically democratic. We need to build businesses and societies that are fairer and greener, and this beautiful book explains how we might use anarchist practices to get there."

– *Professor Martin Parker*, Lead for the Bristol Inclusive Economy Initiative, Department of Management, Bristol University, UK

"Anarchist accounting? Is this some kind of joke? In his provocative book Anders Sandström explains that it is no joke, but something anarchists need to take seriously if they want to advance their cause.

Anarchism preaches that when freed from perverse institutional incentives which make acting in the social interest contrary to one's personal self-interest, most people will choose to act in solidarity with others. What Sandström adds to this traditional anarchist 'wisdom' is the observation that in order to do so people need the information necessary to determine what behavior on their part would actually advance the social interest. Sandström, a life-long professional accountant turned anarchist, applies accounting principles to a post-capitalist economic 'model' known as a participatory economy to demonstrate how to give people the information they need to act in solidarity with one another.

Anarchist Accounting is a must read for anyone interested in making libertarian socialism more than a 'faith based' initiative."

– *Robin Hahnel*, Professor Emeritus, The American University, Washington DC; Visiting Professor, Department of Economics, Portland State University, Portland, Oregon; Co-director, Economics for Equity and the Environment; and author of *Economic Justice and Democracy: From Competition to Cooperation*

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CONTENTS

EXHIBITS

ABOUT THE AUTHOR

On a windy day in June 2000, the author arrived at Athens airport for further transport to a small town on a Greek island where he would spend most of the following year. During that year he was set to make some crucial decisions about his work situation and think through his political outlook, which he had begun to seriously doubt. On the whole, until then he had been a convinced neoliberal. He had supported the increasing income differences, lower taxes, deregulations, and dismantling of the public sector that made up the policies of the day in Sweden, and elsewhere, in the 1980s and 1990s. His private aim had been a high-income and a prestigious position in the business community. After a degree in Business Management and Accounting from Uppsala University in 1990, his first job was as an audit junior at the audit firm KPMG where he stayed for about three years. He then moved on to climb the career ladder, changing jobs every two or three years, holding positions in accounting at different companies. At the time for his decision to leave for a sabbatical in Greece, he worked as head of accounting at a Stockholm-based market leading bus company.

In his daily work he had seen first-hand how private companies and their executives focused on profits, market shares, and bonuses at the expense of work conditions and wages for ordinary employees and the interests of other stakeholders in society. A seed of doubt slowly started to grow, and as the years went on, he began to realise that large income differences, hierarchies, and concentration of power in capitalist market economies can be just as unfair and undemocratic for large groups of people as in the previous, so-called socialist states, regardless of the ideologically flavoured rhetoric of their advocates. By coincidence, roughly at the same time, he had come across a book by Noam Chomsky, in which the systematic injustices and abuses of capitalism, and their causes, were revealed so clearly that it was impossible not to be affected.

After some time of contemplation in Greece, the libertarian version of socialism appeared convincing to him on a philosophical and moral level. The participatory economy model, with its roots in libertarian socialism, first presented in 1991, stood out as the most elaborate available alternative economic vision. It was, and is, one of very few alternative economic models that present a coherent description of how a modern society can organise its economy democratically and fairly, both without private ownership of capital and, above all, without markets. Since his background is in accounting, it was natural for him to reflect on accounting issues when thinking about alternative economic systems. This book is the result of these reflections.

Since his return from Greece, the author has primarily worked with accounting in a very different type of organisations, i.e. organisations that, in one way or another, question the current economic system, e.g. the Swedish syndicalist trade union, its associated unemployment office, and the monthly magazine *Arbetaren*. In September 2010, together with others, he co-founded the organisation Parecon Sverige, an advocacy group for a participatory economy.

ACKNOWLEDGEMENTS

I would like to thank Professor Robin Hahnel, co-author of the participatory economy model, for invaluable support, feedback, and suggestions, and for pointing out misunderstandings throughout the process of writing this book. It would not exist in this shape and form without his aid. Furthermore, Jason Chrysostomou and Chris Chrysostomou of Participatory Economics UK in London have read and discussed my drafts, and suggested improvements in a way that has been most helpful and constructive. Antti Jauhiainen, Joona Hermanni Mäkinen and Aki Tetri of Parecon Finland have been speaking partners on issues relating to the participatory economics model for many years and have provided valuable feedback and views along the way, as has Fintan Bradshaw and Lizzie Meade in Ireland. Finally, I would like to thank Professor Martin Parker for his dedication to issues regarding alternative forms of administration and organisation, and his encouragement at an early stage of the planning for this book's publication. I am, of course, solely responsible for any errors occurring in the book.

Anders Sandström

INTRODUCTION

In the last half century, the inequality in the world and within countries has increased massively though poverty in absolute terms in some areas has been reduced. Deregulations, privatisations, and tax cuts have led to a situation where the richest ten people own more wealth than the poorest half of the world's population and the richest 1% owns more than the remaining 99% together. Millions of people make less than $2 a day, while at the same time a CEO in a finance company can make many tens of thousands of dollars in that same day. From having declined in the post-war period up until the end of the 1970s, inequality since then has accelerated and reached today's levels.

It is, even within the framework of capitalism, to a certain extent, possible to reduce inequality and increase democratic influence in the economy through legislation on worker influence, a redistributive tax system, collectively provided socially beneficial services such as health care, education, and childcare. Such tools have been used, and are used, to varying degrees in most capitalist countries, although the extent varies greatly between countries and different times. The Scandinavian countries were among the most successful in reducing inequality and increasing workers' influence in these ways during the post-war period and up to the end of the 1970s. Since then, the development has gone in the opposite direction.

However, a truly fair and democratic economy aiming for long-term stability needs to go much further and abolish the sources of hierarchical decision-making routines, the concentration of power, and unfair remuneration, and replace the defining institutions of capitalism with democratic and fair alternatives. In a fair economy, society's productive resources – land, factories, machines, tools, etc. – are not owned and controlled by private interests who receive dividend and interest only in their capacity as owners. Nor is remuneration for work settled on labour markets where the size of the remuneration, *regardless of who owns*

the productive resources, is determined by job seekers' bargaining power or in "best case" their productivity.

If they think about it at all, most people today assume there is no better alternative than capitalism, i.e. that markets and private ownership of capital are as unchangeable as the laws of nature. The widespread embrace of Margaret Thatcher's old TINA argument (There Is No Alternative) is arguably one of the biggest obstacles to replacing an economic system based on greed and competition with one based on democracy and justice.

People have a right to be sceptical of non-capitalist economic visions in the light of twentieth-century history.[1] Contemporary visions of a new economic system and a just society must provide an alternative to both capitalism and twentieth-century authoritarian socialism. We who are looking for a different society must become much better at presenting and defending our visions, and, above all, in explaining how they differ from twentieth-century versions. At the same time, there is a risk that vision can promote sectarianism and elitism. To avoid this, and to ensure the right of future generations to make their own decisions, our visions must be flexible, be inclusive, and allow continuous adaptation to new information and a changing world.

However, thinking through economic vision in a serious and concrete way provides *at least* three important benefits: (1) it builds optimism and confidence in the feasibility of a more desirable alternative system; (2) it helps to assess alternative strategic and tactical actions in our everyday struggles; and (3) it helps to inform experiments when people are in a position to begin implementing alternative social institutions. As long as visions are presented as merely proposals or suggestions and not ideologically rigid dogmas, thinking through potential problems and exploring possible solutions in advance can only be of help to future citizens who ultimately will decide how to organise their new society.

Anarchist economics

Anarchism is a political philosophy concerned with the abolition of coercive structures of authority and centralised power in society.[2] While today there exists much public misconception that associates anarchism with disorder and chaos, anarchist thinkers in the last two centuries had in mind a highly organised form of society in which power, instead of flowing from the top down, flows from the bottom up. The closest example of an economy organised along these lines was in Spain from 1933 to 1936 where large parts of the economy in Republican-controlled territory were under worker control, and industries were organised around federations of assemblies consisting of delegates subject to recall.

There are good reasons to believe that a future non-capitalist democratic and fair economy, for which profit maximisation and growth are not the primary goals, will give priority to leisure time in the form of reduced working hours over more consumption. There are also reasons to believe that such an economy will prioritise the production of durable, high-quality products instead of

products that are designed to break and be replaced at short intervals. One can also expect that a larger share of the total consumption will be collective, e.g. more and better solutions for collective transport systems and housing arrangements and shared use of costly resources within neighbourhoods. Such a development not only would have positive effects on the quality of life and health of individuals but is by now necessary to avoid the environmental catastrophe that is creeping ever closer through the climate crises. Earth's vital resources, e.g. clean air, a protective atmosphere, various mineral deposits, and ecosystems, are not endless but are nevertheless currently consumed at a rapid pace due to profit hunting.

The increase in productivity since the breakthrough of industrialism has been exceptional, and there are indications that this development could very well continue, e.g. with the help of advanced artificial intelligence (AI). Compared to 1950, American society in the year 2000 produced five times more with the same work effort. In other words, the American citizens could, in year 2000, have achieved the same material standard as in 1950 with an eight-hour workweek. However, the increased productivity has not led to fewer hours worked; on the contrary, hours worked per capita have increased. Instead, the development has enabled dramatically increased consumption, which, among other things, has had a negative impact on the environment.

In other words, there are great opportunities and convincing arguments for converting productivity increases into more leisure and sustainable products instead of ever-increasing consumption of short-lived products. It is, however, unlikely that we in a near future can create an economy in which we can meet all our needs and produce all the goods and services we want without any, or negligible, work effort, or without consuming neither non-renewable natural resources nor manufactured productive resources. It is, thus, unlikely that we will be able to satisfy our demand for goods and services without having to prioritise what is to be produced and consumed. As long as productive resources are limited and as long as the production of goods and services consumes scarce resources, any economy needs to make priorities regarding production and consumption, and decide how to allocate resources and consumption rights between individual producers and consumers. Different economies will make different decisions depending on their values and goals, and they will distribute power to different actors and organise decision-making in different ways, but they will all inevitably have to choose some options at the expense of others.

This book discusses accounting principles and solutions to accounting issues in a future alternative economy, which might be considered anarchist or libertarian socialist. How would accounting and bookkeeping be organised in an economy with no private equity owners or private lenders and creditors that is not based on greed and competition but instead on cooperation and solidarity? Who would ask what information? A large part of the book is focused on issues regarding investment. How and on what basis are decisions made about the allocation of production between consumption today and investment that enables

more consumption in the future, and how are investments accounted for in a participatory economy? How would investments in capital assets and production facilities be decided, financed, and valued if they are not owned by private capital owners and if allocation does not take place in markets but through a form of democratic planning? In order to make concrete accounting proposals, we need to start from a concrete economics model.

The participatory economy model is the only concrete and specific proposal for how an anarchist or libertarian socialist economy might function that has been presented this far, which is the reason we use it for the purposes of this book. It was first presented in 1991 in two books by Michael Albert and Robin Hahnel: *Looking Forward: Participatory Economics for the Twenty First Century* (1991) and *The Political Economy of Participatory Economics* (1991). Since its first presentation, it has been discussed, further developed, and scrutinised in numerous subsequent books, articles, panel discussions, and debates on various forums. The authors explain in concrete terms how, in practice, a modern economy of millions of people could be organised around the principles of self-management, equity and solidarity as an alternative to both capitalism and authoritarian planning. A participatory economy is composed of self-managed worker and consumer councils, their federations, and a decentralised democratic planning procedure.

With this book, we want to help demonstrate that alternative economic systems are indeed possible and not merely lofty utopias that cannot be put into practice. And we want to inspire further discussion about economic vision. A discussion of this kind will, of course, never be "finished" but should continue "forever", and constantly adapt and evolve based on new insights and new knowledge in a changing environment. While this book focuses on the economy and accounting, it is important to keep in mind that the economy is only one part of society and that hierarchies with underprivileged and disadvantaged groups are found in all areas of society, including politics and kinship, where the benefits and hardships resulting from social interaction are not distributed equally.[3]

Anarchist accounting

The general definition of accounting is something like the "collection, registration, aggregation and reporting of financial transactions in companies or organisations to provide the necessary information to make and evaluate financial decisions". Most textbooks on accounting also make a distinction between financial and management accounting. Financial accounting is about providing information to existing and potential investors and other external stakeholders such as owners, suppliers, tax and supervisory authorities, while management accounting is primarily about generating information that the management of the organisation needs to determine and monitor business targets and strategies. Therefore, accounting in a capitalist context is a tool for managers, merchants, and capital owners in their quest to monitor and control investments, trade, and production of goods and services to maximise their private return on invested capital.

It is, therefore, perhaps not surprising that the radical left, including many libertarian communists and followers of the Russian anarchist Peter Kropotkin, early on had a strong negative attitude towards bookkeeping and accounting, given that these activities were an integral part of the system they wished to abolish. "From each according to his ability, to each according to his needs" was a popular slogan on the left in the late 1800s. The early long-term visions of a future utopian society were a society without money or accounting, where debit and credit had been "abolished", and society's collectively owned resources together with limited work efforts could satisfy everyone's needs for goods and services without society having to make difficult decisions about what to produce and consume. A quote from the French anarchist Ravachol at the end of the nineteenth century captures the spirit of the time: "There are currently many worthless things, many professions are also worthless, such as accounting. With anarchy, there is no need for money, no need for accounting and the other forms of employment derived from this".

The fact is, however, that as long as we live in a society with scarce resources, also a non-capitalist and democratic economy organised around self-managed workplaces and neighbourhoods will need an accounting system that generates necessary information for decision-makers, i.e. those affected by the decisions, so they can make efficient and fair decisions on resource allocation, production, and income distribution. Accounting in such an economy will focus on facilitating and promoting democratic decision-making, equality, and solidarity, and not profits and return on private investments.

This book is about accounting principles and their design in a libertarian socialist economic system. It explores what information and transactions we need to track to enable democratic and efficient financial decisions by those affected by the decisions. The text must not in any way be interpreted as a definitive and immutable description of how the future accounting principles must be designed, but instead as just one of many possible ways to translate libertarian socialist values into concrete solutions to technical issues. It should be seen as a starting point for further and ongoing discussions, and as a source of additional thoughts and ideas on the subject.

History of accounting

Every economy, both today and in the future, needs and will need some form of accounting. Accounting is the registration, summarisation, and reporting of economic transactions in order to provide the necessary information for making economic decisions.

The development of financial accounting from the simple notes of commercial transactions in antiquity to today's comprehensive accounting systems for monitoring, managing, and controlling economic activity is the result of the needs of those in power and of capital owners, their need for increasingly sophisticated accounting procedures in order to maximise their return on investments and to

administer and control trade, credit, and production in different historical eras. The development and design of accounting systems have, in turn, influenced how and how quickly different economic systems and ideologies have developed, by creating favourable conditions for a certain type of capital accumulation through effective monitoring and control of economic activities. The growing complexity of accounting systems has also enabled the bookkeepers throughout history and especially in recent years to monopolise accounting knowledge and to form themselves as an independent group of professionals with their own aspirations of power and influence in relation to their property-owning principals.[4]

The cradle of financial accounting is usually placed in Mesopotamia, in the area around the Tigris and Euphrates rivers in present Iraq over 5,000 years ago. Favourable circumstances in that area gave rise to relatively developed trade. Several major trade centres such as Babylon and Nineveh came into existence, and a fledgling banking system began to take shape, which provided loans to merchants. Thus arose also the need to keep records and to control trade and debt transactions. But it was not until the early Middle Ages that what is referred to as modern accounting, i.e. double-entry bookkeeping arose. It is believed that the system of double-entry bookkeeping emerged in the Italian banks in city-states such as Florence and Venice in the 1200s where bank customers were assigned accounts with both deposits and liabilities. Transfers of money between people with accounts in the same bank could then easily be recorded by a simultaneous listing of the current balance on separate accounts with two sides or columns (Debit and Credit) which identified deposits and liabilities. In 1494 the Venice-based Franciscan monk Luca Pacioli created the first known description in writing of double-entry accounting in the mathematical dissertation *Summa de Arithmetica Geometria Proportioni et Proportionalita (Summary of Arithmetic, Geometry, Proportions and Proportionality).*

Before the industrial revolution, the purpose of bookkeeping was mainly to register transactions between independent producers of goods and their customers, or traders who bought goods for resale, or between lenders and borrowers. During the seventeenth and eighteenth centuries, large trading companies were created, such as the East India Company, which ran an extensive trade in colonies around the world where the focus was on trade with exotic goods from distant parts of the world. Profits were the result of buying "exotic" goods cheap in the colonies and selling them dear in the home country, combined with buying manufactured goods cheap in the home country and selling them dear in the colonies. The actual production of goods in both colonies and home countries was carried out largely independently by peasants and artisans who largely controlled the actual production process. The pricing of goods and assets from an accounting perspective was simple and followed naturally as a result of market transactions between independent parties. With the industrial revolution, an entirely different scenario came into play.

In the early nineteenth century, technical progress had made it possible and profitable to mass-produce goods. It became profitable for the owners of capital to invest much larger sums in production than before. Workers were contracted for a longer time, and it became important and significant to control and manage

production processes. A hierarchical work division and organisation grew rapidly, with groups of workers whose only job was to manage and control other workers. The production units grew ever larger as a result of better and more efficient ways of communication and economies of scale, and it became important for investors to evaluate and compare different units based on the most profitable use of scarce resources. A large number of economic indicators and analytical tools were developed to evaluate and compare the efficiency of different units with respect to hours worked, resources used, etc. This trend was intensified by Taylorism which, in the early twentieth century, attempted to scientifically determine the optimal use of materials and labour. A growing proportion of transactions in time became internal transactions within large organisations and between different organisational units within the same group. Early in the twentieth century, senior officials in the multinational DuPont Group[5] developed a set of key indicators or key ratios in order to facilitate the allocation of capital to the most profitable units within the Group – the so-called return-on-investment (ROI) ratios. Different versions of ROI ratios are still widely used today.

After the Second World War and especially in the period after 1970, the world economy has been characterised by two strong trends: an increasing concentration of capital and ownership in most industries, and an expanding financial sector. Many industries today are dominated by a small number of global and very large business groups that are often interlinked and whose revenues in many cases exceed the gross domestic product (GDP), of smaller countries. These business groups often control and own actors in several stages in the production and distribution chain. At the same time, speculative financial transactions make up an overwhelming majority of all monetary transactions in today's economy. Many companies nowadays make significantly more money by speculating in currencies and securities than by producing goods and services and providing them to consumers. Furthermore, the principles of accounting for many of today's innovative financial securities are often impenetrable, and it is very difficult to get an accurate idea of these financial assets' values.

Today's accounting principles emerged and were shaped by the interests of private capital owners in controlling and managing the use of their capital, by nation-states' interest in taxing corporations profits and assets, and by demands from accountants who in their daily work prepare financial information in income statements, balance sheets, cash flow reports, financial analyses, etc. While all accounting systems will inevitably share some common characteristics, differences in any future accounting system will reflect the differences in the economy's key institutions regarding the ownership of capital, its allocation system, modes of compensation, division of labour, etc.

Outline of the book

It is inevitable that a book about accounting, in parts, will be perceived as technical and difficult to access. The goal has been to make the text as accessible as

the subject allows. At the end of the book, there is an appendix that gives a short and cursory description of the most basic principles of accounting. Some parts of the book really do require an acquaintance with accounting theory in order to be fully understood. However, we are confident that readers with curious minds who are interested in exploring more practical matters around the organisation of a future alternative economy, but who have no background in accounting, will still gain value from reading the book. Since the book is based on the participatory economy model, the more knowledge one has of this model the better.

The book is divided into six chapters. Chapter 1 gives a brief summary of the participatory economy vision, its goals, values, institutions, and actors, as well as the main arguments against the market as an allocation mechanism. The focus is on the model's institution for allocation, decentralised participatory planning, and its procedures. Participatory planning is a democratic economic planning model based on self-management in which it is the consumers and the producers themselves who propose and revise their own consumption and production proposals in a number of iterations until supply and demand balance. The chapter ends with a more detailed description of the main actors in a participatory economy and their most important decisions, including decisions that require actors to organise in federations.

Chapter 2 introduces the main challenges and objectives for an accounting system in a participatory economy, and goes on to sketch the main features of our proposed accounting system, which is elaborated in the following chapters of the book.

In Chapters 3 and 4, the focus is on the economy's main actors – consumers and workers, and the accounting of their financial transactions. In Chapter 3, we concentrate on consumers, their income, consumption – both private and collective – and their need for information in order to make fair and efficient decisions. It is the consumers themselves, and not a central planning board, who, in a participatory economy, announce consumption preferences so that worker councils can plan their production. This task must be possible to perform in a way that is not too detailed, cumbersome, and time consuming for individual consumers. How "coarse" and flexible can the consumers' consumption proposals be and what information do consumers need to have access to in order to be able to judge whether their own and others' consumption proposals are fair? The accounting system in a participatory economy must be able to account for and compare consumers' income and expenditures, register loans and savings, manage collective consumption, and deal with discrepancies between planned and real consumption in a flexible and fair manner.

In Chapter 4, the worker councils' demand for information is analysed, and in particular the accounting principles and routines that are necessary to create the information council members need to make efficient and fair decisions about work and production. We describe the financial transactions that must be recorded to correctly reflect society's costs and benefits resulting from economic activity and create a good basis for fair and efficient decision-making. In the

second half of the chapter, we focus on the requirements for categorisation of produced goods and services.

Chapter 5 is about investments and investment decisions, and how access to productive capital assets is allocated to individual worker councils. For comparison, Appendix 2 at the end of the book briefly describes investment decisions in a capitalistic market economy. The industry federations play a prominent role in long-term development and investment planning in a participatory economy, and we begin by discussing their organisation. Our next focus is the long-term development, or strategic, planning, which precedes the investment planning and deals with such issues as how a participatory economy can and should organise its international trade, how to achieve a long-term sustainable environmental development, and how to adapt the labour supply to other long-term decisions and the economy's expected composition and development. One particularly important focus for the development planning procedure to consider is the challenge that the climate crises create.

On an overall level, investment planning in any economy deals with two issues: (1) how much consumption do we want to sacrifice today to be able to consume more tomorrow, or differently put, how do we want to allocate the economy's total production between consumption and investment? and (2) how should investment, in the form of different new capital assets, be allocated between industries and workplaces? We describe how these issues can be handled in an efficient way, based on the values of a participatory economy. We then go through how capital assets are recorded and accounted for. Finally, we describe how individual worker councils get access to existing capital assets and how the user rights fees, which worker councils are charged for access to capital assets, are determined to reflect the assets' opportunity costs as accurately as possible.

In Chapter 6, the last chapter before the Conclusion, our aim is to give an overview of the flows of economic transactions in a participatory economy, at the national level, by introducing a Society Account and describing the relevant entries of economic activity. Through the entries in the Society Account, the economy will identify and monitor the composition of the economy's GDP, its different sources of income and the distribution between consumption and investment, and the effects of trade balances and price differences in international trade.

Notes

1 Robin Hahnel (2005) describes twentieth-century attempts to replace capitalism, as well as more contemporary alternative visions that have been created as a reaction to the failures of the twentieth century.
2 For a good overview of anarchist thought, see Guerin (1970) and Chomsky (2005).
3 For an account of how society's different spheres, their institutions, and hierarchies affect each other, see Albert et al. (1986).
4 Our summary of the historic development of accounting is based on two texts: an article by Swedish Certified Public Accountant Stefan Engström in the Swedish magazine *Balans* #12 (Engström, 1999) and *Relevance Lost. The Rise and Fall of Management Accounting* (Johnsson & Kaplan, 1987).

5 The DuPont Company was founded in 1802 producing gunpowder. Early on, it diversified its production into different chemical products. Today it is one of the world's largest companies in its industry.

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1

A PARTICIPATORY ECONOMY

Below we provide an overview of the participatory economy model, its fundamental values, and defining institutions. For a more comprehensive and technical description of the model and especially the planning procedures, see Hahnel (2021 forthcoming). A shorter and more accessible presentation is offered in Hahnel (2012). We furthermore recommend a visit to the website www.participatoryeconomics.info, which includes links to further articles, videos, books, and other resources.

Goals

Any economy has three tasks to accomplish: the organisation of (1) production and (2) consumption, and because humans abandoned individual economic self-sufficiency long ago in order to take advantage of the efficiency gains from a division of labour, (3) the allocation of goods, services, and resources among different producers, users, and consumers. A participatory economy, while performing these three tasks, explicitly aims to advance six specific goals: economic democracy, economic justice, solidarity, diversity, efficiency, and ecological sustainability.

Supporters of the participatory economy vision define *economic democracy* as a condition where a person's influence over decisions is determined by how much the person is affected by the decision in question. If you are affected more than others by a decision, you should have more influence over that decision; if you are less affected than others by a decision, you should have less influence. This is also called self-management, which is the only way to promote economic freedom without the freedoms of some disenfranchising the freedoms of others.

Economic justice is about the distribution of the benefits and burdens that result from economic activity. In a participatory economy the goal is for any differences in income, i.e. a person's share of what is produced in the economy, to be based

on differences in sacrifices or personal effort in performing socially valuable work. Income distribution should not be affected by how productive one's labour is, due to having access to better tools and capital, being born with a higher intelligence, or other factors that are beyond a person's control. Effort and personal sacrifice are the only factors that a person can influence and thus form the main basis on which any differences in compensation should be based. Of course, there are also many circumstances when income should be distributed based on need – for example, when people are not able to work because of severe disability; when they are too young or old to work, i.e. children and senior citizens; when in need of health and social care during times of illness; if they become victims of natural disasters; and in many other situations, as decided democratically by society. The complete rule for distribution of income, or consumption possibilities, in a participatory economy is therefore "to each according to effort or personal sacrifice, *and* needs".

Solidarity is defined here as concern for others' well-being and the attitude that circumstances for our fellow human beings should be valued and assessed as if they were our own. In private enterprise economies the interests of employers and employees are opposed to one another. And in market economies buyers and sellers are pitted against each other such that success for one person is achieved at the expense of someone else. A participatory economy seeks to create an environment where mutual aid, cooperation, and solidarity are encouraged, and where our interests are intertwined in a way that the individual success means that others benefit as well.

Diversity refers to a situation where people have access to a large number of different choices about how to meet their needs and desires. People vary greatly regarding their preferences, tastes, talents, and lifestyles; the best life for one person is not necessarily the best life for another. A participatory economy, therefore, rejects conformity in favour of a society characterised by a great deal of diversity. An additional benefit of promoting diversity is the spreading of risks; it is advantageous to allow and test many ideas and options in different areas. That way, more doors will be kept open and experience and knowledge will increase.

Efficiency means that our goals are achieved with the least possible waste of resources, time, effort, and energy. A participatory economy wants to maximise human well-being for all, which requires using scarce resources where they are most valuable.

These five goals are already indirectly supporting *ecological sustainability*, but supporters of participatory economics see long-term sustainability and the concern for the environment as an important and independent value in and of itself. A participatory economy is a green economy that wants to achieve economic goals without diminishing future generations' access to a stimulating and rewarding natural environment.

Institutions

The participatory economy model defines a minimal set of institutions designed to maximise our potential for achieving the above objectives. These institutions

are democratic worker and consumer councils, jobs where tasks are "balanced" with regard to empowerment and, where possible, desirability; compensation based on effort or sacrifice and needs; and finally, a democratic allocation process called participatory planning.

Democratic worker and consumer councils

In a participatory economy the means of production such as land, natural resources, factories, machinery, and technical knowledge are owned collectively by all. All of this is treated as the "productive commons", belonging no more to any person than anyone else. Influence over decisions is therefore not based on ownership of private property or on different groups' bargaining power. Instead, people meet in democratic worker and consumer councils and their respective federations, where they discuss and vote on decisions regarding their own affairs. All members have equal rights and all members have one vote.

The worker council is the highest decision-making body in every workplace, in the same manner as the annual shareholder general meeting is, in theory, the highest decision-making body in a corporation in today's economic system. In addition, decision-making in every workplace should be organised to maximise self-management, i.e. so that workers can influence decisions in proportion to the degree that they are affected by the outcome of the decision. To achieve this, different voting procedures can be agreed on to be used in different situations within workplaces, such as majority vote, consensus, or different types of qualified majority. Larger workplaces may decide to create semi-autonomous subdivisions with decision-making authority over matters that primarily affect only them. All are free to apply for membership in the worker councils of their choice or to apply to start a new worker council.

Each individual also belongs to a local neighbourhood consumer council. The consumer councils, among other things, handle individual household's requests for consumption, i.e. their suggested list of goods and services they wish to consume during the following year. An individual consumer's consumption rights are constrained by the member's income that he or she is allocated in their workplace (based on effort or sacrifice), in addition to any income they may receive through internal redistribution within consumer councils (based on need) or via the national systems for allocation of income to those who are too young to work, retired, or disabled. Every individual consumes both private goods, such as food and clothing, and public goods such as parks, libraries, and playgrounds. Through their neighbourhood consumer councils, and through delegates to higher level federations of consumer councils, consumers propose collective consumption at the same time that they make their requests for private consumption.

Every worker and consumer council elects representatives to the "higher" levels of councils, called council federations. Worker council federations are organised by industry, and consumer council federations are organised geographically in increasingly larger geographic areas, e.g. at neighbourhood, city, region, and

national level. This structure is necessary because different kinds of collective consumption, or public goods, affect smaller and larger constituencies. In order to counteract any potential misuse of power, representatives acting within federations can be subject to rules of rotation, recall, and instructions from members of the council at lower levels.

Balanced Jobs

In any economy, there are jobs that define the tasks a worker has to perform. In hierarchically organised economies, such as capitalism or centrally planned state socialism, the majority of jobs are defined in such a way that most of the tasks in a particular job are *either* relatively empowering *or* disempowering. This leads to a situation where a minority will monopolise access and use of information and knowledge in the workplace, which in turn leads to a situation whereby this group dominates meetings and discussions in the workplace due to greater confidence and knowledge, even in a situation where every worker formally has one vote. An uneven distribution of empowering tasks promotes class differences and hierarchies.

A participatory economy aims to organise work in a radically different way in order to achieve real influence for everyone in the workplace and in society at large. To the degree that it is possible every workplace is expected to combine tasks into jobs that are roughly comparable in terms of empowering tasks. This means that all workers perform some tasks that are empowering and some that are less so. The idea is not that everyone should perform every task in a workplace. There will still be specialisation. A balanced job will still contain a limited number of tasks, but at least some will be empowering, and tasks that are not empowering will be part of everyone's job. Balancing jobs for empowerment will help equip all in a workplace to participate meaningfully in democratic decision-making.

Every worker council is responsible for balancing jobs to the extent possible, and the way they approach this will necessarily vary greatly between different workplaces, depending on different practical, technological, and individual considerations.

Income based on effort and need

A worker receives consumption rights (or in other words, income) as compensation for work performed. In our current economy, the size of an individual's income depends on a variety of factors such as ownership of capital, bargaining power, talent, education, luck, and, to a much lesser extent, effort or sacrifice. Because the only one of these factors a person can influence is their effort, a participatory economy aims to compensate workers based on the effort and personal sacrifice that they put into (socially valuable) work.

Worker councils are required to establish procedures *of their choosing* for grading members' efforts. Workers who choose to put in a higher level of effort in

their work will receive more income. Effort or sacrifice can take different forms, such as working longer hours, working at a higher intensity, or performing more dangerous or unhealthy tasks. How worker councils evaluate effort is up to them and they are likely to design very different procedures for this purpose. The only restriction is that the worker council's average effort rating, or "dollars" that it distributes to its members, is capped. Either every workplace is capped with the same average number of dollars it can distribute to its members, or alternatively this cap can be based on the relationship between the social benefit of the "outputs" the workplace produce and the social cost of the "inputs" that the workplace use. This will be explained in detail later in the book. The purpose of putting a cap on the average effort ratings a workplace can assign to its members is to avoid the possibility that workers would deliberately exaggerate one another's efforts leading to "inflation" in income.

Finally, decisions about awarding consumption rights based on special circumstances and needs on compassionate grounds are handled in the consumer councils, and decisions about consumption allowances due to disability, retirement, and youth – both with regard to rules for eligibility and how large the allowances should be – are handled through a national system within the national consumption federation, not within workplaces.

The case against markets[1]

Before describing the final defining institution of a participatory economy – participatory planning – it may be worth thinking about why the market (a system of competitive bidding between individual buyers and sellers) is an undesirable allocation mechanism for a participatory economy. What are the arguments against the market?[2]

Below we briefly present four arguments against retaining the market system: markets (1) are unjust, (2) undermine solidarity and promote selfish attitudes and behaviours, (3) undermine both economic and political democracy, and finally (4) allocate scarce resources inefficiently.

Markets are unfair

In a private enterprise market economy, capital owners receive compensation in the form of profit without exerting any work effort, meaning that the benefits that employees collectively receive are necessarily less than the market value of what they produced. Most socialists regard this to be unfair. But what about the income differences between categories of workers, and what if capitalist enterprises are replaced by worker-owned companies that take on members from a labour market where supply and demand is allowed to continue to influence relative wages? When labour is hired through a labour market – regardless of ownership – those who make a greater contribution to the companies' production and corporate income (i.e. those who possess more "human capital") will

obtain a higher compensation than those who contribute to corporate income to a lesser extent (those who possess less "human capital") regardless of their effort and sacrifices.

This is not consistent with our goal of economic justice, as explained above. Moreover, there is no way to correct this problem within the framework of the market system without creating large inefficiencies. If, through legislation, we set the salary levels that we believe to be just but continue to allow the market to allocate resources, different types of labour will be allocated inefficiently and the price structure in the whole economy will give inaccurate information about the social costs of producing various goods and services, which leads to further inefficiency.

Markets undermine solidarity and promote selfishness

Disgust with the commercialisation of human relations is as old as trade itself. Markets encourage forms of human interaction that are characterised by pettiness and enmity, while forms of cooperation based on respect and empathy are discouraged. Markets reward the most effective exploitation of fellow human beings and punish those who, without logic, insist on following the "golden rule" – treating others as you want to be treated. We are told that in a market system we will benefit by being useful to others, but it is usually much easier to gain much greater benefits by exploiting others. Thoughtfulness, empathy, and solidarity become unnecessary appendages in market economies.

Markets have important political and cultural effects. Anthropologists point out that the way in which we regulate and coordinate our trade and economic activities affects the type of people we become, and markets are social environments that nurture callousness while punishing solidarity. As much as economists insist on ignoring it, the economy – its markets, workplaces, etc. – is a gigantic school with rewards that encourage the development of specific skills and attitudes, while other potential abilities and attitudes wither away.

Markets are undemocratic

First, markets undermine the character traits and abilities that are necessary for the democratic process. Among the abilities that those who have studied the issue believe to be fundamental to a well-functioning democracy is the ability to manage and communicate complex information, the ability to take collective decisions, and the ability to feel empathy and solidarity with others. Markets create a hostile environment for the cultivation of all these traits. For example, solidarity is more likely to flourish if economic relations are personal and ongoing, rather than anonymous and fleeting as in market economies, and where caring for the needs of others is an integral part of the institutions that govern the economy. In short, the abilities required by the modern, democratic citizen regarding information management and decision-making are not cultivated by participation in market exchange. In fact, these skills and attitudes are undermined by markets.

Second, market transactions generally favour those with more wealth more than those with less capital assets. As long as capital is a scarce resource, i.e. as long as additional capital helps to make someone's work more productive, it is those who hold capital who will receive most of the efficiency gain that market exchanges can create, irrespective of how competitive or non-competitive particular markets happen to be. Economic liberalism and deregulation leads to greater concentration of wealth and, in a political system where money influences electoral prospects, therefore contributes to concentration of political power as well.

Additionally, because markets place pressures on workplaces to cut their costs in order to compete on price with other firms, they encourage firms to externalise costs on society and introduce hierarchical decision-making structures within workplaces where senior managers make "tough" decisions to the detriment of ordinary workers, claiming such actions are necessary to keep the firm "competitive".

Markets are inefficient

Economists use two definitions of efficiency. The narrower definition means that an outcome is efficient if there is no other possible outcome where at least one person is better off without someone else being worse off. This is called a Pareto optimal outcome. The broader definition says that a result is efficient if it maximises the net social benefit, i.e. the difference between the total benefit to society and the total cost to society. Based on either of these definitions, all competent economists acknowledge that markets allocate resources *inefficiently* whenever (a) there are externalities, (b) competition is weak, and (c) markets are out of equilibrium.

1 *External effects.* Various manipulations to "externalise" costs and let others bear the costs of production, and to "internalise" benefits, i.e. to assimilate benefits without paying for them, are the standard behaviour for companies in a market economy. In so doing they serve their private interest but at the expense of the interests of society. When the seller or buyer promotes their own interests by externalising costs to someone who is not a party to the market transaction or by assimilating benefits from other parties without paying for them, their behaviour creates inefficiencies that lead to misallocation of productive resources and thus to a reduction in economic well-being. As a result, markets predictably lead to overproduction of goods and services when there are negative externalities associated with their production or consumption and underproduction of goods and services when there are positive externalities associated with their production or consumption. The same aspect that makes market transactions convenient for the buyer and seller – excluding all other affected parties from negotiations – is also a major source of inefficiency.

Those who pay for these externalised costs, so-called third parties, and thereby increase the private benefits of the buyer and seller are easy victims for two reasons. They are geographically and chronologically scattered, and the negative impact on every individual is small and varies from individual to individual. This means that each individual external party has little incentive to insist on influence over the transaction. It is very difficult and cumbersome to organise coalitions that represent the collective interests when large numbers of people affected are scattered geographically and chronologically and have small but unequal interests at stake. However, the total sum of all external parties' interests are often much larger than the buyer's and seller's interests. One can say that markets reduce transaction costs for buyers and sellers precisely by disenfranchising externally affected stakeholders in the decision-making process.

Today most mainstream economists acknowledge the existence of externalities but usually insist that their effects are small and that they only appear to a limited extent, and therefore, they can be disregarded when analysing how efficient markets are and how they function. In reality most, if not all, economic transactions affect many people beyond the buyer and seller. In truth, the presence of externalities is the rule, and it is their absence that is the exception.

2 *Absence of competition.* Markets that are not competitive lead to an inefficient allocation of resources. When there are only a few sellers in a market, it is in their interest to limit production to increase their profits and, thus, produce less than is socially efficient. Most products are currently sold in markets with limited or poorly functioning competition, and the trend is towards less competition, not more. This means that markets with limited competition is an important and growing source of inefficiency in today's market economies.
3 *Imbalances between supply and demand.* Markets often fail to balance supply and demand. The so-called laws of supply and demand, which say that the quantity supplied will increase and the quantity demanded will decrease when the market price goes up, are based on a highly questionable assumption about how market participants interpret price changes. The standard analysis implicitly assumes that buyers and sellers will see the new higher market price after a price increase as the new stable market price. If this is indeed the case, then it is reasonable for sellers to provide more goods than before when the market price rises and for buyers to demand less than before – in accordance with the law of supply and the law of demand.

But sometimes buyers and sellers interpret price changes as an indication of further changes to come in the same direction. This is very common in property, stock, and currency markets but can, and does, happen in many other markets as well. In such case, it is rational for buyers to react to a price increase by increasing the quantity demanded before the price rises even further and for sellers to reduce the quantities they offer to sell in anticipation of higher prices. When buyers

and sellers behave in this way, they create a larger excess demand and drive up the price even higher, leading to a "market bubble". When buyers and sellers interpret a price reduction as an indication of continued price reductions, it is rational for buyers to reduce the quantity they demand and wait for even lower prices, and for sellers to increase the quantity they offer to sell before the price drops even more. Their behaviour creates in this case even greater excess supply driving prices down even lower, leading to a "market crash". In other words, if market participants interpret price changes as signals indicating the likely direction of further price changes, and if they act rationally, they will behave contrary to how the "laws" of supply and demand predict and drive markets even farther away from their equilibrium, increasing economic inefficiency.

Those who have hopes to be able to "tame" markets to mitigate these inefficiencies downplay the practical problems that inevitably arise when we try to "socialise" markets. Intervention in the form of "Pigovian taxes and subsidies" to correct for externalities would have to be far too extensive. Moreover, since markets do not provide any signals about how high such taxes and subsidies should be, adjustments would inevitably be inadequate. Furthermore, interested parties would have every reason to challenge studies attempting to accurately estimate the true magnitude of external effects. And finally, powerful corporations will oppose breaking up and eliminating non-competitive market structures which generate social inefficiency but are highly profitable.

Annual participatory planning[3]

What is the alternative to markets in a participatory economy? Coordination of economic relations among producers and consumers in a participatory economy is done via a unique democratic planning procedure called participatory planning, whereby self-managed worker and consumer councils and federations propose and revise their own production and consumption plans, over a number of iterations which gradually lead to a viable, efficient, and equitable plan. The annual planning procedure takes place in the light of previously approved long-term development plans with regard to human resource or educational planning, environmental planning and strategic international economic planning, and a five-year investment plan. This means that the supply of various categories of productive capital and labour that is available for use and the amount of different capital goods that will be produced in a particular year are known, or "given", when the annual planning process begins. These long-term decisions are handled in separate investment planning and development planning procedures that we will return to in Chapter 5.

The main participants in the planning procedures are the worker councils and their federations, the consumer councils and their federations, and an Iteration Facilitation Board (IFB). The workers in the worker councils formulate and adjust their production proposals for the coming year in much the same way as today's companies prepare budgets. They also elect representatives to industry

federations. Members of the neighbourhood consumer councils prepare and adjust their household consumption proposals and submit these to neighbourhood councils, where they also participate in discussions about what local public goods they want to ask for and elect recallable representatives to higher level consumer federations.

The IFB consists of workers whose job is to facilitate the flow of information during the planning process. Its main task is to update indicative prices – estimates of opportunity costs of using different kinds of productive capital, natural resources and labour, and the social costs of producing intermediate and final goods and services – based on a set of agreed rules for price adjustments before every new planning iteration until a coherent or "feasible" plan is reached. The workers at the IFB are not central planning bureaucrats who control or make decisions about production or consumption. Besides disseminating non-quantitative information that may be of interest to councils and federations, the only function of workers at the IFB is to update indicative prices between rounds of the planning procedure, and they could, in principle, be replaced by a calculation algorithm.

The steps in the annual participatory planning procedure are simple: Workers suggest what they want to produce; consumers suggest what they want to consume; indicative prices are updated based on excess supply or demand; and the steps are repeated in a number of iterations until a feasible plan is achieved, i.e. until there no longer exists any excess supply or demand for any product or service in the economy. Each round in the planning process consists of the following steps:

Step 1: Indicative prices are announced.

The IFB announces "indicative prices", which are simply the current estimates of the opportunity costs of using different categories of capital goods, natural resources, and labour; current estimates of the social costs of producing different intermediate and final goods and services; and current estimates of the damages caused by release of different pollutants. "Indicative prices" are, in other words, estimates of what it costs society when we use different resources, emit different pollutants, and produce various goods and services.

Step 2: Proposals from workplaces and consumers are prepared and submitted.

Based on the indicative prices, consumer councils and federations prepare suggestions regarding what goods and services – both private and collective – they wish to consume. The worker councils prepare proposals for goods and services that they want to produce, and the natural and labour resources, capital goods, and intermediate goods they plan to use in their production. Note that all of these suggestions from worker and consumer councils and federations only refer to their own activities, not to what other workers and consumers should or should not do.

Step 3: Indicative prices are updated.

The IFB adjusts the indicative prices up or down in proportion to the degree of excess supply or demand.

These three steps are repeated until excess demands are eliminated and a feasible plan is reached. It has been demonstrated (see Albert & Hahnel, 1991) that under standard assumptions about technologies and preferences each iteration will generate more accurate estimates of opportunity and social costs, and eventually excess demands and supplies will be eliminated resulting in a feasible plan.

Who approves the proposals?

Worker councils' production proposals and consumer councils' consumption proposals are not submitted to some kind of central planning board that approves or rejects them. Instead, proposals must be approved by the other councils and federations. But on what basis do councils decide to approve or reject other councils' proposals? The participatory planning procedure is designed with the aim of generating just the information needed in order for workers and consumers to easily be able to assess whether or not other worker councils' production proposals make use of scarce resources in a responsible and efficient manner, and whether or not other consumers' consumption proposals are fair.

In order to evaluate a consumption proposal, the total social cost of the proposed consumption is compared with the consumers' income. The social cost is calculated simply by multiplying the quantity demanded of each final good and service multiplied by its indicative price and summing. The income is the "dollars" members have earned in their workplaces (the effort ratings that workers receive in their workplaces are converted into "dollars"); been granted because they qualify for consumption rights under programs for youth, retired, and disabled; received in compensation for damages suffered from pollutants; and possibly been granted due to special needs.

If the average income of members of a consumer council meets society's average, they will be able to consume goods and services which cost society an average amount per person. Consumer councils whose members have made greater efforts and sacrifices in their workplaces and/or receive more income from other sources than the average will be able to consume goods and services whose costs are higher than average, and the councils whose members have less income than the average will only be able to consume goods and services that cost society less than the average per person.

EXHIBIT 1.1 Decision making rule for a household or consumer council consumption proposal

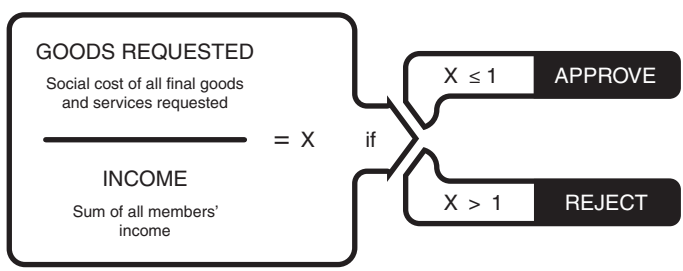
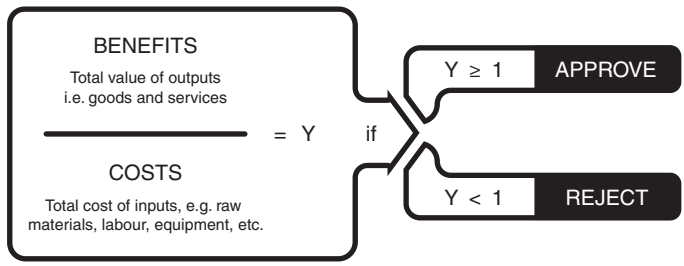


EXHIBIT 1.2 Decision making rule for a worker council production proposal



On the production side, worker councils' production proposals are evaluated by comparing the estimated benefits to society of the goods and services they propose to produce with the opportunity cost of using the capital goods, natural resources, and labour, as well as the social cost of producing the intermediate goods they are asking for. These social benefits and costs are calculated using current indicative prices for all outputs and inputs, including negative indicative prices for proposed emission of pollutants. In this way, a social benefit-to-cost ratio (SB/SC) can be calculated for every worker council proposal. If the SB/SC ratio is greater than one, then the proposed use of resources – that belong to everyone in society – is "socially responsible", and all would benefit from approving the proposal. If the ratio is less than one, then the proposed use of resources is not efficient because there are other workers who would use the resources more efficiently.

The information generated during the planning procedure as described above makes it easy for consumer councils and federations to assess whether their own and others' proposals are fair or not and for worker councils and their industry federations to assess whether their own and others' proposals are efficient or not, and whether they therefore should approve other councils' proposals or not. Most proposals can easily be approved or rejected, more or less automatically, but in some cases, a closer monitoring is justified because it is not always possible to rely on the numbers alone. Worker councils who do not reach an SB/SC ratio larger than one might want to get their proposals examined in more detail and have an opportunity to argue for their proposals and explain why they do not show better numbers. Therefore, industry federations may establish special audit committees that review some proposals, in the later iterations, more carefully and make recommendations for approval or rejection.

Individual and collective consumption

Public goods are goods which are consumed collectively by groups of people in neighbourhoods, cities, and even larger geographical units. Examples of collective or public goods are mass transit systems, libraries, parks, and schools. The cost of goods that are consumed collectively are usually borne jointly by the

persons in the group, which means that their potential for individual consumption is reduced when public consumption is increased. One of the participatory planning procedure's unique characteristics compared to other allocation systems is that consumer preferences for collective consumption can be registered as easy as people's preferences for individual consumption through the consumer councils and their federations.

In the neighbourhood consumer councils, members meet to discuss, propose, and vote on the level and composition of the councils' collective consumption. A neighbourhood consumer council also sends representatives to federations that cover larger geographical areas and that manage collective consumption for these larger areas. This takes place for increasingly larger geographic areas all the way up to the national level where requests for spending on national public goods like national defence are made. Delegates at these different levels meet, discuss, and decide democratically how much and what forms of collective consumption to propose in each planning iteration. It is worth repeating that these meetings only deal with "internal" consumption, i.e. with the councils' and federations' own consumption, and are not concerned with what others should or should not consume.

Reaching a plan

All actors that have been approved by their federations to submit proposals can participate in the annual planning iterations, without any formal restrictions on their proposals.

The participatory planning procedure promotes efficiency and equity, and leads to a viable, efficient, and equitable plan in two ways. First, consumers who propose an "unfair" consumption, i.e. a larger consumption than their income permit, must either reduce their consumption or choose products that are less costly for worker councils to produce to get their consumption plans approved by other consumers. Second, worker councils who submit production proposals that are not "efficient", i.e. where the benefits to society of production are less than the social cost, must either increase its efforts or refocus the production so that they produce more products and services that are in demand, or use less costly inputs in order to increase their SB/SC ratio and thereby get other worker councils to approve their proposals. If a proposal is rejected by the other councils it is always the council who submitted the proposal, and no one else, that is responsible for revising the proposal for the next iteration in the planning procedure. This unique aspect distinguishes participatory planning from all other planning models and is crucial in order for "self-management" to be meaningful.

Issues to consider

After each round of proposals and price adjustments, the indicative prices move closer to more accurate estimates of opportunity costs for different categories of capital and labour, damages caused by different pollutants, and the social costs

for intermediate and final goods and services. The logic behind the IFB's adjustments of indicative prices before each new iteration is simple and could in principle be performed using a mathematical algorithm. However, there is reason to believe that allowing IFB workers some discretion in price adjustment may help reduce the number of rounds required to achieve a feasible plan.

Note that worker councils have no incentive to consistently underestimate their productive capability in the preparation of production proposals since this would involve a risk that their proposals are not approved and/or that they will not be assigned the inputs they want. If anything, there is a risk that workers will exaggerate their capabilities to win approval for their proposals during the planning process, which industry federations need to be concerned about. This risk is offset by the fact that the workplaces', i.e. their members', average income in the end is based on actual SB/SC ratios from the work that is done and not on anticipated SB/SC ratios from the proposed work. However, if a worker council repeatedly fails to deliver in accordance with its approved production proposal, industry federations can revoke the worker council's membership in the industry federation. The worker council would then not be allowed to submit production proposals in the next year's planning procedure.

In early iterations, there is no problem if worker councils submit production proposals with SB/SC ratios less than one, or if consumer councils submit proposals, their income does not justify. As a matter of fact, this behaviour generates useful information about where it is that workers and consumers would most like to see productive capabilities increased through investment and long-term development planning. As long as the IFB adjusts indicative prices up for whatever is in greatest excess demand and down for whatever is in greatest excess supply, and as long as councils approve what the ratios explained above indicate is efficient and fair, the participatory annual planning procedure will eventually reach a feasible plan that is also efficient and fair.

Adjusting a plan during the year

Circumstances and conditions will most likely change in the time between the preparation of a plan and the time for its implementation. Consumer preferences can change and unforeseen events will likely occur that affect producers circumstances as well. A large portion of the changes in consumers' preferences will presumably cancel out at the national level, which makes it possible to handle such changes within the framework of the production plan as it was approved. In cases where this is not possible and when big unforeseen events occur that demand adjustments in production, necessary adjustments need to be negotiated by representatives from affected consumer and worker federations.

Some adjustments in the plan may need only small changes in the capacity utilisation in the production units in one industry, while other adjustments could be more far reaching and affect more workplaces and require a redistribution of resources between industries. Some adjustments may be accomplished

via rationing of products without changing the prices, while other adjustments may include price changes in order to fairly distribute the costs of the changes between various actors.

The important point at this moment is to note that it is quite possible to adjust a plan in the light of changing circumstances, and that such adjustments in a participatory economy are made in democratic negotiations between representatives from both consumers and producers, possibly with the help of the IFB.

Summary

A participatory economy coordinates the elaborate division of labour between its many worker and consumer councils and federations via a particular kind of participatory planning procedure. It is a social process in which workers and consumers together, through their councils and federations, over a number of rounds of proposals, create a plan for the upcoming year's economic activities that is fair and efficient. Consumers and workers in different councils do not deliberate directly with each other, nor do they set their own prices. Instead, consumer and worker councils revise their own "self-activity proposals" in response to ever more accurate "signals" about opportunity and social costs and benefits generated by the planning procedure, in a context where they know other councils will only approve production proposals that are socially efficient and consumption proposals that are fair. Councils vote to approve or reject other council's proposals but have no role in making changes in what other councils will do.

Actors

Below we take a closer look at the actors in a participatory economy, their tasks, and responsibilities.

Consumers

In the annual planning procedure, individual households propose and adjust their planned consumption of goods and services for the upcoming year, based on the most recently announced prices set by the IFB. Consumers are restricted to how much they can request by their level of income. Income in a participatory economy is received in four ways, i.e. through (i) **performing socially valuable work** – workers receive income based on their levels of effort or sacrifice in the workplace; (ii) **allowances** – children, retired, or severely disabled receive income through national programmes; (iii) **compensation for damage caused by pollution** – citizens who are negatively affected by pollution receive compensation; and (iv) **special needs requests within a consumer council or federation** – residents with special needs, which are not covered by national programmes, can apply for extra income that is granted by a committee in one's neighbourhood consumer council or federation.

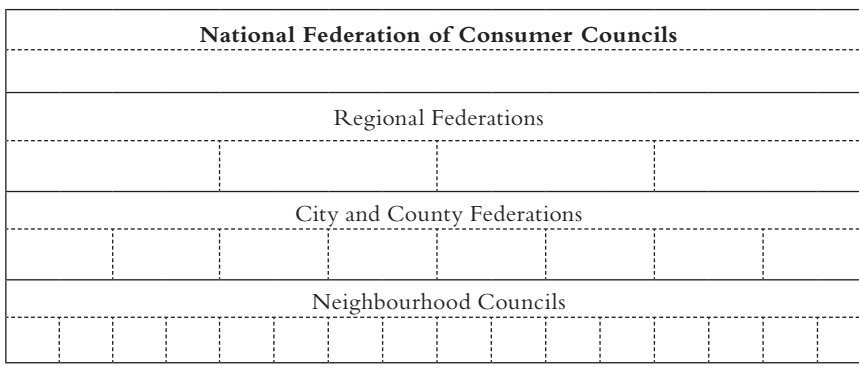
Consumption requests are automatically approved if an individual's or household's income from all sources covers the social cost of their request. Income is saved for upcoming years when households consume less during a year than their income allows. Households may also borrow income. Loan applications, i.e. requests to consume more than one's income allows, are approved or rejected by a credit institution in the neighbourhood consumer council, and the same credit institution is responsible for ensuring that loans are repaid.

Members of a neighbourhood consumer council also decide what neighbourhood public goods to request, such as playground facilities, sidewalks, leisure centres, and elect representatives to higher federations of consumer councils. Approved local public goods and services plus all approved individual household proposals comprise the neighbourhood consumer council proposal submitted during the national annual planning procedure. At each higher consumer federation level, collective consumption is discussed and decided upon by recallable delegates from lower level member councils. Households are "charged" for their share of the social cost of providing all the different public goods they benefit from. Members at each level in the federation structure approve or reject the other members' consumption requests.

The National Federation of Consumer Councils, which represents every consumer in every council, also plays a prominent role in the long-term development planning and in investment planning, during which its main task is to estimate the expected development of consumer preferences, i.e. what categories of goods and services consumers will want to consume in the future and to what extent, based on information produced in consultation with its own research and development units.

In addition to planning individual and collective consumption, consumers also participate in the participatory planning procedures for the pricing of pollution emissions from worker councils. In a participatory economy, the polluters are charged for the damage that their pollution causes and the affected parties are compensated. Since the consumers that are affected by pollution do not always

EXHIBIT 1.3 Federation structure



coincide with the geographical demarcations of the consumer councils and federations, a participatory economy needs to establish "communities of affected parties" (CAPs) – which gather together all those adversely affected by different pollutants into groups, regardless of which consumer council or federation they belong to. The compensation that consumers receive for the negative effects caused by pollution is added to the income they earn in their workplaces and any consumption allowances they might have, and will thus affect the level of their possible consumption.

During an ongoing year, consumer federations also function as clearing houses where differences between members' planned and actual consumption can be offset against each other. Most differences between planned and actual consumption at the individual level can most likely be handled through internal redistribution within the consumer federations, but if the differences between total planned and actual consumption between all consumers do not cancel each other out, consumer federations act as a negotiating party with the industry federations in negotiations to adjust the current year's consumption and production plans.

These are the most important tasks and decisions faced by consumers in a participatory economy. The chronological and internal order of the decisions will largely follow from the detailed design of the planning procedures, but otherwise the consumers will design and organise their decision-making routines entirely at their own discretion, and the routines in different councils and federations are likely to differ from each other.

Workers

During the annual planning procedure, individual worker councils prepare and adjust their production proposals for the upcoming year based on the most recent indicative prices from the IFB. A production proposal consists of quantities of the goods and services the worker council wants to produce and the amount of various inputs – natural resources, labour, capital goods, and intermediate goods – it wants permission to use to do so. A production proposal is basically an appeal to the rest of society: "If you give us permission to use and consume the resources specified in our proposal – resources which belong to all of society and therefore should benefit everyone – we promise to produce and deliver the goods and services specified in our proposal".

Every worker council is also responsible for organising tasks into jobs that are balanced for empowerment and for grading its members based on their efforts and sacrifices. As already explained, worker councils are free to design their own routines and procedures for these tasks, and different workplaces are very likely to adopt different ways to measure effort and balance jobs.

Worker councils vote on whether or not to approve each other's proposals during the annual planning procedure by comparing the estimated social benefit of the goods and services to be produced with the estimated social costs of the resources expended in production – the SB/SC ratio. If this ratio is greater

than one, the proposed use of resources is responsible, efficient, and all benefit by approving the proposal. If the ratio is less than one, the proposal is considered socially irresponsible and inefficient. In this case, there are presumably other worker councils who would use the resources more efficiently and responsibly. However, there may be exceptional circumstances when a worker council should be allowed to implement production proposal with an SB/SC ratio of less than one. As noted, the voting procedure for approving proposals can normally be automated, but there will need to be appeals procedures for special cases where "the numbers" may lie.

The SB/SC ratio in a workplace can also be used to set the cap on the average "dollars" that a worker council can award its members as remuneration for work relative other worker councils. If a workplace has a higher SB/SC ratio, its members may be entitled to a correspondingly higher average income. The logic behind this way of capping average income is that in theory the indicative prices of inputs already account for all reasons a workplace might have a higher SB/SC ratio *except* that its members have exerted greater effort. For example, if one workplace produced more output than another simply because it was using better machinery, this will presumably already be accounted for by a higher indicative price for the better machinery, so a workplace with better machinery will be charged more for using the better machinery. Alternatively, if people do not trust the indicative prices generated by the participatory planning procedure to fully level the playing field for worker councils, then the cap on average income can be made the same for all workplaces.

All worker councils belong to an industry federation based on what they produce and possibly one more federation based on their geographical location. Membership in an industry federation means that the worker council can participate in the annual planning procedure and submit production proposals for gaining access to productive resources. Industry federations approve or reject applications for membership in the federation based on assessments of the applicant worker councils' reliability, i.e. is there reason to believe they can actually do what they propose?

Worker councils elect recallable representatives to these federations. The industry federations, and especially the National Federation of Workers Councils (NFWC), which represents all members of all worker councils throughout the economy, play a prominent role in the long-term development planning and the investment planning, which precedes the annual planning. During the investment planning, it is decided how the economy's total production will be distributed between consumption and investment and how the investments will be distributed between different industries based on, for example, the industry federations' expected development of productivity and technology in the coming years. Industry federations may also set up shared support units funded by all member councils. And finally, industry federations act as negotiating parties if a plan needs to be adjusted during a year, for example, due to large changes in consumers' preferences or other unforeseen events.

The IFB

The IFB is an actor with no decision-making power. Its main task is to update the indicative prices for all categories of capital, resources, labour, goods, and services, and for emissions of different categories of pollutants before each new iteration during the annual planning procedure and also during the year in cases when the annual plan must be updated. The updates of the indicative prices are based on the excess supply or demand that emerges through the actors' proposals for production and consumption and can, for the most part, be performed by mathematical algorithms. By analysing historical data and statistics, the IFB can estimate how actors will respond to price changes for different products, i.e. different products price elasticity.

Notes

1 This section is a summary of the arguments presented in Hahnel (2007, 2008).
2 In Hahnel and Wright (2016), Robin Hahnel and Erik Olin Wright discuss, in a very accessible way, pros and cons of allocation in a participatory economy and a variant of market socialism.
3 In Hahnel's (2021, forthcoming) chapter 7, the annual participatory planning is described in detail using mathematical expressions and equations. For a more accessible explanation, see Hahnel (2010) and chapter 14 in Hahnel (2012).

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2

ACCOUNTING IN A PARTICIPATORY ECONOMY

The challenge for a participatory economy is to distribute power and influence over decisions to economic agents in a way that promotes efficiency, while achieving self-management and justice. Some economic decisions affect all members in an economy, others affect only certain groups, while most decisions affect different parties to different extents. The participatory planning procedures are designed precisely to address these challenges. Therefore, the main task for an accounting system in a participatory economy is to provide the information that is necessary for the implementation of the participatory planning procedures. Below and in the rest of this book, we want to give an idea of how such an accounting system could work.

The main objectives for an accounting system in a participatory economy is to enable and promote

1 Planning of future economic activity in three separate planning procedures with different time horizons – long-term development planning, investment planning, and annual planning.
2 Recording of economic transactions during the current year.
3 Continuous monitoring and evaluation of outcomes in relation to plan for various activities, and possible adjustments of the current annual plan and other future plans.

In order to achieve these goals, the design of the accounting system must permit economic actors to correctly estimate, record, and evaluate (i) the opportunity costs of using various categories of labour, natural resources such as agricultural land and forests, and produced capital assets such as factory buildings and equipment; (ii) the social costs of producing and consuming various goods and services; (iii) the damage or social cost of emissions of different pollutants; and (iv) as best

possible the social rate of return on investment in expanding different aspects of the productive capacity operative over many years.

In this context, there are a number of issues of a technical and practical nature to consider that are not primarily about the rules and design of the participatory planning procedure. One crucial issue is how all the different varieties of goods, services, capital assets, resources, and emissions of polluting substances should be defined, categorised, and quantified so that (a) consumers and workers can relate to them in an efficient way; (b) their prices will reflect the opportunity costs of productive resources and the social costs of goods and services; (c) a viable, fair, and efficient annual plan will emerge in the annual planning procedure; and (d) an efficient monitoring of the annual plan is facilitated.

Accounting entities, prices, and transactions

In our proposed accounting system, we identify two primary categories of accounting entities, the economic activities and financial transactions of which are tracked and recorded to facilitate efficient and fair decisions: (1) consumers, their councils, and federations, and (2) worker councils. In addition, we use separate accounting entities to facilitate the recording and monitoring of society's sets of capital assets. We also use separate federation *accounts* to facilitate the funding of shared support units and shared expenses. Society's aggregate income and its allocation between consumption and investment are tracked and monitored via a separate "Society Account".

In Chapters 3 and 4 we describe the two primary accounting entities in our accounting system. We identify the financial transactions that are recorded for each type of entity and the information that thereby appears. The planning, funding, and accounting of investment in capital assets is the focus in Chapter 5, in which we also describe federation accounts for shared support units and expenses. The Society Account is described in Chapter 6.

The financial transactions identified in Chapters 3–6 can in principle refer to both planned activities and actual performed activities, depending on whether it is the planning of future activities or the recording of actual transactions for the year in focus. Every accounting entity and account exists in two versions: one for planning purposes and the other for the recording of actual transactions, and actual outcome is continually compared to the plan as the year progresses. Actual transactions may be recorded at a more detailed level compared to planned transactions, which means that, for many accounting entities, especially within the consumer sphere, there are more subaccounts in the actual outcome version compared to the annual planning version.

Money and prices

Every country has a currency, such as the British pound, the Mexican peso, the Japanese yen, the US dollar, or the euro, jointly used by many European countries.

When applicable, we will simply speak of the unit of currency in use in our participatory economy as the "PE dollar". Transfers can most easily be thought of as taking place and being recorded electronically, rather than via exchange of printed bills and coins.

In a participatory economy, as with other types of economic systems, all inputs and outputs have prices. Some prices are estimates of the *opportunity costs* of using different scarce productive resources, capital goods, and categories of labour. Whenever we use existing stocks of any scarce productive input to produce one good or service, there is always an opportunity cost because we cannot use it to produce some other good or service. Other prices are the *social costs*, the cost to society, of producing different consumption goods, intermediate goods, and capital goods.

While prices will always be imperfect estimates of opportunity and social costs, and therefore should always be considered as "indicative", they are useful as a means to help consumers and workers make sensible decisions regarding the use of different scarce productive resources to produce different goods and services. Prices in a participatory economy are generated in a very different way than in a market system. In a participatory economy, they are not set by individual buyers and sellers in competitive bargaining situations. Instead prices are generated through a democratic, social planning procedure that reveals the opportunity costs of using different stocks and the social costs of producing different goods and services. Throughout this book, we want to stress that whenever we use the term *price*, it always means an estimate of an opportunity or social cost which emerges from a participatory, social planning procedure – not from the grinding of the laws of supply and demand in a market.

The performing of accounting tasks

Finally, before we move on to looking more closely at the details of our accounting system, we want to briefly say something about the organisation of the actual work of recording and analysing economic transactions in a participatory economy, and how it is likely to differ from how today's capitalist companies organise their finance departments. In multinational corporations today, joint administration or accounting centres are often responsible for accounting, bookkeeping, and financial analyses where senior officials and auditors control and, wherever possible, restrict access to and dissemination of financial information, both internally and externally. In a participatory economy, in contrast, all forms of accounting information are completely transparent and available to anyone and everyone who is interested.

The responsibility for preparing and submitting production and consumption proposals in the annual planning lies with the individual worker and consumer councils and federations. Specially established shared industry support units without any decision-making power, or alternatively the Iteration Facilitation Board (IFB), could in this context be assigned to assist individual worker councils

during the annual planning if such needs are identified. The responsibility for recording financial transactions during a year and for analysing and handling deviations between a year's actual results and the annual plan could also be assigned to shared support units, or to the IFB, even if individual worker councils establish their own accounting committees or units, with the task of managing, interpreting, and analysing accounting information.

The exact division of responsibility between a worker council's own accounting department and an industry's shared support unit, with regard to accounting tasks, such as recording, analyzing, and monitoring economic transactions, is obviously a matter for a future participatory economy, the worker councils, and their industry federations to decide.

3

CONSUMERS AND CONSUMPTION

The first primary category of accounting entities in a participatory economy are the **consumers and their councils and federations**. We begin by taking a closer look at their income.

Income

At the aggregate level and over time, consumption in a participatory economy equals the sum of consumers' income from (a) worker councils, as compensation for socially beneficial work; (b) politically decided and specified children, retirement, disability and other benefit programmes; (c) communities of affected parties (CAPs), as compensation for the harm they are caused by emissions of various pollutants by worker councils; and (d) special need requests granted by their neighbourhood consumer council. Below we explain in detail how compensation from worker councils for work and that from CAPs for harm caused by pollutants are decided. Benefit programmes and granted special needs requests are "politically" decided.

Compensation for socially beneficial work

The economy's total production in the year ahead, allocated between consumption and investment, is estimated during the aggregate investment planning before the start of the annual planning. The greater the fraction of the total production used for investment, the less consumption, and vice versa. By estimating the value of the economy's total consumption, deducting for income from benefit programmes and CAPs, and then dividing the sum with total hours worked, a base compensation per hour worked can be calculated for the year. The base compensation is the starting point for calculations of individual workers' compensation.

The total amount of dollars a worker council can distribute to its members as compensation or remuneration for work in a year can be calculated as its members' total number of hours worked multiplied with the base compensation per worked hour. For example, if a worker council has 100 members that work 30 hours a week 48 weeks a year, and the base compensation per hour is 20 dollars, the total amount of dollars it can distribute between its members in that year is 2,888,000 dollars (100 members × 30 hours/week × 48 weeks a year × 20 dollars/hour). This sum is then adjusted for (1) differences in the desirability of jobs and (2) differences in effort and sacrifice *between* workplaces to give the adjusted total sum of compensation a worker council can distribute among its members. There is *no connection* between the fees a worker council is charged for its access to labour and the compensation its members receive for work performed, the latter of which, in the end, is charged to the Society Account, not affecting the accounts of the worker councils.

Differences in the desirability of Jobs

Some necessary tasks in a society will inevitably be less desirable and less pleasant to perform than others, and while workers in a participatory economy are expected to fairly distribute these tasks between themselves, it may, after best attempts, prove to be unfeasible to do so throughout the economy with any high degree of accuracy. If one worked hour is compensated with the same number of dollars regardless of the work task's level of desirability, the work places that perform unpleasant but necessary tasks will meet a constant shortage of labour supply.

In order to increase the supply of labour that performs necessary but unpleasant and less desirable tasks that cannot be abolished by further investment in technology, the average compensation for such tasks may be adjusted upwards. Necessary adjustments for different labour categories can, therefore, be calculated by economy wide desirability rating committees and expressed as a percentage adjustment of the base compensation. The total sum of all adjustments for all work tasks in the economy should ideally come to zero, i.e. the average compensation per hour worked in the economy should not be affected, which means that tasks with on average higher desirability will be compensated with fewer dollars per hour worked.

Differences in effort and sacrifice

Between members in a worker council

Every worker council in a participatory economy is expected to rate its members' efforts and sacrifices in the workplace using procedures which itself designs and controls. The effort ratings form the basis for the allocation of income as compensation for work performed *between members* in a worker council. The aim is that an average level of effort at work should result in an income that matches the average income in the economy. A greater effort should give a proportionally

larger income, and less effort should result in a proportionally smaller compensation. Each individual worker council decides how detailed it wants to be when grading its members' efforts. Some worker councils may give all members the same effort rating for an hour worked, while other councils perhaps will establish committees that, guided by democratically agreed procedures and rules, assess and evaluate their members' efforts to a high level of detail.

Between workplaces

While an individual workplace is free to design its own internal procedures for rating its members' relative efforts and, thus, allocate compensation between its members, its *total average compensation* must, one way or another, be related to other workplaces' total average compensation in a way that takes into account differences in effort and sacrifice *between workplaces*. The relation between different worker councils' average compensation can be decided in two different ways, each with their own advantages and disadvantages.

Rule 1: based on social benefit/social cost ratios

The first possibility is to base the interrelation between workplace average compensations on their social benefit/social cost ratio (SB/SC). For example, if a workplace's SB/SC ratio is 105% while the average for the industry (or some other possible reference group) is 100%, this means that the workplace average compensation should be 105% (calculated as 105/100) of the industry average. This rule is based on the assumption that a higher SB/SC ratio actually indicates a larger effort by the worker council's members compared to the other workplaces, and that a better outcome cannot be attributed to other factors, such as more efficient machines. The annual planning procedure is designed to achieve this by pricing access to more efficient equipment and resources higher than access to less efficient equipment and resources. Thus, the denominator of the SB/SC ratio will be higher if more efficient resources are used, leading to a lower SB/SC ratio at unchanged production quantity. If the annual planning procedure, to a sufficient extent, succeeds in this regard, the capping of the average compensation based on worker councils' SB/SC ratio will be fair. If there is a risk that the pricing of user rights fees for capital, resources, and labour in the participatory planning procedure not quickly or accurately enough reflects differences in efficiency and quality, it can be argued that relating worker councils' total average compensations based on SB/SC ratios is unfair. Worker councils using relatively inefficient machines and resources would then be unfairly disadvantaged.

In this context, SB/SC ratios are always calculated based on actual outcome, and not on the production proposals that are prepared during the annual planning for the year to come. When a year is over and the final annual results are known, members' compensations (before adjustments for desirability), for the completed year, may need to be adjusted retroactively so that the average compensation for

every workplace corresponds exactly to its SB/SC ratio relative to its reference group. A reference group consists of all the worker councils whose average compensations are determined based on their relative SB/SC ratios and may consist of all worker councils in one or more industries or a specified part of an industry, for example, based on geographical divisions if there are regional differences that affect the circumstances and costs of the worker councils. The reference groups are defined by the industry federations.

Conditions may vary across industries in ways that hamper or impede the possibility for a fair comparison of SB/SC ratios between workplaces in different industries, even though comparisons between workplaces within the same industry are fair. The industry federations can, therefore, adjust the rules in different ways to deal with the fact that the SB/SC ratios may not always exactly reflect differences in effort but still work satisfactorily as an indication.

Rule 2: all workplaces are equal

A second possible rule for relating total average compensations in different workplaces is that all workplaces are considered to be equal in terms of average effort and no workplace can differ from any other. No retroactive adjustments of the workplaces' average compensations are then necessary. Using this alternative, one instead risks disadvantaging workplaces whose members are sincerely committed to more than average efforts. This rule could be combined with a requirement for worker councils to demonstrate a certain minimum level of SB/SC ratio in order to be assigned the economy's average compensation. If they fail to reach the required minimum SB/SC ratio, their average compensation could retroactively be adjusted downwards by a certain percentage.

Compensation for damage caused by pollution

The second external source of income in a participatory economy is compensation for damage caused by worker councils' emissions of harmful pollutants.

In a market economy, individual buyers and sellers have a strong incentive to transfer costs for their production and consumption on to external third parties in society, including costs in terms of negative environmental impact. This way, buyers and sellers can maximise their profits and promote their interests at society's expense. The individuals who suffer from these "externalised" costs are usually easy targets since they are both geographically and chronologically scattered, and the negative impact that each individual experiences can be relatively small and is often different from individual to individual. Each individual has thus little incentive to demand influence over the transactions, even if the total sum of all individuals' interests often is considerably greater than the interests of the individual buyer and seller.[1]

In a participatory economy, the polluters are charged for the harm and damage that their pollution causes and those who are affected are compensated for the

harm they suffer. Those who are adversely affected by environmentally harmful substances do not necessarily correspond with the members in the geographically defined consumer councils and federations. There is, therefore, a need to establish separate **CAPs** for pollutants with different influences, which bring together all parties that are adversely affected by the substance in question regardless of which consumer council they belong to.

Pricing of harmful pollutants

Before each iteration round during the annual planning procedure, the Iteration Facilitation Board (IFB) announces the current cost estimate of the harmful effects that the emission of one unit of each pollutant creates.

During the annual planning's iterations, worker councils proposing to emit pollutants will be charged for the quantity of a pollutant they propose to emit times the current estimate of its cost, i.e. the damage it inflicts on the "victims" in the CAP. In other words, worker councils are charged for the social cost of emissions just as they charged for the opportunity cost of using scarce productive resources and capital goods, and just like they are charged for using intermediate inputs. For their part, the CAPs propose how many units of each emission substance that they are willing to allow, considering that they will be compensated by an amount equal to the current cost estimate per unit and substance times the number of units that the CAP allows. Society as a whole or any individual CAP may decide that it does not want to allow any emissions at all of a specific substance, but if a CAP accepts a certain amount of release, it will be compensated for the cost they bear.

Before each new iteration in the annual planning, the IFB adjusts the indicative cost of damage per unit of different pollution substances based on the difference between the CAP's proposed amount of emission they will accept and the worker councils' planned quantity of emissions they have proposed to release. This way emission levels will end up at an "efficient" level, in the sense that further releases will be authorised only if the positive social effects of the increased production that results exceed the harmful effects that the affected parties are experiencing. It is no longer possible for individual producers and consumers to shift the costs of environmentally harmful emissions to society.

Distribution of income credits from a CAP to its members

A CAP works as a sort of reconciliation account in which the worker councils' fees for different categories of emissions are registered and then distributed in the form of consumption credits to the members based on the rules agreed on by the CAP. The total amount of fees credited to a CAP account in a period should always be equal to the total sum of credits distributed to its members, possibly with the deduction of administrative costs.

The distribution of consumption credits to members can be done in different ways. They can be used for collective consumption among the CAP's members, or be evenly distributed to all members in the form of equal credits that are added to the income individual members earn at their workplaces, and any other allowances they may have, which will increase their opportunity to consume in the annual planning. In these cases, there are no incentives for existing CAP members to exaggerate the damage they are afflicted. But if a CAP wants to allocate more consumption credits to individual members who may suffer greater damage than other members, there arises an opportunity for individuals to take advantage of this by exaggerating their damages. However, today there are incentive compatible ways for a CAP to deal with this problem and achieve an allocation of compensation to members based on their individual level of damage suffered.

A CAP will need help from support units and research and development (R&D) units to handle administrative tasks, such as providing a basis for assessing applications for membership into a CAP; assessing what substances cause damage to members, the environment, and the climate; and allocating consumption credits to different members if it is decided that allocations should be based on differences in the damage that members suffer.

The cost of such support and R&D units could be collectively financed in accordance with decisions in the National Federation of Consumer Councils (NFCC), or alternatively from the fees paid to the CAP from the workplaces, or through a combination of both.

Since membership in a CAP means that a consumer will be entitled to additional compensation, there are strong incentives for individuals to apply for membership and falsely claim that they are negatively affected by a pollutant. Therefore, it is unrealistic to leave it to the individuals to decide their eligibility for membership in CAPs. It may be difficult and time consuming to determine whether an individual is affected by an environmentally harmful substance, and therefore eligible for inclusion in a CAP. However, there is no shortcut to avoid this work. The economy and the individual CAPs must create clear procedures to evaluate and assess each application for membership. Scientific and medical

EXHIBIT 3.1 CAP account for compensation due to harm caused by pollutants

CAP Account	
Debit	*Credit*
Distribution of income as compensation for harm:	Fees for harmful pollution credited to the CAP:
+ Member A	+ Fees: pollutant A
+ Member B	+ Fees: pollutant B
+ Member C	+ Fees: pollutant C
…	…
+ Administration and R&D	

evidence about the effects of various substances may need to be collected, and those whose status as "affected parties" is already decided should have an opportunity to question the legitimacy of new applications. This network of process organisations is another group of support units that need to be established.

Under the framework described above, in order for the managing of emissions of environmentally harmful pollutants to be effective and fair, the economy as a whole has to be reasonably egalitarian, which a participatory economy would be. If, as there is today, there are big differences in wealth and income between groups of affected parties, the poorer groups would be more likely to tolerate higher emissions than the rich groups to gain access to more consumption credits even though the group's preferences for a healthy environment would be identical.

A participatory economy also has several other components which have positive impacts on the environment; for example, citizens would likely choose a much higher level of collective consumption since there is no bias in favour of individual consumption, and on a per person basis collective consumption is less harmful to the environment than to individual consumption. And finally, since there is no intrinsic growth imperative in a participatory economy (that is inherent in a market economy), it is reasonable to assume that citizens in a participatory economy would choose shorter working hours, resulting in less production/consumption and a reduction of the impact from economic activity on the environment.

The way in which the annual planning handles pollution, as described above, protects the environment, but only to the extent that it is the present members of a CAP that are affected by the negative impacts of emissions. Often negative effects of environmentally harmful emissions are very long lasting and persistent and affect both current residents and future generations negatively. The future generations' interests can only be considered in the long-term development planning by the present generation taking into account the interests of future generations. Major and long-term changes in the energy, transport, and housing sectors are all discussed and adopted during the long-term development planning.

Consumption planning

In a participatory economy, consumers influence the direction of production and its composition through the annual planning procedure, during which they announce their best estimates of what they want to consume for the next year. Consumers' income and preferences change from year to year, and the main purpose of asking consumers to make proposals for what they expect to consume for the year ahead, during the annual planning, is to make producers aware of these changes. The consumption proposals are revised by the consumers themselves during annual planning in the light of prices of goods and services, which are adjusted by the IFB before each new iteration based on excess supply and demand. It is crucially important that the process of preparing and adjusting consumption

proposals does not require too much time or is perceived as too cumbersome, which, as we will see further down, has important implications for the categorisation of goods and services, and that approved proposals can be easily adjusted during the year if consumer preferences change.

Some consumers will be more accurate than others in preparing their consumption proposals, and other consumers will need to adjust their proposals more during the year when their actual consumption deviates from their planned consumption. When a deviation exceeds a certain predetermined level, a consumer may be urged to update her consumption proposal. Some adjustments will cancel each other out at the total level in the consumer federations so that no, or only marginal, changes of production plans need to be made during a year. Small changes can be coordinated and handled through various IT tools that scan inventory balances. Major changes in consumption patterns during a year may require adjustments in existing production plans and prices, based on discussions and agreements between consumer and industry federations. Adjustments during the year to an agreed plan are recorded and monitored by the consumer and worker council federations.

If a consumer, for whatever reason, chooses not to prepare and submit a consumption proposal, the neighbourhood council, to which she belongs can use her real consumption from the last completed year as her new consumption proposal for the next year. If her income for the upcoming year allows for the previous year's level of consumption, the "proposal" can be approved and included in the neighbourhood council's overall proposal. If not, and if she continues to ignore requests for a new proposal, the council can adjust the quantity for each category by the same percentage until the adjusted consumption proposal is covered by her available income. This way, the neighbourhood council that is obliged to complete a consumption proposal for the entire neighbourhood can fulfil its task even if some members do not prepare and submit individual consumption proposals.

When preparing consumption proposals, consumer councils need to take into account consumption by visiting "external" consumers, who belong to other councils, and tourists, visitors from other economies. The latter's consumption is a form of export. Domestic consumers' consumption in external economies when travelling is a form of import.

Consumer accounts and their internal relations[2]

The consumers' proposed and actual remuneration from work, compensation from CAPs, consumption, and transfers are tracked and accounted for in a structure of accounts that reflects the structure of federated consumer councils and is built up from the bottom by separate accounts for each consumer or household.[3] An account follows the individual consumer if she moves to a different neighbourhood council. Electronic cards, similar to today's credit or debit cards, may be connected to individual accounts in order to facilitate the registration of economic activities of consumers.

EXHIBIT 3.2 Account: individual consumer/household

Individual Consumer	
Debit	*Credit*
Consumption, reallocations, and borrowings: Costs for individual consumption Shares of collective consumption. Reallocation of income for special needs via the neighbourhood council Debt from previous years	Income and savings: Remuneration for work Retirement, disability, children and other benefits Compensation from CAPs Special needs requests granted by the consumer council Savings from previous years

EXHIBIT 3.3 Account: neighbourhood council or consumer federation

Neighbourhood Council/Federation	
Debit	*Credit*
Consumption and reallocations: Granted special needs payments Collective consumption Debt from previous years	Income: Transfers from individuals/households or consumer councils and federations Savings from previous years

Individual accounts for consumers, or households, are organised in groups corresponding to neighbourhoods. A neighbourhood council, in turn, has its own account for collective consumption and transfers, which is grouped together with accounts for the other neighbourhood councils belonging to the same federation in the next level in the federation structure and so on all the way up to the NFCC, which represents all members in all consumer councils in the whole economy.

Sources of income

When a consumer receives income, or PE dollars, her account is credited with the amount and the source identified. Consumers receive income from four sources: (1) from worker councils, as remuneration for work; (2) from children, retirement, disability or other benefits, as specified by the political system; (3) from CAPs, as compensation for harm caused by emissions of pollutants; and (4) from special need requests granted by their neighbourhood consumer council. Remunerations for work and benefits from the political system are, in the end, charged to the Society Account while compensations from CAPs, as we have seen, are charged to specific CAP accounts. Granted requests for special needs show up in the accounts as reallocations of income between members' accounts via the neighbourhood council account or a federation account. During the annual planning, consumers plan their consumption based on their expected income.

Costs for individual and collective consumption

When a consumer picks up a good from a distribution centre or uses a service, her account is charged with the cost of the good or service. The cost for producing and providing *collectively* decided and funded goods or services is initially charged to the council or federation that made the decision to consume the item or service and is then allocated to individual members, based on rules decided jointly in the council or federation. Individual members' accounts are charged with their share of collective costs, while the council's or federation's account is credited with the same amount.

Saving and borrowing

Individual consumers/households, councils, and federations can save income by consuming less than their annual income allows and thereby enable greater consumption in the years to come or borrow by consuming more than their annual income allows and repay by consuming less or, in the case of consumers, work more in the following years. Borrowing requires the approval of other members. Savings are shown as credit balances and borrowings as debit balances in the account and are carried forward to the next year, with the approval from the neighbourhood council regarding debt.

Fair consumption

For the consumption of a consumer, household, council, or federation to be fair, the sum of its charged social costs for individual and collective consumption, reallocations, and debt from previous periods must be on par with, or below, the sum of earned and otherwise received and saved income. Consumption is not fair if the total charges are above earned and allocated income.

Allocation of costs for consumption

The distribution of *individually consumed* goods and services in a participatory economy can, of course, be organised in many different ways with different types of distribution centres, which, presumably, will be worker councils performing distribution services or, alternatively, workplaces collectively organised by the neighbourhood consumer councils. When a consumer picks up a good at a distribution centre or uses a service, her account is charged with the cost of the good or service and the distribution centre is credited.

Collectively provided goods and services are produced by self-managed worker councils just as individually consumed goods and services. Consumer *capital assets* (playgrounds, facilities, buildings, machinery, etc.), are accounted for in separate sets of capital assets, to which we will return later.

All costs for collectively demanded and consumed goods and services are, in a first step, transferred from (credited) the producing worker council to an account of a consumer council or a federation. The costs are then passed on to accounts of individual consumers in two principally different ways:

1 **Individual cost allocation** means that costs are allocated to a consumer's account when a product or a service is used. When a service is collectively provided, an individual cost allocation can be achieved via a charged *user fee* in connection with the use. For example, if a visitor has to buy an entrance ticket to a national park or a museum. The user fee is calculated and set by the consumer council or federation to cover all, or part of, the social costs.
2 **Collective cost allocation** means that the individual members are charged with their shares of the cost irrespective of actual use. The charge of individual members need not necessarily be the same for everyone and *could* aim to reflect estimated differences in the use of the service or utility by different consumers. The councils and federations decide how to distribute costs for collective goods and services to their members.

A collectively provided service can, thus, be financed either through individual cost allocation (a calculated user fee charged at the time of individual use) or via collective cost allocation where the cost, in the end, is shared and borne by all councilmembers, or through a combination of the two. A workplace can, in other words, have some costs that are allocated to consumers individually at the time of delivery or usage and other costs that are allocated collectively to the councils/federations. Costs that are allocated with the same allocation principle are gathered in separate cost pools from which they are allocated to accounts.

If costs are allocated to consumer accounts via a user fee, the size of the fee has to be calculated based on the estimated usage. The higher the expected usage of a service or utility, the lower the calculated fee since the cost can be allocated to a larger number of users. However, a council or federation can subsidise a user fee by covering any unallocated part of the cost collectively. At the end of a year, any difference between charged and forwarded costs in a workplace will then be cleared against the account of the requesting consumer council or federation.

EXHIBIT 3.4 Allocation of collective consumption costs to consumers

Consumer Council, or Federation	*Allocation Method*	*Consumers*
Social costs for goods and services	Individual cost allocation Collective cost allocation	Consumer or household

The categorisation of goods and services for consumption

During the annual planning, a consumer is expected to indicate her planned consumption for the upcoming year by entering her preferred quantity in front of a number of categories of goods and services on a "purchase list" based on her actual consumption the last year. The categorisation of goods and services at this point need not be particularly detailed. The proposals can be complemented with the necessary details from consumer profiles and actual purchases as the year proceeds. An individual consumption proposal is thus a consumer's best estimate of what she thinks she will consume in the upcoming year, based on a list of coarse categories of goods, e.g. "shoes", "bicycles", and "computers", or even coarser categories. The task of categorising goods and services into coarse categories could be performed by a categorisation committee made up of representatives from both consumer and worker council federations or alternatively solely from the NFCC.

Every coarse category may contain a number of more or less detailed subcategories. The prices that the IFB announces in the planning procedure, and that consumers and worker councils base their proposals on, are *the average unit price* for all goods or services in each coarse category regardless of subcategory. Consumers will have access to information about the different variants of a product that exists and the characteristics that define each subcategory, i.e. the range of products that the producers are planning to offer. For instance, the coarse category "shoes" may contain subcategories such as running shoes, casual shoes, smart shoes, and sandals. The creation of different subcategories of goods in a coarse category is important for the producers when they plan their production and will be discussed later.

The price of different subcategories of a good in a coarse category can vary more or less sharply compared to the average price depending on differences in resource usage in the production, and a consumer must take this into account when she is planning her consumption for the year. When a consumer picks up an item from a distribution centre or uses a service during the year, she is charged the *actual cost* (the price of the subcategory) of the product or service in question. A consumer who generally prefers more expensive varieties of goods and services will submit a consumption plan based on average prices for the coming year that underestimates the true total cost of her consumption. She will, therefore, tend to build up a debit balance, a debt, on her account as she consumes during the year. As long as this debt is kept to a reasonable level, there is no reason for society to have any objections to this. On the other hand, a person who generally prefers cheaper varieties of goods and services will tend to prepare and submit a consumption proposal, which overestimates the cost of her total actual consumption during the year. Her proposals may therefore oftentimes show a debt that will not be realised in during the year.

In short, those that prefer higher than average quality or luxury goods will end up borrowing, and those who prefer lower quality goods will end up saving.

Individuals can take this into account, knowing themselves and knowing that during planning it is average prices they are responding to. Of course, very meticulous consumers may even want to specify subcategories of goods in their proposals.

Standardised "baskets" of goods and consumer profiles

In order to facilitate consumers' annual planning even further, the consumer councils may in some cases and for some products define different "baskets" with standardised sets of goods, the compositions of which are based on different consumer profiles or forecasts. In these cases, during the annual planning procedure, the individual consumers will indicate which basket/consumer profile she prefers and in what quantity, instead of indicating her preference for each and every individual item. For instance, a vegan would indicate her preference for food products via a basket of goods based on a vegan profile instead of specifying kilograms of carrots, apples, bananas, beans, etc. Similarly, planning of holiday trips can be facilitated through different customer profiles for families, young adults, etc., and with different focuses, e.g. beach holidays, history, and nature and with statistically defined sets of flights, hotel stays, restaurant visits, etc. Baskets may also be linked to the use of a specific good. For example, a holder of a certain type of car could be considered to automatically request a basket containing specified car accessories, spare parts, service jobs, etc.

An individual consumer does not have to adjust her actual consumption to the composition of a basket and may consume each constituent good individually during the year, since a basket's composition reflects *average* consumption. Consumer profiles and baskets should, therefore, not be defined based on consumption patterns in overly local areas, but rather reflect expected average consumption patterns in relatively large regions. The consumer federations or the councils may if necessary, possibly with help from the distribution centres, adjust the baskets' compositions of goods and services during the annual planning iterations in the light of changes in prices and other information that change the expected consumption patterns.

Saving and borrowing

During the annual planning, consumers, councils, and federations may change their consumption proposals from iteration to iteration but once an annual plan has been agreed on, planned consumption, both quantity and cost of every coarse category, as well as expected income is registered on every individual's, consumer council's, and federation's account. As the year progresses, actual consumption, quantity, and cost, now based on the more detailed subcategories of goods and services, and actual income, are recorded for each account and compared with plan.

When the year is over and all transactions have been recorded, some consumers, neighbourhood councils, and federations will have a debit balance in their accounts since their charges for consumption will exceed their recorded income. Such a balance is a debt, a loan to be repaid through lower consumption, or higher income in the coming years. A debit balance is carried forward to the next year and reduces the room for consumption that year and so on until there is no debt and no debit balance. Large sums may be repaid through lower consumption during a number of years. A debt may be a planned loan, which is formally approved by the neighbourhood council during the planning procedure or it may be unplanned, for example, due to consumption of more goods than planned or goods whose costs exceed the average for the coarse category. Whatever the case, the result is that the consumer/household (or council or federation) will have to limit future consumption or increase income for future consumption proposals to be approved. The detailed rules for approvals and settlements of loans are decided by the neighbourhood councils and are influenced by assessments of consumers' credibility.[4]

Some consumers, councils, and federations, on the other hand, will show a credit balance since they did not use up all their available income. Such credit balances are savings that can be used for future consumption. A credit balance is carried forward to the next year and thus increases the room for consumption that year.

Second-hand goods

A participatory economy needs, not least with regard to reducing our impact on the environment, to facilitate a smooth trade in used goods or second-hand goods, i.e. previously manufactured long-lived consumption goods that can still be used, and to do so in a manner that is consistent with the model's values. It is worth noting the risk of markets and/or competing currencies arising in connection with trade in used goods, which at least theoretically could lead to major negative consequences for income distribution, which in turn could potentially undermine core values in a participatory economy. It is, therefore, important that this risk is considered and managed when trade in second-hand goods is organised.

Second-hand goods can in this context be defined as consumption goods that have already been requested, produced, and delivered in accordance with a previous year's plan. Examples of common second-hand products are cars, motorcycles, bicycles, furniture, and television sets. Since second-hand goods are goods which have already been produced and delivered to a consumer in accordance with a previous year's plan, the organising of trade in such goods will primarily be an internal matter for the NFCC and can be handled more or less separately, outside of the annual planning procedure. The worker councils will, of course, be affected by a well-functioning trade in second-hand goods as demand for new varieties of the goods are affected, but this is only an indirect effect.

The accounting of second-hand goods

There are several ways in which a trade of second-hand goods can be organised within the framework of the values of a participatory economy, and the following are just some possibilities. Buyers and sellers of second-hand goods can interact directly with each other or through a website or via established centres which buy and sell second-hand goods in a neighbourhood.

Trade in second-hand goods essentially means two things: first, a good is transferred between two consumers, and, second, dollars are transferred between different consumer accounts. A consumer who sells a previously purchased good is credited its value as compensation.

Account of Individual Consumer – Sale of a Used Good	
Debit	*Credit*
	Credit entry for a sold second-hand good

A consumer who buys a second-hand good pays with dollars charged to her account.

Account of Individual Consumer – Purchase of a Used Good	
Debit	*Credit*
Charge for a purchased second-hand good	

To hinder speculation and adjust the supply, the NFCC could announce selling prices for second-hand goods, in the form of expected depreciation schedules for categories of goods, which would inform people the amount they can expect to be reimbursed when selling a second-hand good in a future year. The depreciation plans could be updated before the start of every year based on assessments of excess supply and demand but be fixed during the year. The buying price of second-hand goods could then be allowed to float during the year so that the demand would meet the supply. This could, of course, result in a difference between the fixed selling prices and the floating buying prices, which would accrue to the NFCC and all consumers in the economy.

Account of NFCC – Buying Price Exceeds Selling Price	
Debit	*Credit*
	Positive difference between buying and selling prices

Account of NFCC – Selling Price Exceeds Buying Price	
Debit	*Credit*
Negative difference between buying and selling prices	

Trade in some second-hand goods could also be organised through neighbourhood centres. Such centres would have administration and operating costs that they have to cover from the consumers' buying price, but any surplus or deficit resulting from their trade would be accrued to the NFCC in the same way as described above. A distribution centre that receives second-hand goods is responsible for making sure that the goods received are functional and meet a certain standard. Only approved items would qualify the seller for reimbursement.

When receiving a good, a neighbourhood centre for second-hand goods would be charged the consumers' selling price.

Neighbourhood Centre for Second-Hand Goods – Receipt of Good	
Debit	*Credit*
Charge for received second hand good	

And when selling a second-hand good, it would be credited the consumers' buying price.

Neighbourhood Centre for Second-Hand Goods – Delivery of Good	
Debit	*Credit*
	Credit entry for a purchased second-hand good

Collectables

One category of second-hand goods that differs from other durable goods is collectables, i.e. goods that mainly have a value to collectors and in our current economy often increase in value over time. It can be many different items, such as stamps, art objects, furniture, and various antiques. In a participatory economy, people will not be able or need to "invest" in collectables for return on capital, and because the income distribution will be considerably more equal, prices for collectables will likely be far lower than today. But it is reasonable to assume that some people, even in a participatory economy, will want to collect various items.

Collectables could be classified based on the extent to which they are considered to have a public value for the whole society. Some items may have only a limited public value to society but a great value for a group of collectors, while other items may have a great value for both individual collectors and society and therefore perhaps belong in a museum where everybody has access to them. If society wants to allow some limited type of "trade" with collectables, the NFCC will have to take an active role. It needs to decide which items belong in a museum as a result of large collective value and therefore should be excluded from trade. Furthermore, the NFCC must take responsibility for setting repurchase

prices in a way that prevents individuals from gaining unjust economic benefits. If this trade with collectables generates a surplus, it accrues to the NFCC and thus to all consumers.

Finally, since inheritance is not consistent with economic justice and therefore unlikely to be part of a participatory economy, a collector's item with substantial value and not merely personal value will return to society at the time of a collector's death. However, at the time of a person's death, relatives could be offered first option to take over the possession of collectible items by paying the same amount to the NFCC as any other party.

Public service systems and collective consumption

A substantial part of the collective services provided and consumed in a participatory economy will, presumably, be organised through national or regional public service systems that are planned and decided in the political sphere and facilitates long-term and stable relations, notably judiciary, police, and defence services, but also reproductive labour services, i.e. health care and education[5].

Thus, education could be organised and managed through a public education system. This would, presumably, include education for children, day care and preschool programmes, and different professional degree programmes and other educational programmes for adults. All costs for education would then be funded publicly through the Society Account (see Chapter 6), based on political decisions, and education would be free of charge at the time of use, as would educational materials and school lunches for students.

Similarly, health care could be organised and managed through a public healthcare system where medical treatment, medicine, hospital stays, and professional nursing care are provided free of charge at the time of use and all costs are funded publicly, through the Society Account, based on political decisions. Patients may receive healthcare services in hospitals, in neighbourhood clinics, or at home. But it would be free of charge at the time of use, wherever it is delivered.

Education can be provided as a national public good or as a local public good. In a local system, things like class sizes may vary between areas based on different choices about how much to prioritise education compared to private goods and other local public goods. And the same is true for health care. Health care might be treated as a national public good. Or it may be a local public good, with local differences in the quantity and quality of healthcare services available. But even if education or health care were treated as a local public good, presumably, there would be national minimal standards.

Worker councils may render services to households who demand *supplemental* educational services, such as music or art classes and sports training, paid for out of household income. Neighbourhood councils and their federations may also demand supplemental educational programmes beyond those available in the public education system, e.g. youth orchestras, sports leagues, etc. as local public goods. Supplemental educational services that are provided to neighbourhood

councils or federations by worker councils are paid for collectively by all members through one of the cost allocation alternatives that we discussed previously. Similarly, households, neighbourhood consumer councils, or federations are free to demand *caring labour* services from worker councils providing them above and beyond what are provided by the public healthcare system and pay for them out of their income.

The option to demand and supply additional educational and healthcare services will provide useful information about people's preferred trade-off between education and healthcare services that are *covered* as part of the education and healthcare system, and those that are *supplemental* and provided by worker councils in the economic system. Whatever is not provided by the public healthcare system will be left for worker councils to provide and people to pay for with their income.

For a workplace, being part of a public healthcare or education system means that some production decisions will be made externally, outside the direct control of the workplace, and apply to every workplace included in the system, for instance, regarding curricula in the education system. There may, potentially, be other kinds of collective and community services, for which a consumer council or federation, sometimes, through their consumption proposals will be involved in the design and planning, in a way that, directly or indirectly, could affect certain aspects of the actual production of the service. For instance, in a public transportation system, with bus, train, and subway services, consumers, through their councils, may want to be involved in the planning of routes and schedules. Also, many community services and activities are linked to specific facilities and buildings within a geographical area (e.g. theatres, libraries, museums, sport arenas, public swimming pools), which members in the neighbourhood councils and federations, not the worker councils providing the service, will be requesting. In other cases, collective services will be provided by worker councils that control every aspect of the production.

Having influence over certain aspects of the planning of collective services would, presumably, also mean that consumer councils and federations need to organise and have access to separate support units or administration entities under their direction that will collect and prepare information for a smooth decision-making process.

In the end, it is the members in their councils and federations that decide what goods and services that should be collectively provided and how they should be funded. Different consumer councils may have different requirements for data collection, preparatory meetings, public debates, etc., all of which can take place throughout the year. But it is in the annual planning iterations that resources and services are requested and allocated, both individual and collective, and the consumption is approved by the other councils.

In each iteration during the annual planning, higher federation levels need to prepare and communicate their planned collective consumption before lower levels and individual consumers plan their consumption since the lower levels and the individual consumers need to know which public goods will be available at higher levels before deciding on their own consumption. This is a corrective

for the bias against collective consumption from centuries of living in market economies. Individual consumers also need to know their own and the other council members' shares of higher levels' costs for collective goods and services, and thus how much of their income remains for individual consumption in order to judge whether their total consumption is fair. Collectively financed consumption means less room for individual consumption and vice versa. Consumer councils and federations may, just as individual consumers, change their collective consumption proposals between iterations in the annual planning procedure based on changes in prices on different resources.

Regardless of whether a service-producing workplace is part of a separate public service system, relies on certain decisions to be influenced by a consumer council or federation, or is in total control of the production process, the accounting of its social costs is basically the same and will be explained in Chapter 4, which focuses on the accounting of financial transactions in worker councils. However, the social benefit of rendered collective services is decided by the social cost of providing them and is not decided separately in the annual planning. The social benefit credited to a workplace that provides a collective service will match the expensed social cost of the production of the service. The production proposals, or rather the cost proposals in these cases, will guide the consumers' decisions in their consumer councils and federations on how to allocate their income between different public and private goods and services during the annual planning.

Collective consumer investments

A consumer council's or federation's costs for providing collective services consist of (a) annual expenses for long-term capital assets (buildings, facilities, machines, vehicles, etc.) and (b) operating costs for the production of collective services.

A consumer council's or federation's acquisition of a capital good, i.e. a good with a lifespan of more than one year, and its funding and depreciation are handled and accounted for in separate sets of consumer capital assets, in exactly the same way as for any other investment in capital goods in the economy, to which we will return in Chapter 5. An acquired consumer capital good becomes part of the council's or federation's set of consumer capital assets, and its production cost is distributed over its economic lifespan through depreciation, which will reflect the consumption of the asset. The annual depreciation reduces the net book value of the asset.[6] The consumer council or federation is charged, and the accounting entity of the set of capital assets is credited an annual fee equal to the sum of the asset's annual depreciation and a discount rate that is charged on its net book value.[7] The fee is then, in turn, passed on to individual consumers, either as an equal share of total costs or as calculated user fees.

The consumer councils and federations, or their support units, need to prepare long-term plans for required investments in coming years, based on planned consumption levels, changes in consumer preferences, demographics, the need for replacement investments, and the expected discount rate.

Infrastructure

A well-developed infrastructure has a major impact on a society's potential for efficient production and consumption. Much of the planning of investment in infrastructure falls in the category of long-term development planning. The products that together constitute a society's infrastructure are mostly capital goods produced by worker councils. Creating and maintaining a good infrastructure is about planning and developing road networks, railways, ports, airports, electricity grids, internet, telephone networks, and much more. The main difference from usual capital assets is that infrastructure consists of capital goods which are particularly large and long lasting and benefits many consumers and producers jointly. Other than that, investment in infrastructure is the same as any other investment in capital goods. Infrastructure assets, in a broad sense, can many times be defined as consumer capital assets but may sometimes also be classified as productive capital assets that are used by worker councils in their production.

The ongoing annual costs for management and maintenance of most infrastructure assets will presumably be handled as collectively requested consumption and allocated to consumers collectively or through calculated user fees.

Consumer R&D

Consumer federations may establish and collectively fund associated R&D units, which conduct research on new products, consumer preferences, and changes in quality of products, and provide technical product information, based on instructions from the federation or some subset of delegates of the federation. Hence, these units would not be independent worker councils but under the direction of the federation.

A special variant of consumer R&D units is the units that are connected to CAPs. These units research the effects of pollution and emissions of substances to inform members of CAPs of new data and information about damages from pollutants.

Housing[8]

Consumers, in their federations and political institutions, will presumably play an important role in long-term city planning and urban development. For example, this could include zoning (dividing land into zones for specific uses such as residential, commercial, or industrial use), deciding on building regulations, environmental standards, and providing information about consumer preferences, demographic trends and internal migration, and participating in the organisation and planning of public facilities and services, such as garbage collection, water and sewage, public transport systems, libraries, playgrounds, parks, museums, sports facilities, and public swimming pools. It is the city consumer council that, in the end, decides which plots of land become available for the development of new housing and other premises by granting permissions for land development.

However, an area's housing stock is built by contractors, or developers, which are worker councils constructing housing that is requested by separate housing providing worker councils. A construction worker council may be a housing provider itself, offering housing directly to the end users. A housing provider is a worker council that designs, develops, and maintains housing. Residents' access to housing is then distributed in the annual planning, and the housing provider is credited a housing fee from the residents. Sometimes the housing provider is also an aspiring future resident or group of residents. In any case, once a building is completed, it becomes part of a housing provider's initial set of capital assets that may be reallocated during the annual planning among all housing providing worker councils, just like any other productive capital asset. Buildings, including buildings for housing, are long-term assets and investments, the planning and allocation of which is explored in detail in Chapter 5.

Housing fees and the allocation of housing to residents

Residents in a participatory economy will not own their housing in the same way as many do today, but rather they will apply for the right to use a particular category of housing in a neighbourhood in exchange for paying a recurring housing fee. In other words, residents do not have to take large bank loans to finance house purchases and do not run the risk of falling house prices. On the other hand, they will not benefit from any value increase either.

There will, of course, be different categories of housing. For example, people will want to have the opportunity to choose between co-housing, communal housing, apartments and detached houses, and different levels of standards, depending on preferences and where in life one is. Some homes will also be on land in a more desirable location, which may have better access to nice beaches, amenities, and transport links or have a coveted view. The supply of housing, therefore, needs to be classified in different housing categories.

When the annual planning procedure starts, the supply of different categories of housing, based on differences in location and standard, is given. The housing fee and the distribution of different available *categories* of housing are then determined in the annual planning by the supply and demand for the different categories. The distribution of *individual* housing during the year may be facilitated by Estate Agents worker councils that mediate vacant housing to housing applicants.

The resident's account is charged with the current housing fee for the category and quantity of housing she has access to, and credited to the housing providing worker council. More coveted housing categories will be more expensive and less coveted categories will be cheaper. Price differences between categories of housing are an important source of information for the planning of future housing construction and the decisions about which housing categories to prioritise.

The housing fees should cover all the costs that housing providing worker councils incur for making housing available in the various categories. In short, these costs are (1) their charged user rights fees for access to buildings, (2) their

charged user rights fees for the land on which the buildings sit, and (3) costs for management, maintenance, and repairs. User rights fees for capital goods, such as buildings and land and how they are determined, will be explained in detail in Chapter 5.

Once an individual has taken up residence, she has the right to stay as long as she pays the established current housing fee. A resident can, of course, design the interior of her residence at her discretion and do maintenance work, and, in consultation with the housing providing worker council, even carry out and pay for smaller additions and rebuilds, and thereby put her very own mark on her residence. If a resident's maintenance work replaces maintenance that is normally included in the housing fee, the fee may be adjusted accordingly.

Notes

1 Hahnel (2011) discusses threats to our environment and what we can do about them already today in anticipation of a system change.
2 We use one-sided accounting to record and monitor transactions of consumers, their councils, and federations. It is, of course, possible to use double-sided accounting. See Appendix 1.
3 Individual consumers' accounts in a participatory economy partly resemble transaction or checking accounts in banks in today's society.
4 Such assessments are the equivalent of credit assessments of borrowers that banks and other private creditors make today when preparing loans.
5 The description of public systems for reproductive labour in this section is largely based on chapter 10 in Hahnel (2021, forthcoming).
6 Assets will, of course, be tracked in detailed asset ledgers, which identify each capital asset, its acquisition date, its acquisition cost, economic lifespan, depreciation principles, accumulated depreciation, and depreciated cost.
7 The discount rate will be explained in Chapter 5, but for now it is sufficient to note that it is the economy's opportunity cost of binding capital.
8 Other premises and commercial mixed use buildings are, in principle, handled in the same way as buildings for housing.

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Hahnel, R. (2011). *Green Economis: Confronting the Ecological Crisis*. New York: M.E. Sharp.
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4

WORKER COUNCILS AND PRODUCTION

The second primary category of accounting entities in a participatory economy is **the worker councils**.[1]

Accounting of financial transactions

In a participatory economy, there are no privately owned companies and, therefore, no accounting of "equity", i.e. private owners' claims on company net assets. Nor are there any privately owned credit institutions, which finance acquisitions of productive capital assets through loans that are recorded in the books as external long-term debt. Productive assets and resources are not owned by the worker councils; they belong to all members of society. During the annual planning, worker councils apply for the right to use different productive resources in exchange for a promise to provide specified goods and services.

Deliveries of final and intermediate products are recorded in the books upon delivery, and provision and use of services are recorded at the time of use. However, entries for deliveries can be made contingent on approval by the receiving party. As today, some costs are accrued, i.e. spread out over several years, for accounting purposes. Inventories and assets bind capital, and for this, worker councils are charged a discount rate that reflects the economy's required social rate of return on capital, i.e. the opportunity cost of binding capital. The discount rate is discussed in more detail in Chapter 5. After a completed year, there is no dividend of profit to private owners. Any surplus or deficit that a worker council produces is transferred to the Society Account.[2]

Every individual worker council is an accounting entity, the financial transactions of which are recorded and monitored using double-entry bookkeeping. Available funds, "non-productive and non-capital assets", inventory, and the balance against the Society Account are recorded in a set of accounts for workplace

EXHIBIT 4.1 Worker council: economic statement

Debit	*Credit*
Workplace assets	
1.a. Available funds 1.b. Non-productive and non-capital assets 1.ba. Accumulated depreciation – non-productive and non-capital assets (Cr) 1.c. Inventory	2. Balance against the Society Account
Social Benefits and Expensed Costs	
4. Expensed social costs: a. Procured goods/used services b. Fees – labour c. User rights fees – manufactured capital goods d. User rights fees – natural capital and land e. Fees for emissions of harmful pollutants f. Change in inventory value g. Annual depreciation – non-productive and capital assets	3. Social benefits: a. Delivered goods/services
5. Shared costs and transfers 6. Discount rate – required social return on assets 7. Period closing (Dr/Cr)	

assets (account categories 1 and 2 in Exhibit 4.1), which, to a degree, is the equivalent of a company's balance sheet in a capitalist economy (see Appendix 1). Journal entries for outgoing and incoming deliveries, the use of services, emissions of pollutants, user rights fees for access to labour and productive capital assets, shared federation costs and transfers, changes in inventory value, annual depreciation of "non-productive and non-capital assets", and charged discount rates are recorded in a set of accounts for social benefits and expensed costs (account categories 3–7 in Exhibit 4.1), the equivalent of an income statement in a capitalist company (see Appendix 1). Economic statements of individual worker councils may, if necessary, be consolidated and summarised by industry.

Delivering and receiving goods and services

When a worker council delivers goods to a distribution centre in a neighbourhood or to another worker council, or when it provides a service, its available funds and delivered social benefits increase with an amount calculated as *delivered quantity* multiplied with the current *unit price*.

If, instead, a workplace produces collectively consumed and funded services within a public service system or for a consumer council or a federation, e.g. health care, education, and public transportation services, the social benefit will

be defined by, and equal to, the expensed social cost. The cost is passed on to the Society Account if it relates to a public service system, or a consumer council or federation, if it relates to a collectively requested service.

At the time of delivery, the worker council will record the following entry in the ledger:

Outbound Delivery of Produced Goods/Services	
Debit	*Credit*
1.a. Available funds	3.a. Social benefits: delivered goods/services

When a worker council receives goods or uses services from other worker councils, its available funds are reduced and expensed social costs increase, with an amount calculated as received or used *quantity* multiplied with the current *unit price*. The worker council will record the following journal entry:

Received Goods or Used Services	
Debit	*Credit*
4.a. Expensed social costs: procured goods…	1.a. Available funds

Access to productive capital assets and labour, and emissions of harmful pollutants

In principle, charged fees for user rights to categories of manufactured and natural productive capital assets and labour, and fees for damage caused by emissions of harmful pollutants are recorded in the same way as costs for received goods and used services. However, the counterpart in these cases is not another worker council, but society for fees for access to labour (see Chapter 6), a set of productive capital assets for user rights fees for access to *productive* capital assets (see Chapter 5), or a CAP for fees for emissions of harmful pollutants (see Chapter 3). As always, amounts are calculated based on current unit prices and actual quantities. Thus, the worker council's journal entry would be the following:

Access to Capital Assets and Labour and Emissions of Pollutants	
Debit	*Credit*
4.b–e. Expensed social costs…	1.a. Available funds

"Non-productive and non-capital assets"

Some costs in addition to user rights fees for access to capital assets that a worker council incurs may also need to be accrued over several years. For example,

recreational facilities and gym equipment that a worker council may acquire for its members to use outside working hours usually have a lifespan exceeding one year, without necessarily being included in a set of productive capital assets. Other "non-capital" but long-lived items can have a negligible second-hand value while still being useful during its life span, e.g. certain categories of office equipment and customised furnishings. Furthermore, a worker council's costs for delivery and installation of transferable productive capital assets can be classified as a cost for the worker council to accrue, while the tradable asset itself is part of a set of capital assets. A worker council must be able to accrue such costs over the years, in order for the economic information to be true and accurate. The accounting of these accruals in our model is no different, in principle, from today's practice.[3]

The cost is charged to an account for *non-productive or non-capital assets*, and available funds are reduced. Thus,

Acquisition of "Non-Productive or Non-Capital Assets"	
Debit	*Credit*
1.b. Non-productive and non-capital assets	1.a. Available funds

Each period thereafter in the economic life of the asset, the acquisition cost is depreciated via a calculated annual depreciation. This way the acquisition cost is allocated and expensed over the periods that the asset is used by the worker council. The appropriate entry in each period would be the following:

Annual Depreciation of "Non-Productive or Capital Assets"	
Debit	*Credit*
4.g. Expensed social costs: annual depreciation – non-productive and non-capital assets	1.ba. Accumulated depreciation – non-productive and non-capital assets

Keeping inventory of intermediate and final products

Both intermediate and produced final goods may need to be kept in stock for a while before being consumed or delivered. It is necessary to account for changes in inventory in order to correctly match costs to the corresponding recorded social benefit. The issues regarding inventory valuation in a participatory economy will, presumably, be very similar to today (see Appendix 1). A confirmed increase in total inventory value during a period will reduce the worker council's expensed social costs. Thus,

Increased Inventory Value	
Debit	*Credit*
1.c. Inventory	4.f. Expensed social costs: change in inventory value

A confirmed reduction of the total inventory value during a year will increase the worker council's expensed social costs. Thus,

Reduced Inventory Value	
Debit	*Credit*
4.f. Expensed social costs: change in inventory value	1.c. Inventory

Financing non-productive and non-capital assets and inventory

Both non-productive and non-capital assets and inventory are forms of investment that need funding. In a participatory economy, all investment is financed collectively through the Society Account, to which we will return in Chapter 6.

If the net book value of non-productive and non-capital assets or the inventory value increases in a period, the worker council will also record an increase in available funds and the balance against the Society Account by a corresponding sum. If, instead, the net book value of non-productive and non-capital assets or inventory value decreases in a period, a corresponding sum is repaid to the Society Account:

Debit	*Credit*
Funding of an Increase in Net Book Value of Non-Productive and Non-Capital Assets or Inventory Value	
1.a. Available funds	2. Balance against the Society Account
Funds Repaid When Net Book Value of Non-Productive and Non-Capital Assets or Inventory Value Decreases	
2. Balance against the Society Account	1.a. Available funds

Charge of discount rate

Worker councils are charged a discount rate on the capital they tie up in non-productive and non-capital assets and inventory. We return to the discount rate in Chapter 5, but for now, it suffices to note that the discount rate should reflect the opportunity cost of binding capital. It is charged on the total balance in the accounts for inventory and the net book value of non-productive and non-capital

assets, at the beginning of each year. The charged discount rate increases the worker council's expensed social costs and the balance against the Society Account. Available funds are not affected. Thus,

Charge of Discount Rate	
Debit	*Credit*
6. Discount rate – required social return on assets	2. Balance against the Society Account

Shared resources and costs

Through their federations, possibly with a final approval from the National Federation of Worker Councils (NFWC), self-managed worker councils may decide to transfer a percentage of their revenues to external, jointly controlled federation accounts to collectively finance shared support units, research and development (R&D) units, and other shared resources and costs. The appropriate journal entry would be the following:

Transfer of Funds to Federation Accounts for Shared Costs	
Debit	*Credit*
5. Shared costs and transfers	1.a. Available funds

Repairs and maintenance

A worker council's costs for repairs and maintenance of the capital assets they use are affected both by mostly predictable factors, e.g. their design, age and intensity of use, and by factors that are difficult or even impossible to predict, such as accidents or natural disasters.

Worker councils in a federation can agree to transfer funds periodically to a shared federation account, from which payments are then made to cover costs for repairs of productive capital assets that arise due to unforeseen events, in accordance with rules commonly agreed on. This way, the risk of being affected by unpredictable costs can be shared between all workplaces within an industry, which means that the impact of chance is reduced and the comparison of social benefit/social cost (SB/SC) ratios becomes fairer. This annual "insurance fee" could be charged as a percentage of the acquisition cost of productive capital assets in use at the beginning of the year. The total sum of an industry's paid insurance fees should cover the estimated, but not planned, repair costs for all worker councils in the industry during the year. Worker councils would book such "insurance fees" on an account in *account category 5 – Shared costs and transfers*.

Similarly, worker councils could decide to use shared federation accounts for certain types of *planned* maintenance cost that occur irregularly and with long intervals, for instance, maintenance of fixed production facilities and factory buildings. It may, sometimes, in these cases, be both fair and efficient to allocate total estimated, planned, maintenance costs, in a year, for a federation, to all member councils via annual provisions based, for instance, on the total acquisition cost of their capital assets. When a worker council is then charged for actual maintenance work, it would receive funds from the account to cover (part of) its costs, in accordance with commonly agreed rules.

Received funds from a federation account to cover costs for repairs and maintenance increase available funds and reduce the period's expensed social costs. Thus,

Received Payments from a Federation Account for Repairs and Maintenance	
Debit	*Credit*
1.a. Available funds	4.a. Expensed social costs – input goods/services

Period closing

The difference between a worker council's recorded social benefit and its expensed social cost at the end of a period will accrue to the Society Account. Any recognised surplus, or deficit, is moved to the account for balance against the Society Account by a year-end closing entry

Debit	*Credit*
Period Closing – Surplus	
7. Period closing	2. Balance against the Society Account
Period Closing – Deficit	
2. Balance against the Society Account	7. Period closing

after which it is transferred to the Society Account.[4]

Debit	*Credit*
Transfer of Surplus to the Society Account	
2. Balance against the Society Account	1.a. Available funds
Transfer of Deficit to the Society Account	
1.a. Available funds	2. Balance against the Society Account

Decisions about whether to approve worker councils' production proposals during the annual planning are based on what they claim their inputs and outputs will be evaluated at the current prices. Worker councils and federations judge whether their own and other member councils' proposed production is socially efficient and responsible by comparing credited social benefits (SB) with charged social costs (SC). A worker council's production proposal is efficient from the perspective of society if its SB/SC ratio exceeds 1, i.e. if the total credited social benefit for all their deliveries of goods and services (account category 3) *is greater* than the total sum of charged social costs for the production of the same goods and services (account categories 4–6). A worker council's production is inefficient if the SB/SC ratio is <1, i.e. if their total credited social benefit *is less* than the total sum of charged social costs for the production.

Once the year is ended, there will be a final actual measure of SB/SC for all the worker councils, which will serve as a basis for allocating income to the members, as was described in Chapter 3.

Shared support units

Support units are workplaces that perform tasks and provide shared resources or information that is used jointly and potentially have a great impact on the economy's efficiency and the productive capacity of industries. They may be responsible to the economy as a whole, the National Federation of Worker Councils or individual federations, and have no influence over decisions besides decisions about their internal work organisation, and they do not take part in the assessment of other worker councils' production proposals in the annual planning. They are appointed and dissolved based on assessments of the social benefit that they add, and the federations may set restrictions on the time for job assignments in support units if long assignments will lead to undue opportunities to influence other workers or if there is a risk of concentration of power. Support units mainly demand resources in the form of different categories of labour.

What separates a support unit from an ordinary worker council, with regard to accounting and funding, is that a support unit does not record any social benefit at the time of the delivery of its services. Instead, it receives a budget to cover their running costs, which is jointly financed based on collective decisions at the appropriate federation level, in return for the provision of specified shared support functions that are available to all members during a certain period.

Some assignments and tasks may target the whole economy such as the tasks of the Iteration Facilitation Board (IFB), while other assignments may target the National Federation of Worker Councils or every member council in a specific industry federation, e.g. the creation and provision of various economic analyses that facilitate decision-making, coordination, implementation, and monitoring of decisions and activities. The support units may, of course, if necessary, be organised and defined geographically. Below we give two examples of potential shared support units: units for support of decision-making and coordination, and R&D units.

Decision-making and coordination support

Both the worker councils and their representatives in the federations need to consider options and make many decisions during the long-term development planning, investment planning, and annual planning, and in potential negotiations regarding adjustments of agreed plans. For decisions to be fair and efficient, the information, on which decisions are based, needs to be as comprehensive, accurate, and precise as the circumstances permit. The industry federations may, therefore, organise separate support units with the assignment to prepare and provide both qualitative and quantitative information to their members. The work tasks could involve presenting historical data, assessing the probabilities of alternative scenarios, coordinating and facilitating the implementation of decisions, etc.

In the comprehensive investment planning, worker councils may have a special need for support and coordination from shared support units that help to analyse the expected future social return on their proposed investments. Support units could also help coordinate and facilitate the formation of initial sets of capital assets for start-up worker councils, deliveries of intermediate products and newly manufactured capital assets and transfers of existing assets between active worker councils during the year.

Research and development

R&D projects are important shared functions. Producers may organise their R&D initiatives via separate units for product development, R&D of production technology and innovations, explorations of various kinds, etc. that work together with the industry federations.

R&D generates knowledge and information that is a collective resource whose focus and design can, and should, be discussed and planned jointly during the investment and development planning. This applies to the development of new products, production technology, and work organisation. R&D projects often require many and costly resources, and any potential positive results are realised only in a more or less distant future. And there is no guarantee that research efforts will generate positive or useful results.

The categorisation and allocation of labour

Workers' compensation for work performed was discussed in Chapter 3. However, as we saw, there is no connection between the compensation that members of worker councils receive for work performed and the fees that worker councils are charged for access to different categories of labour. Labour is a productive resource, which, together with access to manufactured and natural capital, defines a worker council's productive capacity, and the fees for access to different categories of labour should reflect their opportunity cost.

The supply of labour and its composition of different categories are essentially given and fixed when the annual planning procedure begins. The categories will

be based on descriptions of the skill or experience of the labour, e.g. carpenter apprentice, electrician first or second class, or computer programmer, sometimes supplemented with years of experience, which means that the categories will be many and detailed.

During the annual planning procedure, the worker councils request different categories of labour, starting from their existing members and proposing additions or reductions. Workers apply to worker councils who are asking to add additional workers in different categories. The fees for labour categories showing excess demand are adjusted upward by the IFB, and the fees for user rights to labour categories showing excess supply are adjusted downward until no excess demand or excess supply remains for any labour category. The fees will, thus, correspond to the opportunity costs of different labour categories.

The fees that the IFB announces and updates in the annual planning iterations are based on local or regional labour supply and demand, which means that fees for labour can vary between geographical areas. During a year, society may provide help and support, through proactive "job centres", to workers who want to change jobs or place of residence, or who want to retrain for a new job. This way workers' freedom of choice can be maximised and the supply of labour can be made more flexible and better equipped to meet the demand.

The categorisation of goods and services in production

During the annual planning procedure, the worker councils propose what they want to produce and how, based on the prices announced by IFB before each iteration. The prices are aimed at balancing supply and demand for all categories of goods, services, and resources, thus indicating the opportunity cost of productive assets and the social cost of goods and services. Goods, services, and resources can schematically be divided into (1) consumption goods and services intended to be consumed by end users, including both goods that are consumed directly, e.g. toothpaste and groceries, and durable goods, e.g. television sets, cars, and motorcycles; (2) intermediate goods and services that in one way or another are included in the production of other goods during the year, e.g. shock absorbers and motors for cars and motorcycles; (3) capital goods with a lifespan of more than one year that are used in the production of other goods and services, e.g. production facilities and lathes; and (4) primary goods that are not produced but available from the natural environment, e.g. mineral deposits, farm land, and forests.

We call capital goods that are used by worker councils in the production of other goods, *productive* capital goods, and capital goods that are requested by consumer councils or federations for facilitating future collective consumption, *consumer* capital goods. When entering the books in the accounting system, capital goods are usually referred to as capital *assets*.

Below we discuss how the coarse categories of goods, which are used during the annual planning, can be broken down into more detailed subcategories so that the producers can plan their production efficiently and fairly. A coarse category

can contain subcategories that are very different from each other in terms of resource consumption and sometimes even production technology. The discussion below focuses primarily on the categorisation and pricing of consumption goods, but the reasoning and proposals presented are, in principle, valid for all types of products and resources and also services. The specific circumstances that may need to be considered in connection with the categorisation of intermediate goods, "unspecified" products, and services are commented on separately. The categorisation of productive capital goods and primary goods, and the pricing of their user rights are described in detail in Chapter 5.

We have already noted that the needs and demands regarding the categorisation of goods and services produced for end consumption differ depending on whether one is a producer or a consumer. We want consumers to be able to influence what is produced in the economy by indicating consumption preferences and submitting consumption proposals during the annual planning. But we want them to be able to do so as smoothly and easily as possible without having to spend an excessive amount of time, which, among other things, means that the categories of goods and services used in the consumption planning should be few and based on functionality in a broad sense. The categories of goods should, in other words, be "coarse" with as few details as possible. The producers, on the other hand, when preparing their production proposals need a more detailed categorisation of goods and services indicating differences in potential resource usage, and sometimes even technology, in the production of different varieties of products.

This difference in producer and consumer requirements on the categorisation of goods can be managed by working with *both* a relatively small number of coarse *main categories*, which are the categories that consumers base their consumption proposals on and worker councils relate to when assessing demand trends, *and* at the same time a number of more detailed *subcategories* of products, every one of which belongs to a coarse category and is defined based on differences in potential resource usage in production. The more detailed subcategories will help worker councils to plan their need for various resources and inputs in their production. This double categorisation means that every product will belong to both a coarse main category *and* a more detailed subcategory.

EXHIBIT 4.2 Category structure: end consumer goods

Main Category	*Subcategory*
Coarse main product A (priced in the annual planning)	Detailed subcategory – product Aa
	Detailed subcategory – product Ab
	Detailed subcategory – product Ac
Coarse main product B (priced in the annual planning)	Detailed subcategory – product Ba
	Detailed subcategory – product Bb
	Detailed subcategory – product Bc

It is the coarse main categories of goods that are priced by the IFB in the annual planning iterations based on supply and demand. The more detailed subcategories may be created and defined by the worker councils themselves, presumably through their industry federations and possibly with the consideration of information and requests from consumer federations and their R&D units. The subcategories may be more or less detailed, and there is no limit to how many they can be. The more detailed they are, the better conditions for producers to plan their production in an efficient manner, which also leads to more accurate pricing of the main categories[5]. At the same time, administrative costs risk becoming high with an overly detailed categorisation of products, e.g. for making sure that goods fulfil the defining criteria of subcategories.

The set of subcategories can be thought of as the range of products in a main category that will be available to consumers or producers if the good is an intermediate, capital, or primary good. For example, we can imagine that the main category "Shoes", the category for which consumers indicate their planned consumption during the annual planning, is divided into a number of subcategories such as men's and women's shoes, of course, but also dress shoes, casual shoes, trainers, boots, etc., where each category is described based on their specific distinguishing criteria. These categories can, in turn, be subdivided into further subcategories based on quality and materials, i.e. on criteria that reflect differences in potential resource consumption during production.

The available range of goods in a main category is valuable information for consumers during the annual planning procedure even if they don't have to identify subcategories in their consumption proposals. However, there will in any event, of course, still be plenty of room for variation and diversity regarding form and design, colour, size, etc. within each subcategory.

In their production proposals, worker councils specify, for every subcategory of good they plan to produce, both the number of units and the production cost. In other words, a worker council's total production cost has to be allocated to the individual subcategories of goods, which they propose to produce.[6] When all consumption and production proposals in an iteration are submitted, there is information about excess demand or excess supply for each coarse main category of goods, which is the information that the IFB uses when adjusting prices for the next round of proposals. But there is also information about the worker councils' total *average production cost* for every coarse category good *and* each detailed subcategory good.

Derived pricing of products in subcategories

Based on information from the aggregate production proposals, the worker councils and the industries can calculate a derived unit price for each subcategory of good, even though the IFB only announces prices for coarse main categories. The ratio between the **current price** (P) and the **total average production cost** (TAPC) for a unit of a main category product (P/TAPC) indicates a relation which, for our purposes, can be assumed to apply generally to all

EXHIBIT 4.3 Derived prices of products in subcategories

P/TAPC		*apc*		*p*
Price/total average PC per main category unit	×	Average pc per subcategory unit	=	Derived unit price per subcategory

PC = production cost.

relevant subcategories. This means that the derived unit price for a product in a subcategory (p) can be calculated by multiplying the P/TAPC ratio for the main category with any subcategory's average production cost (apc).

So, e.g. if the aggregated submitted production proposals regarding main product A, at a current price of 5.00, show

100 units of category A, a total production cost of 460; an average of 4.6

and a proposed distribution between subcategories:

50 units of subcategory Aa, a total production cost of 150; an average cost of 3.0
20 units of subcategory Ab, a total production cost of 100; an average cost of 5.0
30 units of subcategory Ac, a total production cost of 210; an average cost of 7.0

Then
P/TAPC is = 5.00/4.60 =1.087, and thus

The derived price of subcategory Aa = 1.087 × 3.0 = 3.26
The derived price of subcategory Ab = 1.087 × 5.0 = 5.45
The derived price of subcategory Ac = 1.087 × 7.0 = 7.61

This way of deriving prices for subcategory goods and services makes it possible for worker councils to plan, assess, and evaluate production proposals and real output during a year, in a more efficient and fair way since the derived prices take into account that the production of different subcategory products requires different quantities and categories of raw materials, inputs, and other resources, and, thus, costs society different amounts to produce. Furthermore, a detailed product categorisation enables a more exact charge of costs to a consumer's account when she picks up a product from a distribution centre. The result is a higher degree of fairness and efficiency.

When worker councils plan their production for the next year, they are, first and foremost, guided by prices and demand for main category goods. They then need to decide, at their discretion, how to allocate their production among different subcategories of goods. In order to guide and facilitate such detailed production decisions, the National Federation of Consumer Councils may, through their special support units, provide historical statistics and forecasts of the distribution of demand between subcategories of goods and services in the main categories.

Components and intermediate products

As we have seen, there are crucial differences between producers' and consumers' requirements for categorisation of consumption goods, which have to be handled in a manner that facilitates both efficiency and fairness during the annual planning. Goods that are used and consumed in the production of other products are called intermediate goods. Some of these goods are components that constitute parts of other products, e.g. shock absorbers, chassis, and motors for cars and trucks. Their design is often determined by the end product's functionality and design. In other words, producers of components, in many cases, do not decide the design of their products to the same degree as producers of most consumption goods. Instead, they must adjust to specific requirements emanating from the end product, i.e. from the consumer of their products. In addition, the demand for many components is primarily and largely determined by the demand for the consumption good of which they are part.

Since, in this case, both the buyer and the producer are worker councils that submit production plans, both parties will also have to work with more detailed categories of components to efficiently plan their production. However, the IFB may still quote prices for coarse categories, from which the producers derive prices for subcategories in the same way as was described above, if this simplifies the planning procedure. In this case, a coarse category can include a number of subcategories of detailed components specified and requested by a number of identified *buyers*. The individual worker councils will, then, during the annual planning, commit to deliver a proposed share of the *total production volume* for all components in a coarse category, while the actual allocation between subcategories, i.e. the composition of its delivered goods will be finally decided during the year.

The planning and categorisation of other intermediate goods that are not as strongly related to end products, e.g. different categories of, more or less, processed raw materials, should, in most cases, be easier and more straightforward since these products can usually be standardised for planning purposes with relatively few variations, e.g. on the basis of a few different qualities.

Undefined and bespoke products and projects

It may sometimes be difficult to standardise and define certain categories of projects, products, and services in a way that facilitates accurate predictions of their production costs during the annual planning iterations. It can be unspecified goods and services that are requested individually, e.g. future repairs and maintenance of durable consumer items such as cars and motorcycles, which need to be customised to future requirements, the specifics of which are not known at the time of the annual planning. Large and complex projects in the construction industry, i.e. construction, repairs, and maintenance of buildings and production facilities, are other examples. These unspecified projects and services, and their

aggregate costs, are ultimately defined by the individual products and services that together will form the final product.

In these cases, in addition to the use of coarse categories and baskets of constituent products, the so-called cost drivers[7] can be defined by the industry federations and used during the annual planning to facilitate planning and enable more accurate estimations of expected costs and resource consumption. A "cost driver" is a quantifiable activity that can be linked to a set of goods, services, and resources that are needed for its execution, based on statistics and historical data or new forecasts, and may also, in some cases, be tied to a geographical region. Each good, service, and resource that is linked to a "cost driver" is priced individually during the annual planning, and requested and provided separately during the year, but the worker councils can relate to "cost drivers" when they plan and propose their production during the annual planning. For example, "square metres of housing space (office space, factory space)" can be a "cost driver" for future unspecified, individually requested maintenance work for a certain type of housing (buildings, factories, etc.) in a certain region. On average, maintenance work per square metre of housing space (office space, factory space) statistically requires a reasonably stable set of different goods, services, and resources at an aggregate level. As in the case of categories of goods and services, cost drivers can be both coarse and more specific.

The planning and execution of complex and extensive projects will often require a high degree of coordination and cooperation between different workplaces and will require efficient routines for communication and planning within and perhaps also between federations. Worker councils establish their routines for coordination at their discretion and to the best of their ability within the framework of the federation structure, other established coordination bodies, and support units. In addition, large and extensive projects may run over several years. Such projects are planned and decided based on the current year's prices, which may then be updated and adjusted for the project's remaining periods during the course of the project when new prices are set in the following years' annual planning. It could, in some cases, be necessary to adjust or renegotiate long-term projects if the price changes are large.

If, instead, the projects are clearly specified and detailed but relatively confined, unusual or customised, coarse categories containing subcategories of goods or services that are included in a number of projects that are similar from a production technology point of view may be helpful in the annual planning, in the same way as for components. Such coarse categories can facilitate the worker councils' planning of their production of goods or services that make up customised projects.

Services

The provision of services, and especially collectively consumed services, differs in some respects from the production of goods. Often, for example, in

the provision of health care and education, the service is largely defined in the very meeting between the service provider and the recipient. Also, service production is typically more labour intensive than production of goods, and therefore, it does not present the same opportunity to reduce costs through technological innovation or by working more intensively. It may even have a negative impact on the quality of a service if a service providing worker council tries to minimise labour costs since this can lead to stress, which in turn can lead to more mistakes, carelessness, etc. The provision of many services is, furthermore, associated with specific facilities and buildings (hospitals, schools, cinemas, museums, theatres, sports stadiums, etc.), which consumers in a participatory economy would, presumably, demand directly. And finally, the provision of services is usually linked to a limited geographical area, e.g. a neighbourhood, community, or region, in a different way than the production of goods. Most physical products nowadays can easily be transported anywhere in the entire world.

Consumers will, at least in some cases, presumably, have an influence on certain aspects of the design and organisation of the provision of collective services in a way that is not relevant for the organisation of commodity production. A large part of a community's service production for end consumers will likely be organised within the framework of public service systems, as was described in Chapter 3. Some services are better suited for individual consumption, e.g. services provided by hairdressers, opticians, locksmiths, and cobblers. In the end, it is the future members of a participatory economy that will decide how to organise the consumption and provision of services, and which services should be requested individually or collectively.

As for the production of services used by other worker councils, the worker councils will have to decide whether to internalise the production or make requests to external worker councils in the planning procedure, as is also the case today, based on what they think is most efficient. Some support functions and "consulting services" that require expertise and special training will presumably be organised in specific shared support units, as discussed earlier, such as R&D units, units that facilitate the implementation of new technology, units that provide and analyse industry statistics, and units that facilitate accounting or coordinate major production projects.

Some services are requested and implemented "on a current account". These services are classified into different categories based on differences in estimated resource usage as any other good or service. Worker councils that want to request services on a current account in the annual planning need to estimate the number of hours of the services that they need based on historical statistics and information from the service producing worker councils, though the definition of exactly what an hour should include might potentially cause more disagreements between producers and customers than the definition of a good, as is often the case today, as well.

Rejected goods and services

One important aspect of production and deliveries of goods and services in a participatory economy, as in other types of economies, is how to resolve disputes about the quality of delivered goods or, when it comes to services performed on an ongoing basis, the time spent on a job. This task may require separate bodies within both the consumer and worker council federations. The definitions of categories of products and services set the framework for their design and quality, but worker councils are then normally free to design their produced goods and services as they want. Worker councils are only credited for deliveries that are approved by the recipient. When there are divergent opinions between the supplier and the recipient about whether a product or service meets the requirements, there must be routines in place to deal with these disputes, including ways to decide who will pay for the rejected goods and services. In some cases of complex projects, a final inspection performed by an independent party, where both quality and resource consumption are assessed, may be necessary before the project is considered approved and delivered.[8]

Fulfilling production plans

But what suggests that worker councils will prepare and submit production proposals based on their actual ability to fulfil their proposals? Or that the production proposals will consider the expected distribution of demand between different subcategories of goods and services? Won't worker councils first and foremost prepare their production proposals in order to get their proposals approved, regardless of actual productive capacity and regardless of the expected distribution of demand between subcategories of goods? In other words, what incentives do worker councils have to prepare and submit production proposals that reflect their actual productive capacity and to consider the expected distribution of demand between different subcategories of goods and services?

Note first of all that in a participatory economy, contrary to a centrally planned economy where there are perverse incentives for producers to under-represent their true productive capabilities, there potentially could be an incentive for worker councils to *exaggerate* their productive capacity during the annual planning procedure to get proposals accepted by other councils and to gain access to productive resources. And in a participatory economy, there could be an incentive for worker councils when preparing their proposals to exaggerate production of subcategories of goods that require fewer and cheaper resources, and underestimate the production of subcategories of goods that require more expensive resources compared to the expected demand in order to improve the production proposals SB/SC ratios. How would a participatory economy handle this?

An approved annual plan for the economy means that every worker council has an approved production plan that specifies the resources – categories of

capital, labour, and inputs – that the council will have access to during the year and the number of main category goods and services that they have committed to producing using the requested resources. Large deviations from the approved plan during the year require approval from the industry federation. There is no reason for other worker councils to approve a production proposal in the annual planning procedure, which obviously overestimates the productive capacity or ignores a forecasted demand distribution.

Perhaps more importantly, it is also in the interest of an individual worker council to submit a production proposal that it has the potential to fulfil. First, if a worker council fails to produce the goods and services that it has committed to in the annual planning because it overstated its productive potential or if a worker council fails to dispose of produced goods and services because it did not consider expected demand distribution and/or other worker councils' production, it risks not being able to reach the SB/SC ratio it has committed to in the annual planning procedure, and in the end therefore also risks being assigned less income to distribute between its members than expected. A worker council's actual average work compensation, i.e. its members' income, is determined by its actual SB/SC ratio, not by the SB/SC ratio for the plan that was approved. Members of a worker council will, therefore, be penalised immediately for any failure to live up to what they promised. Second, if a worker council continuously, for several years, fails to reach its commitments from the annual planning procedure, the industry federation should have the right, after one or two warnings and after offers of help, to forfeit the worker council's membership in the federation since the worker council in such case will have acted in an irresponsible way and wasted society's common resources.

The two groups of accounting entities that we have identified so far – consumers and their councils and federations, and worker councils – are the primary actors in a participatory economy, which plan and execute economic activities during the annual planning procedure and the year. The accounting of financial transactions and the categorisation of goods and services as described above make it possible for these actors to decide whether their own and others' activities, both planned and realised, are fair, efficient, and responsible.

Notes

1 Workplaces producing collective services within a public service system, or for a consumer council or federation, e.g. workplaces providing health care, education, public transport, etc., are handled in the same way, with regard to accounting, as every other worker councils, using the same types of accounts. When referring to "worker councils" in this section, we include all workplaces.
2 The Society Account records and tracks the total national income, i.e. worker councils' surpluses, and fees for labour and capital assets, and how it is allocated between consumption, public service systems, and investment. The Society Account is explained in detail in Chapter 6.
3 See, for instance, chapter 4 in Granhof (1985).

4 It is the income before the charged discount rate that is transferred. The discount rate does not affect the net balance against the Society Account.
5 A pricing that reflects the social costs for producing the goods. Note that the categorisation of goods and services is not about creating an infinite number of subcategories which will morph into "brands" for marketing purposes, which is common in today's system, but about creating the best conditions for efficient and fair planning of production in the worker councils.
6 Most companies do such cost allocations already today in order to put a price tag on their products and to value their inventory. Normally, a company allocates all their costs to their different products and knows how much it costs to produce each and every one of them. Product cost calculation is a prominent part of every manufacturing company's internal cost accounting routines, and discussion about how to best allocate overhead and indirect costs to products, and other cost objectives, is at the very core of modern management accounting theory (see, for instance Horngren & Foster (1987) or Samuelsson (1984).
7 The term "cost driver" is today mostly associated with an internal cost accounting model called "activity-based costing" (ABC), whose main purpose is to rationalise a production unit's manufacturing processes. Simply put, ABC is about estimating a company's costs for different activities by identifying "cost drivers" (and their associated costs) for key activities, and then tracing and mapping the degree to which other activities and objects consume or use these cost drivers during production. Our use of "cost drivers" in the context above, in contrast, would primarily be about facilitating the preparation of production proposals in the economy's annual planning procedure.
8 Inspections of large projects are often done also today, e.g. in the construction industry.

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5

INVESTMENT AND LONG-TERM DEVELOPMENT[1]

We have in our text so far already come in contact with two types of investments. In Chapter 4, we briefly described how worker councils tie up capital in inventory and "non-productive and non-capital assets". The worker councils are charged a discount rate, i.e. an estimated opportunity cost of binding capital, based on these assets' balance at the beginning of each year. We will return to the purpose of the discount rate and how it is decided in this chapter. And in Chapter 3, we described investment in long-term consumer capital assets, i.e. costly consumer goods with a long service life that are used collectively and requested by the consumer councils and federations.

Of course, in a participatory economy, it is not possible, for either individuals or consumer councils, to save by investing in different types of financial securities such as shares, bonds, options, convertibles, derivatives, and the plethora of other financial instruments that today's financial sector offers. Consumers may, however, as we have seen, very well borrow or save during a year by consuming more, or less, than their income, based on their work compensation and allowances for the year, and thereby add to or subtract from their cumulative personal account with society. This may be necessary if they, for example, plan to buy an extra expensive item or service.

On the whole, however, this type of saving and borrowing presumably adds up to less than it does in today's capitalist societies for two reasons: (1) individual consumers in a participatory economy do not have to worry about saving to pay for their children's education or their living expenses when unemployed, sick, old, etc. as many in today's capitalist societies are forced to do, and (2) there is no or only a moderate and predictable rate of interest paid on savings, i.e. there is no speculative vehicle, leaving savings decisions to be determined by people's desires to smooth their consumption over time.

In this chapter, we focus on investments, how they are decided, who gets the right to use them, and to what price. First of all, however, we look a little closer at how worker councils can organise themselves in federations to coordinate common planning and activities, and make democratic decisions that affect large groups of worker councils.

Industry federations

Every worker council in a participatory economy belongs to one federation based on what it produces and one federation based on geography. Every industry federation is part of a federation structure with several levels within the National Federation of Worker Councils (NFWC), which represents every worker in every worker council in the whole economy. Federations can, if necessary, facilitate and coordinate decisions and activities that affect not only individual worker councils but larger groups of worker councils and should be comprised of councils that are affected in a similar manner by decisions. Different industries will often produce for different geographical markets: local, regional, national, and/or international, which may need to be considered when defining federations.

The industry federations play an important role in the development and investment planning, in which they, for example, provide estimates of the expected future development of technology and productivity, and make decisions about how necessary changes in industry outputs should be achieved, by shutting down or creating new worker councils or by increasing or reducing existing worker councils' production capacity. They also have a prominent role in case an annual plan needs to be renegotiated or adjusted during a year due to changed circumstances. Adjustments of an annual plan need to be negotiated by industry federations together with representatives from the consumer federations.

Furthermore, members in each industry federation could, possibly, be delegated the task of approving or rejecting other members' production proposals in the annual planning procedure. The federations may, in this context, establish special committees for reviewing proposals that do not reach an SB/SC ratio of >1, when there is a reason to believe that the numbers do not tell the whole story or in situations when exemptions from the SB/SC ratio requirement could be justified. They may also help struggling worker councils by temporarily directing people from successful worker councils to those worker councils that don't manage to prepare production proposals with an SB/SC ratio of >1.

Finally, industry federations have a responsibility to make sure that the goods and services that worker councils produce hold a comparable standard and reach the criteria that the industry has set. For example, light bulbs that are produced by worker councils need to meet standards relating to size, quality, electrical current, performance, etc. that are set by the industry.

The federation structure

The classification and organisation of industries is obviously something that a future participatory economy will decide on but to illustrate the task, we will here sketch a possible industry classification of worker councils. At the most general level, an economy's worker councils could be divided into a few main federations according to the general function they perform in the economy, such as (1) agriculture, forestry, and fishing; (2) extraction of minerals; (3) manufacturing; (4) construction; (5) freight and transport; and (6) services. Each of these main federations may then be divided into sub-federations in one or more levels based on a more detailed breakdown of the groups of goods and services that the worker councils produce.

This federation structure can be supplemented by a geographical structure, e.g. by regions, when it simplifies administration and comparisons, or if it increases the degree or justice, for example, by better reflecting regional differences in circumstances. This may be significant for federations that organise worker councils providing services since their markets are often geographically defined in a different way than worker councils that produce goods.

In any case, the goal of the federation formation and industry division is to create the best possible conditions for efficient and fair decisions in the annual planning, investment planning, and long-term development planning and when implementing the plans.

Admissions and exclusions

Members in an industry federation agree on individual worker councils' admissions and exclusions. When an aspiring worker council applies for admission to a federation, the federation needs to assess the council's credibility and its ability to fulfil its production proposals. When a worker council is accepted as a member, it receives a kind of license that entitles the council to apply for access to a start-up set of initial productive capital assets and then participate in the annual planning procedure by preparing and submitting production proposals.

The introduction of new worker councils in advanced, large-scale, high–tech, and automated industries will presumably require that the industry federations initially take on a more active role assisting in the start-up phase, compared to the introduction of new worker councils in smaller, less technologically advanced, and more labour-intensive industries where the individual worker council can plan its production more independently from the very start.

The existing members of an industry federation may have an incentive to restrict the number of new entrants in order to limit the total output of the industry's products or services, the prices of which would thus be higher, making it easier for existing members to reach an SB/SC ratio exceeding 1. It may, therefore, be necessary to establish procedures allowing aspiring members to challenge industry federations on their decision of refusal of entry and take it to a

"higher" level where several industries are represented. In some industries, there may also exist natural "entry barriers", for example, due to economies of scale, which make it difficult for aspiring worker councils to enter the industry. This may potentially lead to monopoly situations, which, in a capitalistic economy, create opportunities to reap extra high profits but in a participatory economy would manifest itself as possibilities for workers in these industries to lower their efforts without receiving lower work compensation. The federations need to monitor these situations and enforce rules that will restrict monopolistic behaviour.

A worker council that fails to submit a proposal that is approved by the other worker councils in the annual planning or repeatedly fails to live up to its obligations from the annual planning, or otherwise behaves irresponsibly may, after one or more warnings, be deemed to have exhausted their membership in the federation and be disbanded. Decisions about certification and decertification of worker councils precede the start of the annual planning and productive resources that are thereby released will be available.

Funding of support units and shared expenditures

As we have seen, the worker councils, through their federations and possibly with a final approval by the NFWC, may decide to collectively finance shared projects and units, e.g. R&D and other support units, and training programs, by setting aside and transfer a part of their gross revenues to a federation account, which may also be divided into geographically defined subaccounts, for distribution to the support units that produce and provide the shared services. Jointly consumed services of this nature share some features with investments inasmuch as they often involve expenditures aimed at increasing the future inflow of funds or reducing future costs. However, in the books they are often treated as expenses since it is very difficult to match costs for R&D to individual future years and benefits.

Transfers of funds from member councils *to* a federation account are booked in credit. The fraction of a member council's revenues that is transferred and passed on to support units is agreed on by the member councils in the federations. Transfers of funds *from* the account to the support units are posted in debit. Any unused funds (positive balance) or overused funds (negative balance) at the end of the period are settled against the contributing member councils.

EXHIBIT 5.1 Federation account for shared costs and resources

Federation Account	
Debit	*Credit*
Outgoing payments: 1. Support units 2. Units for Research & Development 3. Units for other shared projects	Incoming payments: 1. Transfers from member councils

The support units that receive funds record a credit entry in relevant accounts for social benefit.

Transfer accounts for allocation of costs for repairs and maintenance

There is a type of provision for shared costs that doesn't aim to finance shared services, projects, or support units, but instead allocate risks and costs between worker councils and years, and by doing so, increase the comparability of the performance of worker councils.

This is mainly about costs for repairs of capital goods due to unforeseen events and, in some cases, planned maintenance work that occurs irregularly and with long periods between each occasion. As we saw in Chapter 4, the councils may pay a fee to a federation account for future repairs and maintenance, which, for example, can be charged as a percentage on the capital assets' original production costs. The sum of all fees in a year should cover repair and maintenance costs during the year for all workplaces in the industry. When a member council then incurs costs for actual repair and maintenance work, it receives funds from the account in accordance with earlier agreed rules to cover (all or part of) the costs. This way, costs and risks can be distributed more evenly between years and between the industry's worker councils, which makes comparisons of the councils' SB/SC ratios fairer. All incoming funds to a transfer account in a year are passed on. If there is a balance at the end of the year, it is settled against the member councils.

Long-term development planning

Annual planning, investment planning, and long-term development planning differ in terms of time perspective. The long-term development planning is about overall decisions that have a major impact on the economy's focus and direction for a long time to come, e.g. 30 years or longer. It is about reacting sensibly to expected changes in the international distribution of work and technology, planning for desirable changes in the supply of different categories of labour including changes in working hours, to ensure that important natural resources will be available in the future and to plan for the effects of extensive

EXHIBIT 5.2 Transfer account for allocation of repair and maintenance costs

Transfer Account	
Debit	*Credit*
Outgoing payments: 1. Compensation for actual repair costs 2. Compensation for actual planned maintenance costs	Incoming payments: 1. Transfers from member councils

long-term climate change. The decisions place important limitations on investment planning as well as the annual planning.

During the development planning, consumer and worker council representatives in their federations, with the support of experts and researchers, make long-term decisions about investment, production, and consumption. Examples of issues that may be addressed are society's organisation of the long-term energy supply, introduction of new production technologies, planning and organisation of society's infrastructure in a broad sense, and the handling of the effects of climate change. Should energy supply be transformed from fossil fuels to renewable sources of energy, and if so, how fast and in what order? How fast should transport by car be replaced by public transport, e.g. railway? Do we want to change or dismantle the agricultural sector's use of chemical fertilisers? Do we want to invest in the development of any particular industry sector, and does this have an impact on the trade exchanges with external economies and the environment? What products and capital goods do we want to import and export, and what type of labour do we need to train? Should we prioritise research and development in any specific areas or certain industries?

Labour and education

How many hours a day do we want to work as a standard? Should higher productivity be transformed into yet more consumption or more leisure time and less work, e.g. shorter working hours, earlier retirement age, and longer holidays, and what consequences do these decisions have on the environment, international trade, and other parts of the economy? Consumers and producers need to discuss and make long-term decisions on these issues, which will affect the future potential production volume.

Labour flexibility

A participatory economy can establish separate workplaces with the task of assisting workers that are looking for a new job or worker council because they don't thrive, their worker council is disbanded or they want to move to a new neighbourhood. Such "employment service units" could be of great importance for both the workers' freedom of choice and the labour supply's flexibility.

Education and training

Education and knowledge can often be rewarding and fulfilling in itself regardless of other benefits. From this perspective, it is as a consumer good. But education also increases the opportunities for citizens to actively and efficiently participate in democratic decision-making, which makes it a social investment as well, and training that increases the productivity of workers is an investment with a distinct return in the form of increased productivity. A society's supply

of labour and its "quality" in terms of training, technical "know-how", experience, etc. is of great importance for the productive capacity of a society, and is sometimes called society's "human capital". The composition and training of the workforce should meet planned future needs. When major and long-term changes in production output in various industries are planned and implemented (increases as well as reductions), this affects the future demand for different categories of labour. To the extent possible, the labour supply should be adapted to expected future needs based on long-term plans.

Society, and its Ministry of Education, can shape and adapt the labour supply in different ways. By providing and designing both basic education and vocational training, society affects the characteristics and composition of labour in a concrete way. Workers in a participatory economy will need different sets of skills compared to workers in today's capitalist system. For example, workplaces in a participatory economy are expected to balance jobs with respect to empowering tasks, and to the extent possible also with respect to desirability, which requires wider and more all-round training, although specialisation, of course, also will be necessary and desirable.

When society decides how much to invest in education and training in general and how to distribute that investment among different educational programs, it needs to consider all returns and positive effects from education and training, and the costs. The procedure for educational planning is, in many ways, similar to the investment planning procedure described in the section "Consume today or save and consume more tomorrow?"[2]

The environment and climate

Our external environment enables our existence in a very fundamental way through complex ecosystems, which create the necessary living conditions not only for our own species but for a huge variety of other animals and plants. It provides us with natural productive capital, such as farmland, forests, fishing waters, and minerals that supply us with raw materials for our production of food, clothing, and every other good that we produce and require, and it gives us inspiring and beautiful surroundings that enrich our lives. And it provides "sinks", which store various wastes from production.

Society's planning of the use and consumption of available natural resources should consider the effects on long-term sustainability and justice between generations and future generations' opportunities for a good life, including access to a good and healthy environment. Many natural resources and ecosystems are irreplaceable and have a great value in themselves, regardless of the extent to which they are productive in economic terms and there are often threshold effects that must be avoided at all costs so as to not activate irreversible negative spirals with potentially disastrous effects on the environment. The precautionary principle should always be applied if there is uncertainty about the negative effects of excessive exploitation of natural resources.

Climate change caused by our emissions of carbon dioxide and other greenhouse gases drastically affects our environment. It affects our ability to utilise natural resources by making them less accessible and fertile, for example, due to extreme weather phenomena such as hurricanes, floods, and droughts. If we want to minimise future climate change, we need to radically and quickly change our energy supply from fossil fuels to renewables and replace car and air transport with collective climate friendly means of transport. Furthermore, the effects of climate change, such as sea-level elevations and climate refugees that are already too late to stop, will continue to require huge expenditures and investments for a long time. In other words, climate change has huge and long-term effects on our ability to consume and produce, which needs to be considered during the development planning.[3]

Trade with other economies

In the long-term development planning, the actors in the economy needs to discuss and agree on policies for trade and financial interactions with external economies, the balance between exports and imports, import restrictions for the protection of domestic industries or the environment, export subsidies to support newly started exporting industries, etc. Direct foreign investments are not allowed in a participatory economy since they would run counter to its values, especially the demand for self-management.

When there are big differences in opportunity costs for production of goods between different regions and economies, there are also potential efficiency gains to be achieved by specialisation of production and trade, even though these benefits sometimes are exaggerated. When a participatory economy is forming its trade policy, it needs to consider many factors. The decisions regarding trade policy both affect and are affected by other long-term planning decisions. The effects of imports on domestic production and consumption need to be analysed. Perhaps there are goods that the economy for one reason or another regards as so harmful that importing them altogether should not be allowed, for example, goods that affect the environment or health negatively. Imports of both capital goods and consumption goods have effects on the development of domestic production that need to be analysed and assessed. Maybe society wants to protect a certain domestic production during a build-up phase or for other reasons by restricting imports. Similarly, the export of goods has effects on the economies receiving the goods that need to be analysed based on a participatory economy's values. Exporting worker councils maybe should be supported by subsidies during certain periods. In general terms, international trade is justified if it increases the economy's social benefit or reduces the economy's social cost compared to what would be the case with no trade.

The 50% rule

For a participatory economy, the goal must be to negotiate terms of trade with other economies that are consistent with the fundamental values of participatory

economics – justice, self-management, solidarity, diversity, efficiency, and ecological sustainability – regardless of whether the trading partners are functional participatory economies or capitalist economies.

If a participatory economy is trading with a relatively richer economy, it should aim to obtain as large part as possible of the efficiency gain resulting from the trade. If a participatory economy, on the other hand, is trading with a relatively poorer economy, it should accept to receive less than 50% of the efficiency gain and be content to see its poorer trading partner receive the majority of the gain. If efficiency gains from trade are distributed in this way, it gradually reduces the gap between richer and poorer trading partners.

Note that this rule for allocation of efficiency gains from trade applies, regardless of whether the trading partner is a participatory economy or a capitalist economy. Citizens in a poorer economy on average receive lower compensation for their efforts than citizens in richer economies, and by using the "50% rule when trading, a participatory economy confirms that "justice" means that the same effort or sacrifice should be compensated to the same degree. A participatory economy cannot argue that the principle of justice is not applicable to trade with capitalist economies, on grounds that the citizens of such an economy may not necessarily support the same principle of justice. The point is that its values preclude a participatory economy from interacting with other economies on conditions which *itself* considers to be unfair.[4]

Investment planning: consume or save?

The first stage of the investment planning is to agree on an aggregate plan for how the economy should allocate its total production between consumption (both individual and collective) and investment in the next five years and determine the associated required annual social rate of return on investment, i.e. the annual discount rate for binding capital in the economy. The next step is to specify exactly what capital goods to produce in the year to come and how they will be allocated initially between workplaces, industries, and consumer councils. The latter will be decided in a comprehensive investment planning during the annual planning, when the agreed aggregated investment plan will be transformed into a detailed plan for the year's production of capital goods, including replacement and supplementary investments, new production facilities, and extensions.[5]

The issues with long-term planning

Investment planning and long-term development planning face some difficulties that annual planning does not have to deal with. The longer the time perspective we plan for, the greater the uncertainty we face as technologies, technical "know-how", customer preferences, international circumstances, and environmental factors change over time and the uncertainty escalates with time. Also, estimates of future opportunity costs and social costs are problematic as these

costs are dependent on the decisions regarding investments that are implemented today, which introduces a circular dependency that makes today's opportunity and social costs unreliable as a basis for decision-making when it comes to long-term investments.

When we invest in increased productive capacity, the future opportunity cost of capital assets and the future social cost of intermediate and consumption goods and services are affected as the potential supply changes. The prices for various capital assets, intermediate and consumption goods, and services that the annual planning generates will, therefore, be misleading when making decisions about long-term investments. It is future opportunity costs and social costs that we need to estimate in order to be able to decide which investments provide the best long-term social return in relation to the investment cost. The quantitative estimates of opportunity costs, social costs, and social benefits for different investments and development alternatives during the long-term planning will, therefore, be less reliable than estimates of costs of resources, goods, and services during the annual planning. Today's prices do not always provide reliable guidance for investment decisions.

Of course, the goals and values of the participatory economics model – self-management, justice, efficiency, solidarity, diversity and ecological sustainability – are valid also for the economy's long-term planning, but due to the issues described above, it will be difficult to organise certain parts of the long-term planning in a way that allows for *individual* worker councils and consumer councils to propose and revise their own activities, which are then approved or rejected by other councils, in a number of iterations as in the annual planning. Particularly, the task of deciding the allocation of the economy's production between consumption and investment for the next five years will, to a greater extent, involve representatives in consumer and worker council federations, and researchers and specialists in R&D units explaining and describing possible alternative scenarios.

Consume today or save and consume more tomorrow?

As we noted in the beginning of this section, the two main issues for the investment planning are as follows: (1) how should the economy's total production be allocated between investment and consumption in the next five years, i.e. how much short-term consumption should society "sacrifice" to be able to invest and, thus, increase future consumption (aggregate investment planning)? and (2) how should next year's investments be allocated between different industries, workplaces, consumer councils, and capital categories (comprehensive investment planning)?

The worker and consumer council representatives in their federations, in consultation with their support units, will discuss and decide the allocation of the economy's production between consumption and investment. Society's stock of capital goods cannot increase unless part of the available

productive resources in a given year is used for the production of capital goods instead of consumption goods and services. In the investment planning, the decision-makers, therefore, need to estimate the benefit that consumers forego today, in the form of lower consumption, if they choose to invest, and compare it with the expected benefit from greater future consumption resulting from investments. Or simply put, society needs to decide how much it wants to "save" instead of consuming.

For this purpose, the National Federation of Consumer Councils (NFCC), with associated R&D units, need to estimate future changes in consumer preferences, i.e. which new and existing goods and services will consumers demand in the future and to what extent, both individually and collectively, based on analyses of historical consumption patterns and by evaluating current research on product development, expected changes in demographics, and average income. The NFWC together with its R&D units need to assess expected productivity and technological development on the basis of current research, work organisation, and expected development of the composition, training, and size of the labour supply, so that the potential future effects of investments today, in the form of increased productive capacity and higher average income, can be estimated. Based on all these estimates and forecasts, a year's planned total production may then be allocated between consumption and investment so that the utility obtained by the year's last consumed good/service is equal to the future utility that a corresponding investment creates by increasing future consumption.

In order to estimate the extra future benefit that aggregate investment in a year will create, the federations will need help from shared support units. They need to assess which industries, goods, and services will produce a positive social return and how large increases of productive capacity are therefore justified, and which industries, goods, and services are not expected to yield a positive social return and whose productive capacity may need to be reduced. As we have noted, these assessments are associated with great uncertainty. The accounting system can, in principle, only provide information about returns for historic, already implemented investments, which at best can provide a rough indication and a starting point for further discussion regarding future investments.

The NFWC need to consider a variety of factors that are more or less difficult to assess, such as expected technological innovation and productivity development in different industries, and changes in consumer preferences. Together with their support units, they need to discuss industry structure in terms of geographical spread, unit size, and production technologies, and in this context especially consider potential economies of scale. They have to consider how quickly individual worker councils can and will implement changes in production technologies, for example, with regard to any need for retraining of labour etc. Perhaps some changes should be implemented step by step to mitigate negative effects for workers and consumers. They also need to assess whether a planned capacity

increase should be achieved through the construction of new production plants or additional investments in existing production units, or via a combination of both. And they need to decide whether a planned capacity reduction should be achieved through closures of production units or an adjustment of existing units' capacity or a combination of both. All these circumstances affect the return on investment and thus the allocation of the production between consumption and investment.

When an aggregate investment plan has been agreed, there is a five-year forecast for the economy's annual total production volume and its distribution between consumption and savings/investments, and investments are tentatively specified by industry and allocated between categories of capital. Besides the NFCC's estimates of consumer preferences and the NFWC's estimates of productivity development and changes in technology, the forecast is also based on assessments of changes in the labour supply and its educational level, international trade, environmental factors, and natural resources. Of course, the actual development of these and all the other parameters will differ from the forecasts in the investment planning. Therefore, after each year's closing when the actual outcome is available, the remaining years of the investment plan may be adjusted based on the new information, which may also result in an adjustment of the current annual plan. If, for example, the productivity development, in reality, is weaker than forecast, perhaps the investments' share of production should be reduced and consumption be allowed a larger share. If productivity development instead is faster than expected, maybe the rate of investment should be increased.

The investment planning procedure and its associated decisions described in this section are, in principle, applicable for all types of investment situations where costs reduce consumption opportunities today but produce benefits in the future, even if the costs are not recorded as assets or, sometimes, not even as expenses, or the future benefits are not as tangible as increased output or consumption of goods and services. Investment in education and environmental assets are two illustrative examples of such investments.

The discount rate: the required rate of social return on capital

The discount rate is a percentage that reflects how much consumers prefer one additional unit of consumption today compared to more consumption in the future, or, put differently, how much extra benefit one postponed unit of consumption will have to give consumers next year compared to the benefit they would receive from consuming that unit today, for consumers to be willing to postpone their consumption. During the aggregate investment planning, when the estimated production volume is allocated between consumption and investment, the annual discount rate is also estimated. From the worker councils' perspective, the discount rate is the required social rate of return on investments and indicates the current opportunity cost of binding capital.

The size of the discount rate will, among other things, affect the individual worker and consumer councils' demand for newly produced capital goods in the annual planning. An investment is socially justified and will be requested by a worker or consumer council if its expected social rate of return exceeds society's discount rate. If an investment's expected social rate of return is lower than the discount rate, the investment is not justified and will not be requested.

This year's investment in new capital assets

During the annual planning, access to already existing and available productive capital assets is allocated between worker councils. But exactly what capital goods that will be produced and delivered during the year based on the previously agreed aggregate investment plan is also decided. When the annual planning starts, the worker and consumer councils know the agreed aggregate investment plan for the year, the estimated discount rate, and the available range of capital goods. Exactly what capital goods that will be produced during the year and in what quantities, their social costs, and to which sets of capital assets they will be added are then decided in the comprehensive investment planning based on the production proposals from producers of capital goods and the requests from worker and consumer councils. Additions from disbanded worker councils will also affect total supply of productive capital assets.

During the annual planning iterations, a worker council, thus, requests two types of manufactured capital goods: (1) productive capital goods that are available at the start of the annual planning and belong to initial sets of capital assets and whose user rights will be distributed and priced during the annual planning, and (2) capital goods that will be produced during the year and added to the worker councils' initial sets of capital assets at the start of the following year's annual planning. A new worker council that will start its production the following year requests only the second type of capital goods in the annual planning preceding its production start. Large and complex production facilities to be constructed during the year may be jointly designed and planned by the worker council and the federation or a federation support unit.

When a worker council decides whether to request a new capital good to be manufactured and added to its set of productive capital assets, it compares the extra social benefit that one more unit of a capital good can be expected to produce with an estimate of the future charged user rights fees for the asset during the same period, which equals the total depreciation of the asset's acquisition cost plus society's discount rate that is charged on the asset's depreciated acquisition cost. Likewise, a consumer council or federation compares the expected additional future benefit that an extra unit of a consumer capital good will provide with the expected future costs in terms of annual depreciations and discount rate on the asset's depreciated acquisition cost.[6]

Investment in new capital goods can aim to increase or improve a worker council's productive capacity or maintain its existing productive capacity by replacing end-of-life assets or, in the case of consumer capital assets, facilitate future collective consumption.

A new productive capital good either is added to an already existing set of capital assets or becomes part of a new set of capital assets that are activated only at the start of next year. If it is added to an existing set of capital assets, it will either (1) replace a scrapped or fully depreciated end of life asset to maintain a worker council's initial productive capacity, in which case it will be activated and put to use immediately upon delivery, or (2) increase or improve a worker council's productive capacity, in which case the asset will normally be activated only at the start of next year. In any case, at the start of next year's annual planning every capital asset that has been manufactured during the previous year, together with every other capital asset, is connected to an initial set of productive capital assets.

The accounting of capital assets

Consumer councils and federations demand new consumer capital assets in the annual planning as part of their collective consumption proposals. Worker councils, as we have seen, get access to productive capital assets in a little different way. When the annual planning starts, the *available* supply of every category of manufactured productive capital assets and natural resources is known and fixed, and every worker council in the economy has access to an initial set of productive manufactured capital assets and an initial set of natural resources, all of which may then be reallocated in the annual planning when the user rights fees are decided.

Sets of manufactured productive capital assets and consumer capital assets

In a capitalist economy, capital assets are part of a company's or organisation's balance sheet. In our accounting model, instead, we account for capital assets in separate accounting entities. We do this for two reasons: (1) we want to emphasize that capital assets are not owned by worker councils or organisations but belong to everyone, and (2) it facilitates the accounting of separate user rights fees, which are set during the annual planning to reflect opportunity costs and may differ from the production cost of the assets. In the case of consumer capital assets, the separate accounting entities facilitate a transparent accounting of costs for capital assets in every public service system, consumer council, or federation. An accounting entity for capital assets gathers economic information in a way that facilitates the allocation and evaluation of capital assets, and the planning of the productive capacity of worker councils and society's long-term development, etc.

As we have already noted, in a participatory economy it is not privately owned companies, capitalists, or creditors who own and control capital assets (e.g. buildings, factories, production plants, machines, tools) or decide what investments society should make or who will get access to them. Instead society's productive resources belong to everybody. And consumer capital assets belong to a consumer council or federation. Accounting entities for sets of manufactured productive capital assets and consumer capital assets correspond, on the lowest level, to the individual workplaces and consumer councils that have access to them, which then, for purposes of analyses, may be consolidated geographically in ever larger federations all the way up to the highest federation levels. Every defined industry and consumer federation may constitute a separate accounting entity for which the sets of manufactured assets are consolidated and monitored.

A worker council has access to capital assets in accordance with the latest agreed annual plan. It gets access to a capital asset by paying a user right fee, the size of which is finally determined in the annual planning. Consumer councils and federations, instead, are charged a fee that equals the sum of the assets annual depreciation plus the charged discount rate on the assets' net book value.

Available funds, production costs of assets, their accumulated depreciation and write-downs, and the balance against the Society Account are recorded in a number of accounts for manufactured capital assets (account categories 1 and 2 in Exhibit 5.3). Journal entries for incoming user rights fees from worker councils and consumer councils, annual depreciation of the assets' production costs, write-downs, and charged discount rates on the assets' net book value are recorded and monitored in a number of accounts under "Social Benefits and Expensed Costs" (account categories 3–5 in Exhibit 5.3). Incoming fees from worker and consumer councils are, in the end, transferred to the Society Account.

EXHIBIT 5.3 Accounting entity for a set of manufactured capital assets

Debit	*Credit*
Manufactured Capital Assets	
1.a. Available funds	2. Balance against the Society Account
1.ba. Production cost – assets	
1.bb. Accumulated depreciation – assets (Cr)	
1.bc. Accumulated write-downs of asset value (Cr)	
Social Benefits and Expensed Costs	
4.a Annual depreciation – assets	3. Incoming user rights fees (UR-fees)
4.b Write-downs of asset value	
5. Discount rate – required social return on assets	
6. Period closing (Dr/Cr)	

A worker council or consumer council gets access to a capital asset

When a worker council gets access to a productive capital asset, it is charged a fee for the right to use the asset, which is determined in the annual planning procedure. A consumer council or federation is charged a fee, which equals the sum of the expensed cost for the asset in the form of annual depreciation and a charged discount rate on the net book value. That way the costs are passed on to the consumer council or federation. If the capital asset belongs to a public service system, no incoming fees are recorded and the cost is borne by society.

When a worker or consumer council gets full access to a capital asset and pays the fee, *the set of capital assets* is credited and its available funds increase with the user right fee. It will record the following entry:

A Worker or Consumer Council gets access to a Capital Asset	
Debit	*Credit*
1.a. Available funds	3. Incoming fees

Addition to a set of manufactured productive capital assets or consumer capital assets

When a set of manufactured productive capital assets or consumer capital assets are expanded, i.e. when a new capital good is acquired and added, the production cost is charged to the asset account. If an existing capital asset is transferred between sets, both the capital asset's production cost and accumulated depreciation are transferred to the new set and booked on relevant accounts. The appropriate journal entry at the time of acquisition is as follows:

Addition to a Set of manufactured Capital Assets	
Debit	*Credit*
1.ba. Production cost – assets	2. Balance against the Society Account

The distinction between betterments/investments, maintenance, and operating costs

There are two demarcation issues when assessing whether a cost should be categorised as a betterment/investment cost and handled in the investment planning or treated as operating or maintenance expense during a year.

A first issue is about the economic lifespan and acquisition cost of the resource. It is only meaningful, with regard to administration, to classify a productive resource as an asset if it has a useful economic lifespan exceeding a certain number

of years and its acquisition cost exceeds a certain amount. Costs for productive resources with a short economic lifespan and/or with a low value could primarily, for the sake of simplicity, be considered operating expenses. If this entails a risk of major incorrect accruals of costs between years, for example, due to large purchase quantities of a low-priced resource, a worker council can accrue costs with the help of accrual accounts, which was described in Chapter 4.

The second demarcation issue is about the very definition of betterments/investments versus expenses for maintenance or repairs of existing capital assets.[7] Maintenance work and repairs refer to activities that aim to prevent damage and to maintain existing assets' operating condition and productivity, or to restore existing assets to their original standard in these respects, but they do not extend the assets' productivity or original useful life. Maintenance normally refers to planned activities, while repairs refer to unforeseen measures. A betterment, on the other hand, extends a capital good's useful life or increases its productive capacity or quality. Costly renovations or betterments of fixed production facilities and buildings could, presumably, in some cases, be requested as maintenance work during the annual planning iterations but recorded in the books as investments, i.e. as an increase of the asset's recorded value and, thus, as we will see, potentially affect the worker councils' charged user rights fees.

Furthermore, an asset – a building, machine, equipment, etc. – can, in many cases, consist of multiple subcomponents that in themselves have long economic lifespans and are expensive to produce. Costs for such components should not always be classified as investments when they need to be replaced but as a repair or maintenance expense for the worker or consumer councils.

Depreciation

Annual depreciation of a manufactured capital asset's production cost is recorded during its economic life. The annual depreciation should reflect the yearly consumption of the asset, and the rate of depreciation is determined by its expected useful life, which is estimated by the industry federations and consumer councils. The useful life of a productive capital asset is largely influenced by (1) the expected change of the asset's maintenance and repair costs, which usually increase with use and age and which ultimately makes newer versions more profitable, and (2) how quickly assets become outdated as a result of new technology. The faster the technology development for a category of productive capital assets, the shorter the economic lifespan and the faster the depreciation rate, as newer and better versions become available at a faster rate, making older versions obsolete.

The account for accumulated depreciation is credited with the depreciation amount based on current depreciation policies, which reduces the asset's net book value and the period's depreciation expense increases. Available funds are not affected by depreciation. Thus,

Depreciation of Assets	
Debit	*Credit*
4.a. Annual depreciation – assets	1.bb. Accumulated depreciation – assets

Scrapping of active capital assets and write-downs of net book value

A consumer or industry federation may, in exceptional cases, decide that a productive capital asset should be scrapped, even though it may still have a net book value, since its continued use is not socially profitable due to unforeseen and permanent changes of the asset's economic lifespan, for example, as a result of faster than expected technological development of comparable assets and, thus, a reduced relative productivity. Alternatively, the depreciation periods could be reduced (and therefore the annual depreciation amount increased), or the net book value adjusted or written down.

A write-down of the value of a capital asset means that the asset is not expected to generate future social benefits to cover even the original acquisition cost, let alone to give any return. Write-downs of consumer capital assets will be a direct cost for the consumer council or federation. Write-downs of productive capital assets may indirectly affect the worker councils' user rights fees, which we will explain later.

Scrapping of an active asset simply means that the net of the asset's production cost and accumulated depreciation is written off against an expense account, by which the expensed social costs of the capital set increase with the assets' net book value. The worker council is not directly affected by this entry.

A write-down of the net book value of an active asset is accounted for by a credit entry in the account for *accumulated write-downs of asset value,* with an offsetting debit entry on a corresponding expense account, which increases the expensed social cost of the capital set. Available funds are not affected. Thus,

Write-Down of the Net Book Value of an Asset	
Debit	*Credit*
4.b Write-downs of asset value	1.bc. Accumulated write-downs of asset value

Charged discount rate – required social return on manufactured assets

A set of capital assets are charged a discount rate on the net book value of the assets, the level of which is set during the investment planning. The discount rate is charged on the net book value (the depreciated cost) of all assets, i.e. the production cost minus the accumulated depreciation, at the beginning of each year,

and is an estimate of the opportunity cost of binding capital. Available funds are not affected. The appropriate journal entry would be the following:

Charge of Discount Rate	
Debit	*Credit*
5. Discount rate – required social return on assets	2. Balance against the Society Account

Period closing

Incoming fees will in the end accrue to the Society Account. At the end of each period, the difference between credit and debit entries in account categories 3–5 is transferred to the account for balance against the Society Account, by a period closing entry

Debit	*Credit*
Period Closing – Surplus	
1. Period closing	2. Balance against the Society Account
Period Closing – Deficit	
2. Balance against the Society Account	5. Period closing

after which available funds, which always correspond to the period's incoming fees, are moved to the Society Account.

Transfer of Available Funds to the Society Account	
Debit	*Credit*
2. Balance against the Society Account	1.a. Available funds

If a set of manufactured productive capital assets show a surplus and the incoming user rights fees cover the depreciation and write-down of the capital assets plus the charged discount rate, the investments accounted for in the set of capital assets have been socially profitable. For sets of *consumer* capital assets, the expensed costs are passed on to the council or federation, and there should be no surplus or deficit. For consumer assets belonging to a *public service system*, no user rights fees are recorded and the annually expensed costs will simply reduce the balance against the Society Account.

Sets of natural capital assets: natural resources and land

Natural capital assets are not manufactured but provided by nature and are called primary goods or natural resources. Some natural resources are in abundance and

easily accessible, such as sunlight and wind, and they are therefore not interesting from an accounting perspective. Others renew themselves and provide recurring returns if they are used in a sustainable way, such as fishing waters, agricultural land, and forests. A third type of primary goods are non-renewable natural resources, e.g. mineral, coal, and oil deposits. Their extraction often requires large investments in expensive *fixed* manufactured capital assets, e.g. specific buildings, which means that it may be difficult to separate the natural resource from the manufactured capital assets that are linked to its extraction. In these cases, the manufactured fixed facilities needed for extraction and the natural resource may, in practice, constitute one unit, the productivity of which is determined by both the design of the facilities and the nature of the natural resource. However, the natural resource and the building could still be accounted for in separate accounts.

Sets of natural capital assets can refer to both renewable and non-renewable natural resources, and land. As in the case of manufactured capital assets, the accounting entities for sets of natural resources and land, at the lowest level, correspond to the physical worker and consumer councils that have access to them, which may then be consolidated in ever larger geographical sectors, all the way up to the industry and regional levels, for analysis and monitoring. Each defined worker and consumer council federation may constitute a separate accounting entity, for which transactions are consolidated and monitored.

Available funds and settlements against the Society Account are recorded on accounts for social assets (account classes 1 and 2 in Exhibit 5.4). Credited user rights fees from worker councils that use land and natural resources are recorded on accounts for "Social Benefit" (account class 3 in Exhibit 5.4) and are transferred to the Society Account at the end of the year.

Natural resources and land are, by definition, not manufactured but provided by nature and, therefore, have no production cost, only opportunity cost. In the development and investment planning, decisions are made about the new natural resources and land that should be made available in the years to come. Worker councils may then bid on these new available resources and land to be added to their individual sets of land or natural resources, either directly, as for agricultural land, or at the start of the following year, if new manufactured capital goods, e.g. buildings, need to be constructed and added to it before it becomes productive.

EXHIBIT 5.4 Accounting entity for a set of natural capital assets and land

Debit	*Credit*
Natural Capital Assets	
6. Available funds	7. Balance against the Society Account
Social Benefits	
4. Period closing	3. Incoming user rights fees

A worker or consumer council gets access to land or a natural resource

When a consumer or worker council gets access to land or a natural resource, it is charged, and the set of natural capital assets is credited, with a user right fee, the size of which is finally determined in the annual planning procedure and reflects the opportunity cost. Thus, the set of natural capital assets records the following:

A Consumer or Worker Council Gets Access to Land or a Natural Resource	
Debit	*Credit*
1.a. Available funds	3. Incoming user rights fees

Period closing

In the end, the incoming user rights fees will accrue to the Society Account. At the end of a period, the total sum of incoming fees is transferred to the account for balance against the Society Account by a period closing entry

Period Closing	
Debit	*Credit*
4. Period closing	2. Balance against the Society Account

after which available funds, which always correspond to the period's incoming fees, are transferred to the Society Account.

Transfer of Funds to the Society Account	
Debit	*Credit*
2. Balance against the Society Account	1.a. Available funds

User rights fees for different categories of land and natural resources are tracked and recorded. Based on this information, the economy's actors prepare plans for the future use of available land and natural resources. When making such decisions, society needs to consider other aspects that are much harder to assess as well, such as the effects on the environment and the interests of future generations.

User rights fees

To all intents and purposes, the economy's available productive resources and production technologies are given when the annual planning procedure starts. It is this situation – that society's total productive capacity is known

and specified by industry, technology, down to individual capital assets – that makes it possible to estimate opportunity costs and social costs with some accuracy during the annual planning iterations. However, at the start of the annual planning, the final allocation of productive capital resources between worker councils has not been finally agreed on but every worker council has a provisional access to an initial set of capital assets. At this stage, individual units of capital assets, e.g. production plants can be spoken for by more than one worker council. The final allocation of user rights to productive capital resources between worker councils for the coming year is then done in the annual planning and implemented during the year.

One important task for an accounting system in a participatory economy is to define and quantify every worker council's unique productive capacity at any time during the annual planning and its implementation. In simple terms, a worker council's productive capacity is defined by its members' training and skills and the productive capital assets and resources that the council has access to, e.g. land, buildings, facilities, machinery, and tools. Every worker council has access to a unique set of physical productive capital assets and a unique group of members, and hence has a unique productive capacity. Since the worker councils' production proposals are judged and compared based on SB/SC ratios, the accounting system must identify and quantify differences in productive capacities for different worker councils in order for the comparisons to be fair. A greater productive capacity means greater requirements for delivered social benefit.

The fees for user rights to different categories of capital assets play a crucial role when the productive capacities of worker councils are estimated and compared. The goal is for the prices to reflect, as exactly as possible, the opportunity cost of using different categories' capital assets. To achieve this and make the comparison of different production proposals fair, the categorisation of capital assets must facilitate a pricing that reflects differences in their capacity and productivity. A category of capital with higher productivity should be more expensive to use compared to one with lower productivity.

It is not possible to capture and quantify all factors affecting the productivity of resources. For instance, we cannot quantify and measure the effects of better or worse social relations or well-developed routines in the workplace, both of which can have a major impact on productivity. But with a well thought out categorisation of capital assets, the chances increase for a fair and efficient estimation of worker councils' productive capacity.

Manufactured productive capital assets

The user rights to the economy's productive capital assets for the year to come are allocated to worker councils during the annual planning. Every worker council identifies, as part of its production proposal, which parts of society's total stock of capital goods it wants to get access to. They start from their initial set of

capital assets, i.e. the assets that they have access to at the beginning of the year, including new assets manufactured and delivered in the previous year according to last year's comprehensive investment planning, and then identify which categories of assets they want to add or reduce. In each new iteration, they can adjust their proposed sets of capital assets in the light of price changes, i.e. changes in their opportunity costs, and other circumstances. Extensive changes in a worker council's set of capital assets may cause additional costs in the form of set-up costs, education, restructuring of work routines, etc. that the worker council needs to consider when it prepares its production proposal.[8]

There are a number of circumstances present when pricing user rights fees for access to manufactured capital assets that are not present in the pricing of consumption and intermediate goods, which can make it more difficult for the annual planning procedure to generate prices that accurately reflect opportunity costs[9]:

1 Long-lived productive capital goods are not replaced or traded as frequently and in the same way as consumption and intermediate goods. Fixed productive capital assets are usually closely tied to individual worker councils. They are often physically connected to the ground where they sit, which makes them immovable, e.g. buildings, facilities, fixtures, and installations. And many worker councils are, more or less, tied to one workplace. Other capital assets are more mobile, e.g. lighter machines and tools, and various types of vehicles, trucks, tractors, and wheel loaders, even though their primary purpose, once installed, is not to be traded.
2 Capital assets have long economic lives, which means that two capital assets produced in different years with the exact same functionality and capacity, i.e. with the same opportunity cost, may have cost society different amounts to produce if prices change between years, which means that an asset's historic production cost cannot be the basis for its user right fee. The social cost of producing a capital asset is not necessarily the same as its opportunity cost.
3 The opportunity cost of an active productive capital asset may change over time as it ages, for instance, as maintenance and repair costs increase as a result of wear and tear or as newer and more productive technology is developed and becomes operational.

When pricing user rights fees for manufactured productive capital assets, it may, therefore, at the beginning of each annual planning, be helpful to start from a calculated "base fee", which will reflect differences in age of assets and, at the same time, disregard differences in historic production costs due to different production years, in a way we explain below. This base fee will then, if possible and needed, be adjusted with a percentage in the annual planning iterations, until there is no excess supply or demand for any of the different categories of capital assets.

Pricing of user rights fees for manufactured productive capital assets

The economy's available manufactured productive capital assets can, and should, be categorised based on their functionality and capacity. All manufactured productive capital assets that exist in the economy – buildings, facilities, machines, tools, and any other production equipment – are thus, according to this model, categorised based on a hierarchy of two different dimensions: (1) functionality, which is a coarse categorisation, and (2) capacity and productivity, which is a more detailed breakdown of the functionality categorisation.

Categories of some *fixed* capital assets may, in practice, consist of only one unit, for instance, a building or a large-scale, complex, and customised production plant (excluding, of course, any movable machines and equipment inside the building or plant), while other categories may consist of a large number of units, i.e. machines with a similar functionality and capacity.

Categorisation of Manufactured Capital	
Dimension 1	Functionality
Dimension 2	Capacity/productivity

In the books, each individual capital asset has (a) a production cost that corresponds to society's historical cost for producing the asset, (b) a depreciated cost equal to the production cost minus the accumulated depreciation and write-downs, and (c) an annual depreciation expense that is calculated based on the asset's economic lifespan. In addition, a discount rate is charged annually, on the asset's net book value at the beginning of each year. As we have seen, the discount rate is decided in the investment planning and reflects the economy's required average social return on investment and is the estimated opportunity cost for binding capital.[10]

As noted, the pricing of user rights fees for different productive capital assets could, each year, start from a calculated "base fee", which, to the extent possible, should reflect an asset's new *calculated* opportunity cost. For categories of capital assets where each individual asset's productive capacity declines with age, the base fee for each asset could be calculated as follows:

The annual depreciation of the production cost of ***the most recently produced unit*** *of the asset plus the discount rate charged on the depreciated cost of the asset at the beginning of the year.*

Thus, in this context, the depreciated cost should be calculated based on the production cost of the *most recently* produced unit, or alternatively, an *estimated* current replacement cost, and *not* on the historical production cost, since the historical production cost may vary between years for otherwise identical assets.

A capital asset with an economic life of ten years, which was acquired four years ago, and at the time cost 80,000, but last year cost 100,000 to produce, will have a calculated depreciated cost of 60% of 100,000, i.e. 60,000 (and not

60% of 80,000). The adjusted annual depreciation is 10,000 (and not 8,000). Of course, for some categories, the historical production cost might be the only, or most appropriate, alternative, for example, for unique and complex production facilities that are very rare and for which an accurate replacement cost would be very hard to correctly estimate.

With this model, the calculated base fee of older units will be lower, compared to newer units of the same kind of assets, as their depreciated cost, and therefore, their required social return is lower, which can be assumed to reflect a declining productivity over the years due to wear and tear and increased maintenance costs and outdated technology compared to newer units. If instead the productivity of a capital asset is expected to be reasonably stable throughout its economic life, the discount rate could be charged on the production cost (historic or current), not the depreciated cost.

For new productive capital assets that are manufactured during the year and, in many cases, for existing older fixed assets as well, the calculated base fee could be the best estimate of their opportunity cost. However, when possible, the base fee should, of course, always be adjusted during the annual planning iterations based on differences in demand. A percentage adjustment will apply to the base fee of every asset in the category. More productive capital assets will be in higher demand and be given a higher user right fee per unit than less productive assets until there is a balance between supply and demand for all capital categories. The fees will therefore reflect the capital assets' opportunity costs. It is especially important that user rights fees correctly reflect the capital assets' opportunity cost if the worker councils' SB/SC ratios will form the basis for capping members' compensation for work performed, as described in Chapter 3.

Regardless in what way the user right fee is finally determined, the goal is that a worker council that plans to use relatively more productive assets should have to produce more social benefit than a worker council planning to use less productive assets, to get its production proposal approved by the other worker councils.

Primary goods: land and natural resources

When it comes to land and natural resources, worker councils will demand user rights to particular and specific plots or deposits that are identified by their address, i.e. location. Each unit will be assessed based on its unique features. Hence, there is no need for any further categorisation. Put differently, each identified plot or deposit is a separate category. As already noted, the use and extraction of

EXHIBIT 5.5 User right fee for a manufactured capital asset

Base fee = Annual depreciation + Discount rate charged on depreciated cost	+	Any percentage adjustment during the annual planning	=	User right fee

many natural resources, e.g. mineral deposits and land for housing or commercial buildings, often require investment in manufactured *fixed* not movable capital assets, which will be added to the land or deposit and, in practice, constitute a unit that worker councils bid on, even though they have separate accounts in the books.

For land that is used for housing or commercial buildings, geographical location is often of great importance. Two worker councils that provide the same kind of service or housing and consume the same amount of resources can have very different opportunities to generate social benefit, depending on location, for example, in relation to customers and other circumstances. The geographical location, in these cases, affects the productivity of capital assets and other resources.

The aim is that user rights to land and natural resources with better location or higher returns and the use of which requires fewer and/or cheaper resources will have a relatively higher demand and thus get a higher price, while user rights to categories of land and natural resources with an inferior location or lower quality that yields lower returns and/or the use of which requires more and expensive resources will have a lower demand and be given a relatively lower price. In this way, the price of user rights for different plots of land and natural resources will reflect the opportunity cost.

Notes

1 For a comparison, see Appendix 2, in which we describe investment in a capitalist market economy.
2 See chapter 13 in Hahnel (2021, forthcoming) for a more detailed account on education planning.
3 See chapter 14 in Hahnel (2021, forthcoming) for a more detailed account on environmental planning.
4 For a longer discussion of the 50% rule, see chapter 8 in Hahnel (2005), and for a detailed account on participatory international planning, see chapter 15 Hahnel (2021, forthcoming).
5 For a comprehensive explanation of the investment planning in a participatory economy, see chapters 11 and 12 in Hahnel (2021, forthcoming).
6 As a comparison, see Appendix 2 for the most commonly used investment calculation methods in today's capitalist economy.
7 Already in our present capitalist economy, this is a grey area with floating boundaries that potentially has significant accounting implications.
8 Some installations and redistributions of capital assets may take some time to implement. A worker council will, of course, not be charged a user right fee until it gets full access to a capital asset. In the annual planning, a worker council will have to assume an expected delivery time, which may be announced by the IFB or some other support unit.
9 The issue at hand is equivalent to the problem of valuation of fixed capital assets in a capitalist economy (see Appendix 1). For a more comprehensive description of alternative methods of valuation of fixed assets today, see, for instance, chapter 9 in Granhof (1985).
10 The production cost, accumulated and annual depreciation, write-downs, and discount rate on capital assets are recorded in the accounting entities for the sets of capital assets that we described above.

References

Granhof, M. H. (1985). *Financial Accounting. Principles and Issues*. Princeton, NJ: Prentice-Hall.

Hahnel, R. (2005). *Economic Justice and Democracy: From Competiton to Cooperation*. New York: Routledge.

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6

THE SOCIETY ACCOUNT

The Society Account records and tracks society's aggregate income and how it is used. Together with the CAP (Communities of Affected Parties) accounts, it indicates the composition of the gross domestic product (GDP) of a participatory economy.[1] It provides a summary statement of the economy's different sources of income and how the income is allocated between consumption and investment.

The total value of a participatory economy's income in a year equals the sum of all paid and recorded (1) fees for access to labour, (2) user rights fees for access to manufactured capital assets, (3) user rights fees for access to natural resources and land, (4) operating surpluses or deficits from worker councils, and (5) fees for emissions of harmful pollutants.

As we saw in Chapter 3, fees for emissions of harmful pollutants and compensation to affected parties are recorded and tracked in separate CAP accounts, but all other paid fees for access to productive resources, and surpluses from worker councils, accrue, in the end, to the Society Account and are registered as credit entries. The sum of all recorded fees and surpluses in a year will equal the sum of the economy's total consumption and investment, after adjustments for international trade transactions. Workers' compensation for work performed, consumers' income from national benefit programmes, and costs for public service systems are all recorded as debit entries in the Society Account. Net savings, including repaid loans, in the consumer sector is booked in credit, and net borrowing, including reduced savings, is booked in debit. Funding of investment expenditures for productive capital assets, consumer assets, inventory, and non-productive and non-capital assets are all recorded as debit entries.

To correctly reflect and equal society's *domestic* income (or production), the total sum of consumption and investment needs to be adjusted for international transactions. Any price differences from international trade due to differences between export and import prices and the internal prices determined in the

EXHIBIT 6.1 The society account

Debit	*Credit*
Consumption and Investments	*Society's Income*
1. Workers' compensation for work 2. Consumers' income from national benefit programmes 3. Consumers' net savings (Cr) or net borrowing (Dr) 4. Costs for public service systems 5. Investments in productive capital assets, consumer capital assets, inventory, and non-capital and non-productive assets	1. Fees for access to labour 2. Fees for access to manufactured capital assets 3. Fees for access to natural resources and land 4. Operating surpluses (Cr) or deficits (Dr) from worker councils
International Price Differences and Trade Balance (Adjustment of Consumption and Investment):	
1. Negative price differences (export subsidies) in international trade 2. Net export to external economies	1. Positive price differences (import tariffs and export fees) in international trade 2. Net import from external economies

annual planning are recorded in credit ("import tariffs" and "export fees") and debit ("export subsidies"), respectively. Positive balances from international trade, including consumption by travelling consumers, valued at external prices are booked in debit and negative trade balances in credit.

Society's income

Operating surpluses from worker councils will, presumably, be relatively small in a participatory economy. In individual years, however, general surpluses can potentially arise in industries that meet a high demand if the fixed productive capacity is not commensurate with demand of the industry's products. As a rule, though, it is the fees for access to labour, capital assets, natural resources and land that represent the largest sources of income in a participatory economy.

Social return on implemented investments

In the aggregate investment planning, the economy decides on the allocation between investment and consumption, and in the comprehensive investment planning, worker councils demand capital goods to be produced during the year. In this context, the actors need to get an idea of the expected social return on alternative investment options and weigh different arguments, opinions, and alternatives against each other.

It is, as we have noted, difficult to estimate the future social benefit from investments. Worker councils and their federations can get some guidance, albeit insufficient, from information about earlier implemented and still active investments in productive resources. Paid user rights fees for assets and surpluses from worker councils, recorded in the Society Account, can be summed up and compared to the historic investment cost and the depreciation of the corresponding capital assets, which are recorded in the sets of capital assets. This can be done for the economy as a whole, a specific industry or geographical region, and give an idea of the social return on different implemented investments (SROI).

Consumption and investment

Consumption

Total consumption in the economy is equal to *consumers'* total income, adjusted for their net savings or borrowings. The total income includes remuneration for work, compensation for harmful pollutants, income from national benefit programmes, and free-of-charge public services, such as health care and educational systems, all of which, except compensation for harmful pollutants, generate debit entries in the Society Account. Income may be redistributed between consumers based on special requests in the neighbourhood councils, but this does not generate any entries in the Society Account.

Investment

Investment refers to funding of costs for the production of capital goods and is provided through the Society Account. Investment in manufactured productive capital goods aims to improve or replace worn-out, depleted, and fully depreciated capital assets that worker councils use in their production of other goods or services, or increase their productive capacity. Consumer capital goods are long-term consumer assets, such as hospitals, museums, libraries, and public swimming pools that facilitate future consumption of services. In the Society Account, the economy's total investment also includes the worker councils' investment in non-productive and non-capital assets and inventory.

Price differences and trade balances in international trade

Before the start of every annual planning, prices for exported and imported goods are set, based on prices on international markets and taking into account the 50% rule, as described in Chapter 5. These prices are fixed and do not change during the annual planning. Thus, when the annual planning starts, there are fixed and independent external purchase prices for all goods that are imported and external selling prices for all goods that are exported. If the economy is an open economy

with no trade restrictions, the annual planning will, guided by these prices, the terms of trade, generate appropriate volumes for export and import.

However, since a participatory economy is not an economy with completely free import and export but an economy that agrees on international trade guidelines, considers harmful environmental effects from trade, occasionally promotes domestic production and exports, and aims for a trade exchange in balance without long-term surpluses or deficits, international trade volumes will be restricted compared to a totally open economy without any trade restrictions. This means there can also be price differences between the "internal" prices of tradable goods, which may be affected by any decided tariffs or subsidies, and the import and export prices for the same goods, which are fixed based on international markets. Furthermore, prices on the international markets will change during a year independent of the annual plan, which means that price differences during the year can deviate from planned price differences in the annual plan.

When a worker council in a participatory economy exports or imports goods, the prices used in the annual planning are credited or charged. Any differences between these prices and the actual export and import prices are booked as "price differences" in the Society Account. If the prices that are charged to worker councils for imported goods exceed the external import prices, positive price differences arise (tariffs on the imported goods), which show up as credit entries. In the end, it is the consumers that pay for import tariffs.

If the prices credited to worker councils for exported goods are less than the external export prices, there are also positive price differences (export fees), which generate credit entries. If instead the prices credited to worker councils for exported goods exceed the external export prices, negative price differences arise (export subsidies), which end up as debit entries.

Trade balances with external economies

A participatory economy may aim for a balanced international trade exchange, i.e. the total value of imports that matches the total value of exports, with no long-term surplus or deficit. However, this may be difficult or even undesirable to achieve for every individual year. If the value of exports of goods and services in the economy is greater than the value of its imports during a year, there is a positive trade balance and the economy "invests" in claims abroad. The value of this "investment", the trade surplus, is registered in debit on the Society Account. If, instead, the value of an economy's import of goods and services is greater than its exports, there is a correspondingly negative trade balance, and the economy's debt abroad will increase (foreign claims on the economy). The value of a negative trade balance is credited to the Society Account.

Note

1 In our accounts, society's income equals GDP. For comparison, see chapter 2 in Pulsinelli (1986) or any textbook on macroeconomics for a discussion about how to measure economic performance and GDP in a capitalist economy.

Reference

Pulsinelli, R. L. (1986). *Macroeconomics*. New York: Harper & Row Publishers.

CONCLUSION

Any economy has to organise society's production and consumption, facilitate economic decision-making, and allocate both the benefits and the burdens resulting from economic cooperation among its population. In order to fulfil these tasks, an economy needs to establish a number of institutions, which simply are sets of interrelated roles that define the actors' expected behaviour in different situations. For example, *the market* is an essential institution in a capitalist economy, which defines two roles – "buyers" and "sellers" – that members of the economy can assume and whose activities form patterns of expected behaviour. While fulfilling the above-mentioned functions, in order to evaluate the performance of an economy and its institutions, we need to have an idea of what our goals are and what values we want the economy to promote.[1]

A participatory economy is defined by four institutions: (1) self-managed worker and consumer councils and their federations, (2) balanced jobs, (3) compensation based on effort and need, and (4) a democratic allocation model that is called participatory planning. These institutions are designed to promote six fundamental values or goals: economic democracy, economic justice, efficiency, solidarity, diversity, and ecological sustainability. Such an economy differs from a capitalist, a market socialist economy and a centrally planned economy in several important respects and the information that a participatory economy's accounting model needs to provide is therefore very different.

In a participatory economy, there are no private equity owners or shareholders who own factories and other production facilities, and who control what is produced and how it is produced, and who strive for maximum personal return on private investment without considering any negative effects on others in society. Goods and services are not traded in a market where individual buyers and sellers try to maximise their own profits at the expense of others in society. Nor are there any private banks or other lenders who control access to credit and thus

control investment opportunities for all those who do not have access to private assets. There are no groups of workers whose sole duty is to obey orders or to exclusively perform monotonous tasks, while other workers make all the decisions and monopolise empowering tasks and access to information. And there are no workers who receive hundreds of times more income than other workers. Any differences in compensation are relatively small and based solely on differences in effort or sacrifice.

In a participatory economy, those who are affected by the decisions have influence over them to the extent that they are affected. Consumers propose and adjust their consumption – both private and public – through their consumer councils and federations, and ensure that other consumers' proposed consumption is fair, i.e. whether it is proportionate to their effort and sacrifice. Producers propose and adjust their production through their worker councils and industry federations, and decide whether other worker councils' proposed production is efficient, i.e. that the produced social benefit exceeds the social cost. Representatives of both consumers and producers plan the long-term development of the economy and decide on investments in future productive capacity. Society's productive resources in the form of manufactured and natural capital belong to everyone in society. In order to obtain access to use these commonly owned resources, producers have to demonstrate that they will use them in an efficient and socially responsible way.

For consumers and workers to be able to make all these decisions in a fair and efficient manner, the accounting system has to be designed in a different way than in today's capitalistic economy and provide different information and economic indicators. For producers to be able to assess whether their own and others' production proposals are efficient and socially responsible, costs and benefits for various economic activities have to reflect *social* costs and benefits of activities, and not as today the individual buyers and sellers' costs and benefits. The cost of using society's productive resources must reflect true opportunity costs, which is the alternative social benefit "sacrificed" or foregone when a productive resource is used in a particular production. Consumers must have access to information that enables them to assess whether their own and others' consumption is fair, i.e. if their efforts justify the proposed and actual consumption. And when society is planning future investments in productive capacity, the potential social rate of return must be prioritised, and not private investors and lenders potential to maximise profit.

We have in this book outlined an accounting model that meets a participatory economy's information demands. We have identified the main accounting entities and how different economic transactions can be monitored and recorded in a way that gives the actors in the economy access to information that create the best possible conditions for democratic, fair, and effective decisions. Decision-makers in the economy need to be able to quickly form an opinion on the economic impact of different economic activities, projects and investments, and who will ultimately be burdened with costs and who will enjoy the benefits.

An important and prominent aspect has been to discuss the classification of goods, services, labour, and productive resources for accounting purposes – on what grounds it should be done – in order for the annual planning procedure to result in prices that reflect social costs and opportunity costs as accurately as possible. In this context, we have proposed accounting solutions to issues relating specifically to the planning, monitoring, and accounting of economic activities in a participatory economy, for example:

1 The fees that the individual worker councils are charged for the use of different categories of labour are not correlated, as in a capitalist or socialist market economy, to the income that individual workers receive. Worker councils are charged fees for using different labour categories according to their opportunity cost as revealed during the annual planning procedures, while members' compensation is based on their effort and sacrifice as judged by co-workers.
2 Consumers and producers have different needs and requirements for how the categorisation of goods and services should look like. Consumers want a few coarse categories with as few details as possible when preparing their consumption proposals during the annual planning procedure. Producers, on the other hand, need to consider potential differences in resource usage for production of different versions of goods and services when preparing their production proposals and therefore need to work with more detailed information.
3 The cost that worker councils are charged for access to society's productive capital – the fees for user rights to various categories of capital – is not, as in capitalist market economies, the same as the capital acquisition cost (or depreciation thereof). In a participatory economy, the worker councils do not own productive capital, which belongs to all citizens in society. The user rights fees that are charged to worker councils for their access to different categories of capital reflect the opportunity cost of using the capital good as determined during the annual planning procedure, while the decisions to produce productive capital (and thus determine the supply) are handled in the investment planning procedure by representatives of consumers and producers and are based on estimates of the social rate of return on investment.
4 The costs of harmful effects on the environment caused by producer and consumer activities are not borne, as in capitalist and market socialist economies, by a third party – the community – but by those who cause them. And those who suffer from the adverse effects are compensated. The size of the costs of harmful effects and of the compensation that the affected parties will receive are determined during the iterations in the annual planning procedure.

The distribution of the economy's total production between investments and consumption and the distribution of investments between different industries

are fundamental issues that have a major impact on the economic development of all economies. Economies with different values and institutions will handle these issues in different ways. In a capitalist market economy, these decisions are made primarily by a small group of powerful private capital owners who make decisions based on their ability to maximise the return on their invested funds. In a participatory economy, instead it is representatives from self-managed worker councils and consumer councils and their federations, who, in a separate participatory investment planning procedure, discuss and decide on the scope and direction of the investments based on the values of a participatory economy; economic democracy, justice, solidarity, diversity, and ecological sustainability. The investment decisions of a participatory economy aim to maximise *social* return on investment and not private return as in a capitalist market economy.

Investment decisions affect the economy for a long time after their implementation since capital assets have long economic lives and, thus, bind capital for a long time, and they also often require large resources to implement, which together means that their implementation entails a greater risk-taking and a greater uncertainty compared with the planning of production and consumption of other resources handled in the annual planning. Consumption propensity and preferences of future consumers, and the economy's development of technology and productivity must be estimated based on incomplete information, which requires a greater element of discussion and argumentation based on different views and assessments. It is therefore reasonable that the main actors in the investment planning on an aggregated level are the representatives of worker and consumer councils in their federations, who argue for different options before making decisions.

Investment planning creates the conditions for the annual planning. The planned allocation of the economy's production between investment and consumption, and the distribution of investments between industries, defines the production capacity of the economy for the coming years. Furthermore, during the aggregate investment planning, an estimated discount rate on capital for the economy is calculated, i.e. the economy's opportunity cost of binding capital, as well as a base compensation per hour worked for the coming year, which is the starting point for calculations of compensation for work that is socially beneficial.

The high ambitions of the participatory economy model, in terms of economic democracy and justice, have sometimes been met with scepticism. The objections have not primarily been about the model's logic but about its feasibility, e.g. the possibility to implement balanced jobs and effort ratings in a fair and efficient manner, and maybe above all the demands placed on consumers to plan and communicate their consumption preferences in advance for the coming year, which many consider to be unrealistic. It is important to understand and accept that any future implementation of such institutions will always to some extent be approximations of the vision's descriptions, but that it is quite possible to get close enough for it to be motivated to try.

By attempting to provide concrete solutions to real-world problems, our aim with this book has been to help convey a feeling that alternative non-capitalist economic systems are possible and that alternative visions don't need to be lofty utopias that only unrealistic romantics are interested in. We believe that such a discussion is absolutely necessary for the credibility of our visions and goals. Most importantly, we hope to inspire and encourage further constructive discussions about how economic visions guided by the values of democracy, justice, and sustainability can be implemented on a practical level.

The implementation of a new accounting system is, of course, not a task that has, or should have, a high priority in a situation where the daily resistance to the capitalist system is mainly focused on mitigating its worst effects. However, in a situation when we can start to build alternative institutions such as self-managing workplaces and consumer associations, or participatory budgeting procedures for parts of our collective consumption, visions, and ideas about how we can collect, sort, and present economic information in order to promote democratic decision-making and economic cooperation can have a positive and favourable effect on the development of these institutions. In any case, the future accounting system, in the sense of society's overall accounting principles, will likely continuously change and evolve, and reflect but also affect the development of economic key institutions such as the ownership of productive resources, allocation systems, compensation models, and division of work tasks.

Note

1 For an excellent introduction to economics (political economy) and various tools to analyse and evaluate economies, see Hahnel (2014).

Reference

Hahnel, R. (2014). *The ABCs of Political Economy. A Modern Approach*. London: Pluto Press.

APPENDIX 1

ACCOUNTING PRIMER

Economic transactions, journal entries, and accounts

Accounting is about keeping notes of *economic transactions* in order to be able to account for *assets* (cash, receivables, inventory, equipment, machines, buildings, land, etc.) and *liabilities* (payables, bank loans, bonds, etc.) at a certain point in time, and *revenues* and *expenses* during a certain period. An economic transaction may include selling or purchasing a product or a machine, taking out a loan from a bank, or making a payment on a debt.

One usually distinguishes between single- and double-entry bookkeeping. *Single-entry bookkeeping* means that a business transaction is registered only once in one account based on what the transaction refers to. *Double-entry bookkeeping* means that a transaction is recorded twice on two different accounts. By using double-entry bookkeeping, it is possible to both identify a transaction's effect on the financial position, for instance, an increase in assets, and at the same time identify *the cause* behind a change, for instance, increased revenues or a reduction in another asset.

Economic transactions are recorded in a number of different *accounts* in a general ledger, which specify what the transactions refer to in more detail. Each account has two sides: a left side called *debit* and a right side called *credit*. In double-entry bookkeeping, the sum of all registrations in debit must always equal the sum of all registrations in credit, both for every individual entry and totally for all entries, i.e. the accounting transactions must balance.

Example of a journal entry:

Cash (Assets)		
Debit	*Credit*	*Text*
10,000		Computer sold – inflow of cash

In double-entry bookkeeping, the same post is also registered on an account for Sales in credit:

Sales (Revenue)		
Debit	*Credit*	*Text*
	10,000	Computer sold – increased revenue

Combined these two entries make up the total journal entry:

Account	*Debit*	*Credit*	*Text*
Cash	10,000		Computer sold – inflow of cash
Sales		10,000	Computer sold – increased revenue

Normally, there are four different **categories** of accounts:

1 Assets (balance sheet)
2 Liabilities and equity (balance sheet)
3 Revenues (income statement)
4 Expenses (income statement)

Assets can be cash, receivables, prepaid expenses, buildings, machines, and equipment. An increase in the value of an asset is recorded in debit and a decrease is recorded in credit.

Liabilities may be different types of account payables or bank loans, bonds, or loans from other credit institutions. An increase of a liability is recorded in credit and a liability reduction is recorded in debit. Equity is the owners' claim on the net assets.

Revenues normally correspond to an inflow of assets and are recorded in credit. *Expenses* normally correspond to consumption of resources and are recorded in debit.

The relation between debit entries and credit entries

A journal entry in debit must always be matched by an equally large entry in credit, which means that an increase of an asset must always be matched by (1) a decrease of another asset or (2) an increase of a liability or (3) a revenue increase or (4) an expense reduction. An increase of a liability must always be matched by (1) an increase of an asset or (2) a decrease of another liability or (3) a revenue reduction or (4) an expense increase in accordance with the following table:

Account No.	*Account Category*	*Debit (Left)*	*Credit (Right)*
1	Assets (balance account)	↑ Increase	↓ Decrease
2	Liabilities and equity (balance accounts)	↓ Decrease	↑ Increase
3	Revenues (income statement account)	↓ Decrease	↑ Increase
4	Expenses (income statement account)	↑ Increase	↓ Decrease

Balance sheet

A statement of all assets and liabilities at a specific time, usually 31st December, is called a *balance sheet*. Assets and liabilities can be both current and non-current. A current asset is an asset that is expected to be transformed into cash within a year, e.g. accounts receivables and inventories. Non-current assets are assets that cannot be expected to be transformed into cash within a year, for instance, production facilities and plants, machines, and equipment. A current liability is expected to be settled within a year, i.e. account payables, wages, and salaries owed to employees. Non-current liabilities are long term and include long-term bank loans and bonds. The difference between assets and liabilities, the net assets, is called the shareholders' or owners' equity.

Income statement

A statement of revenues and expenses during a period, usually 1st January– 31st December, is called an *income statement*, or sometimes a profit and loss account. The difference between revenues and expenses in a given period corresponds to the change in net assets (i.e. total assets minus total liabilities) in the balance sheet during the period. If revenues are greater than expenses, there is a profit and the assets have increased, and if expenses are greater than revenues, there is a loss and net assets have decreased during the period.

Accruals

Accrual is the method by which revenues and expenses are recognised at the time that they have their economic impact, not necessarily when payments are made and costs occur. Revenues should be assigned to the period when a good is delivered or a service is rendered. Costs are charged as expenses to the period when the organisation benefits from them. Costs are usually incurred to generate revenues and should, thus, to the extent possible, be matched to the revenues to which they are related. Accounting of prepaid expenses as assets such as prepaid office rent, and changes in inventory value and annual depreciations of fixed assets are all examples of accruals of costs to match them with the related revenues.

Valuation of long-lived fixed assets

At the very heart of accounting theory is the issue of asset valuation. Should long-lived fixed assets such as production plant assets and buildings be valued and reported at historic value, current replacement value, or market value? The difference may be substantial. Which method is most useful for different stakeholders? Each method has its pros and cons, but "historic value" is most commonly used since it is readily verified.

Another discussion regarding long-lived assets is about alternative depreciation methods, such as the straight-line method, which is the most commonly used method, and different versions of the accelerated depreciation method and the declining balance method. They each represent a different way of allocating the total value of an asset over its useful life.

Inventory valuation

How to value and record inventory is primarily about two issues: (1) the allocation of total production cost, including fixed costs, to different products and work in progress, in a way that reflects their true consumption of the resources, and (2) the assessment of the flow of products and their production costs. The first issue is of great importance, not only for the valuation of inventory but also for the market pricing of different products, and is, therefore, a much prioritised area of management accounting theory. The second issue arises because production costs of goods do not remain the same over time. It is, therefore, sometimes necessary to make assumptions about which goods have been sold and which remain at hand, those with higher costs, or those with lower costs. Examples of different methods to determine this are (a) specific identification (if possible); (b) first in, first out; (c) weighted average; and (d) last in, first outs.

APPENDIX 2

INVESTMENT IN A CAPITALIST MARKET ECONOMY

Investment is necessary for economic and technological development, and for the creation of productive capacity and future consumption. An investment is a sacrifice, usually in the form of a monetary cost, which is expected to generate income, or other benefits, in the future. One usually distinguishes between financial, real, and intangible or immaterial investments. Financial investments are investments in securities in the hope for a value increase and future dividends, real investments are investments in physical capital assets such as buildings and machines, and intangible assets can be patents, trademarks, and copyrights. For individuals, investments today often mean buying different types of financial securities. However, the largest investment for many ordinary people is their purchase of a home. Purchases of long-term consumer goods such as cars, motorcycles, TV sets, and refrigerators are, sometimes, considered private investments, although the future benefits in these cases may not be primarily of a monetary nature.

In the field of economics, investment usually means expenditures that increase the number of real assets in society, e.g. production facilities, machines, and housing. For an economy's total amount of real assets to increase in a given year, the investments made must exceed the consumption of existing assets in the same year, i.e. net investments (investments minus depreciation) must be positive. In today's society, public investment policy is often about stimulating or cooling down private actors' propensity to invest and consume and, thus, affect the total demand via interest rate adjustments and monetary policies to achieve prioritised inflation targets. At a more general level, society's investment decisions are about (1) how much consumption do we, as a society, want to refrain from today – save – to enable more consumption in the future, i.e. how should the relation between saving/investment and consumption look like, and (2) how should our investments be divided between different areas and industries.

The extent and focus of society's total investment in a capitalist market economy are, to a large extent, determined by private capital owners and credit

institutions, which individually make investment decisions based on their potential private return on invested capital without any regard to social effects. In the business world, investment in real assets corresponds to the acquisition of means of production, e.g. factories, machines, and tools, with an economic lifespan of more than one year. An increase of a company's inventories is also an investment. In addition, a company can invest in marketing, research, human resources development, etc., in the hope that such activities will increase future revenues or reduce future costs. However, such expenditures are not always treated as investment (assets) in a company's balance sheet but are often recorded as expenses in the income statement.

Investment calculations

A company that wants to invest in productive capital assets or conduct research and needs funding must be able to show that the expected future revenues exceed the costs in order for owners and other creditors to deem the investment profitable and put up or set aside capital for the funding. A company's investment calculations for determining the profitability of an investment only consider the company's own revenues and costs, and not any potential positive or negative social effects, or other effects on third parties that follow from the investment.

Today's most common investment calculation methods for assessing whether an investment is profitable are (a) the present value method, (b) the internal rate of return (IRR) method, and (c) the pay-off method. **The present value method** means that all expected payments due to an investment, including the original investment amount, are discounted to the same point in time, e.g. the time of the initial investment, using *a discount rate* corresponding to the annual rate of return that an alternative use of the investment amount would give. If the value thus calculated – the present value of the investment – is positive, the investment is profitable. Otherwise, alternative investments are preferable. The greater the value, the more profitable the project. **The IRR method** involves calculating the discount rate at which the present value of the investment is zero. This discount rate corresponds to the investment's average annual return on investment (ROI). **The pay-off method** is the easiest calculation method and simply involves calculating the time required for the invested capital to be repaid. The shorter the time, the more profitable the investment.

Investment decisions are subject to great uncertainty and risk, and will inevitably be speculative since the expected benefits or income resulting from an investment occurs in the future. The further into the future we try to see, the greater uncertainty we encounter. Technical "know-how" and people's preferences and consumption habits change over time, and the longer the time perspective we work with, the greater the uncertainty regarding technologies, productivity development, consumer preferences, international circumstances, and environmental factors. Estimates of future revenues and costs are problematic also because they *depend* on today's investments, which means that current revenues and costs are unreliable as a base for decisions for long-term investments.

When a society invests in increased productive capacity in an industry, the future opportunity cost of the capital assets and the prices of the products are affected, as the potential supply changes. Current prices for different categories of capital assets, goods, and services are thus misleading when we make decisions about long-term investments. The propensity to invest and thus the economy's total demand and capacity utilisation is therefore often, to a large extent, based on guesses and relatively uncertain estimates of factors such as the consumers' future propensity to consume and save and their consumption preferences, which, together with expectations of productivity and technological developments, affect decision-makers' assessments of the future and their willingness to take risks.

Social effects

In a capitalist market economy, whose defining institutions are private ownership of the means of production, hierarchical decision–making, and the allocation of resources, goods, and services through markets in which individual buyers and sellers negotiate prices without regard to third parties, investment decisions will have certain specific effects. Private equity owners and investors receive compensation in the form of profit and interest without any work effort, and capital owners will, furthermore, receive the biggest part of any efficiency gain generated by trade, as long as capital is scarce, i.e. as long as additional capital will make labour more productive. Those with more and bigger capital assets benefit more than those with fewer and smaller assets, and the result is growing inequality and concentration of wealth.

Furthermore, markets that require large initial investments in fixed assets, marketing, or research and development have a natural tendency towards concentration of ownership. The larger and more production facilities a company controls, the lower the unit cost of produced items since initial investment costs can be allocated to more units. This is called economy of scale. Another type of market characterised by a tendency to high concentrations of ownership is markets based on the control of networks, such as air travel, generation of electricity, and internet services, since the value of a network, i.e. its capacity to generate profits, increases the greater it is. Examples of network companies with huge market shares are Apple and Microsoft in the software market, Google in the search engine market, and Amazon in the retail market.

Owners of capital in an open capitalist market economy become extremely powerful in relation to governments, society, and employees through the continuous concentration of capital and wealth. If employees and governments do not adjust to the business owners' demands regarding, for example, tax subsidies, grants, and wage levels, production and jobs can be moved to more accommodating states and workers. The strong bargaining power of companies in relation to employees and the political power severely limits all attempts to reform and regulate the capitalist system. The concentration of wealth and ownership also means increased opportunities for corporations and their owners to more directly influence and shape the content of policy and political decisions via, for example,

lobby organisations, party contributions, and profitable job offers to politicians after their political careers.

Nor are private investment decisions in a capitalist market economy socially efficient. There are at least three sources of inefficiency. First, productive resources and investments are allocated inefficiently when there are external effects, i.e. when a transaction between a buyer and a seller affects third parties, positively or negatively. Goods and services whose production or consumption creates negative external effects will be socially "cheap" and will be overproduced, and goods and services whose production or consumption creates positive external effects will be "expensive" and will be underproduced. Most economic transactions affect third parties one way or another. The most spectacular example of externalities with enormous negative consequences today is the effects on society and the environment that production, consumption, and transport of many goods and services create due to emissions of carbon dioxide and other greenhouse gases, which leads to devastating climate change.

Second, as noted above, there is a strong tendency towards concentration of ownership in a capitalist economy. Fewer people own increasingly more of society's productive resources, and when a few producers control a market, it is in their interest to produce a smaller volume than what is socially efficient in order to maximise profits. Most goods today are sold in markets with limited or poorly functioning competition.

Third, capitalist market economies tend to promote speculation, risk taking, and short-sightedness. All investment decisions have elements of speculation and guessing, but in this regard, a capitalist economy is especially inclined to be affected by short-term price changes and group behaviour. The focus is often on short-term profit and shareholder value. Short-sightedness and risk propensity are promoted by the fact that corporate and bankruptcy laws are designed to enable owners to limit their risk, at the expense of other stakeholders such as suppliers, society, and employees. During a boom with high profit levels, there is often an excessive willingness to invest that does not sufficiently consider future bad times, and speculation in future price developments can drive investment decisions and create both market bubbles and crashes. Capitalism, with its inherent economic cycles, is, in many ways, dynamic with constant innovations in the form of new products and technology but, at the same time, creates recurring periods of capital destruction when productive assets become worthless when there is no demand for the goods and services they produce. In addition, private investors always prefer shorter term investments. The longer the time needed for an investment to show positive returns, the less interesting it is for private investors. Necessary but long-term and costly and, thus, risky investments are seldom made by private investors but must normally be carried out by public actors.

The possibilities of long-term and lasting reform of capitalism, with regard to these and other characteristics, are very limited, mainly as a result of the inherent tendency towards concentration of power and wealth. If we really want a lasting, fair, and democratic economy, we must think beyond capitalism and market economy.

INDEX

Note: Page numbers followed by "n" denote endnotes.