

A photograph of a bamboo forest. In the foreground, a light-colored gravel path curves from the bottom left towards the center. To the left of the path is a low, thick fence made of dry, golden-brown grass or reeds. Behind the fence and path is a dense forest of tall, slender bamboo stalks. A single, thicker tree trunk is visible on the right side of the bamboo grove. The top of the image has a solid green horizontal bar.

Carl Mosk

Japanese Economic Development



Markets, Norms, Structures

Japanese Economic Development

Japanese Economic Development offers a wide-ranging account of Japan's economic development between 1600 and 2000, taking into account economic, cultural, social and political theories about why Japan emerged as the first truly wealthy country in Asia in the modern age. The author presents three distinct approaches to understanding how and why Japan made the transition from a relatively low-income country mainly focused on agriculture to a high-income nation centred on manufacturing and services.

Penned by an expert in Japanese economic history and economic development, the book explores all theories in depth and includes arguments rooted in culture and social norms, arguments couched in political terms, and arguments both technical and non-technical developed by economists. The book makes a case for "over determination" in economic behavior. Because individual, firm level and governmental behavior is simultaneously determined by the interaction of markets, norms, and structures, change over time is rarely if ever limited to the economy operating in isolation from social norms and structures. A virtue of the treatment in this book is that it covers a period spanning 400 years, devoting considerable attention to the Tokugawa era antedating Japan's industrialization. It consists of twelve chapters that can be used in a variety of social science and history courses devoted to Japan, including courses aimed mainly at the post-1945 period.

In offering an eclectic account of Japan's economic development, this book will appeal to students in a broad group of disciplines including economics, political science, sociology, geography, and history. It can also be usefully employed, more specifically, as a reading in economic history and economic development courses, especially those dealing with non-Western countries.

Carl Mosk is Professor of Economics at the University of Victoria, Canada. He specializes in economic history, population economics and Asian economies, especially the Japanese economy. He is the author of a number of books on the demographic and economic history of Japan and is author of the Routledge book, *Trade and Migration in the Modern World* (2005).

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Markets, norms, structures

Carl Mosk

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For Donna

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To the instructor

In writing this book I have aimed at meeting the needs of a variety of audiences. While I have not written a monograph, I do hope that scholars concerned with economic development, economic history and/or the Japanese economy may find the work of some interest. This said I must emphasize that my principal goal was to produce a textbook that can be employed by instructors in a wide range of university, perhaps even high school, courses.

To be specific, I have in mind courses listed in economics department curricula that deal with economic development, economic history, and the economics of the Asian region; in the curricula of sociology, geography, anthropology and political science departments courses focused on Japan; and in the curricula of departments of history or Asian Studies courses focusing on early modern and modern Japan.

To accommodate these diverse student audiences I have designed the book so that the instructor can either emphasize or de-emphasize the formal economic models discussed in the Appendix to Chapter 1 (“Economic Models”). It is my belief – indeed my experience – that many students who have not been exposed to formal economic models can master the basic intuition, the simple logic, underlying these models provided they are discussed as stories, tales, or fables.

Still some instructors may elect to avoid assigning the Appendix to Chapter 1 as required reading, simply recommending that the student peruse the section if he or she finds it interesting and helpful. While I do believe that all students would benefit from studying this Appendix, I am realistic. I realize that some instructors may well feel that they cannot adequately answer questions concerning the material contained in it, thereby eschewing it. I feel that this is a viable strategy. I feel that a student can work his or her way through the volume and come away with a useful account of Japanese economic development without reading the Appendix to Chapter 1.

For students in economics who are accustomed to mathematical and graphical presentations of economic concepts, the need to assign the Appendix to Chapter 1 depends upon the particular student audience involved. It is my suspicion that upper division students in economics departments will already be familiar with the content of the Appendix. If this is true for a particular instructor’s course, perhaps the students should be encouraged to skim the material quickly to make sure they are acquainted with it.

I have written the book in chronological fashion, beginning with the Tokugawa period (Chapter 2) then moving forward to the period 1870–1945 (Chapters 3–6). I devote Part III of the volume to the period between the end of World War II and the mid-1970s (Chapters 7–9), following this account with a relatively brief account of the post-miracle growth economy (Chapters 10–12) that emphasizes the impact of the institutions key to Japan's economic development over the 1868–1975 period upon Japan's post-1975 economic performance.

In structuring the book along these lines, I feel I have written a text that can be used in courses primarily concerned with pre-1940 Japan, courses that will be mainly concerned with Chapters 2–6; and a text that can be used in courses focused upon post-World War II Japanese, Asian or general economic development. I feel that this chronological approach well suits the diverse student audiences that I hope will find this volume helpful in their studies.

In writing for students in history, sociology, political science, anthropology, geography, history and Asian studies, I am well aware that my reading can hardly match that of instructors who specialize in these fields. I am by training and academic appointment an economist toiling in the field of economics, interacting with colleagues who proudly declare themselves members of the Econ tribe.

When you spend enough time within a tribe it is difficult to appreciate how a member of another tribe may evaluate the arcane rituals and language of discourse of your own tribe. Still I have done my best to capture what I think is the essence of what historians, political scientists, anthropologists and sociologists have to say upon Japanese economic development. Perhaps I have failed to adequately do justice to the views prevalent in these other academic tribes to which I do not belong. If so, I trust the instructor can set the record straight for his or her students with the lectures, perhaps encouraging the students to critique my account from the viewpoints of other authors discussed during the semester or semesters of the courses employing this text. I am a firm believer in providing the students in my courses with alternative viewpoints. I hope the instructor will make use of this book in the same spirit, one that embraces alternative theories, one that recognizes the possibility of over-determination in human behavior, one that emphasizes critical understanding of complex reality.

Finally a word about the Romanization of Japanese used throughout this volume. Japanese names appear in the order common amongst Japanese, family names preceding given names. Macrons are used sparingly, eschewed in a number of contexts. Emphasis is on accessibility as it should be in a text aimed at a wide-ranging audience.

To the student

Mastering critical thinking is one of the most important, potentially the most important, by-products of study at an institution of higher learning. Probing myths, appreciating how scholars armed with different viewpoints steeped in different bodies of evidence can reach different conclusions, understanding the crucial role of scholarly debate, is part and parcel of critical learning. One of the goals of this text is to encourage you to visualize the key features of Japanese economic development through a variety of intellectual lenses.

To take this stance is not to deny that facts, hard data, exist. There are facts, give and take errors in measurement and calibration. Still, generating data involves interpretation; more crucially, understanding data encourages viewing it through interpretative prisms. Appreciating the give and take between interpretative viewpoints and underlying reality is central to the approach taken in this text. Emphasizing diversity of interpretation of complex reality is a credo of this volume.

Because I have crafted this volume with a variety of intellectual disciplines and viewpoints in mind, I suspect that some of you may be better grounded in mathematics and statistics – in reading charts, in working through algebraic equations, in taking in the meaning of tables bristling with numbers – than others. I have written this book for a wide range of courses dealing with Japan's modern economic and social development. I know that some of you appreciate formal argumentation more than others.

Those of you comfortable with the level of mathematics assumed in reading the Appendix to Chapter 1 and the Appendix to the book ("Japanese Economic Development, 1886–2000: A Statistical Portrait") are encouraged to read this material early in your perusal of the volume. To those who are less confident of their analytical skills, let me say "do not despair." Economic models and their statistical analysis boil down to story telling employing numbers and mathematical symbols. Focus upon the stories, thinking of graphs and equations as a convenient – a concise – format for telling the stories.

At the end of each chapter I list the key terms or concepts encountered there in. Please use these lists to test yourselves on your mastery of the contents of the chapter, perhaps picking a term or concept that intrigues you for a term paper.

Finally a word about the Romanization of Japanese used throughout this volume. Japanese names appear in the order common amongst Japanese, family names preceding given names. Macrons are used sparingly, eschewed in a number of contexts. Emphasis is on accessibility as it should be in a text aimed at a wide-ranging audience.

Acknowledgements

My accumulated debt to those who have taught me, to scholars who have critiqued my published research and conference presentations, is far too extensive and wide-ranging for me to give a full account in these pages. Still I feel comfortable listing some of the individuals whose views have made the greatest impression on my intellectual development.

Among American scholars senior to me, I believe five individuals have particularly impacted my understanding of Japan's economic development: Albert Craig, historian; Chalmers Johnson, political scientist and student of Japan's industrial policy; Hugh Patrick, economist, expert on Japan's financial system, and a key actor in keeping the Japan Economic Seminar afloat; Henry Rosovsky, economist and quantitatively oriented economic historian; and Thomas Smith, historian, expert on Tokugawa and post-Tokugawa Japan.

Amongst North Americans contemporary to me I wish to single out Marie Anchordoguy, J. Mark Ramseyer, and David Weinstein whose writings have shaped my thinking, whether I agree or disagree with their conclusions.

Amongst Japanese academics who have sponsored my stays in Japan, pointing me to the literature on Japan's economic development published in Japanese and assisting me in locating data sets rich in quantitative information about Japan's economy past and present, the following names stand out: Koike Kazuo, Nakata Yoshi-fumi, Minami Ryōshin, Odaka Konosuke, Ohkawa Kazushi, Osamu Saito, Umemura Mataji, and Yasuba Yasukichi.

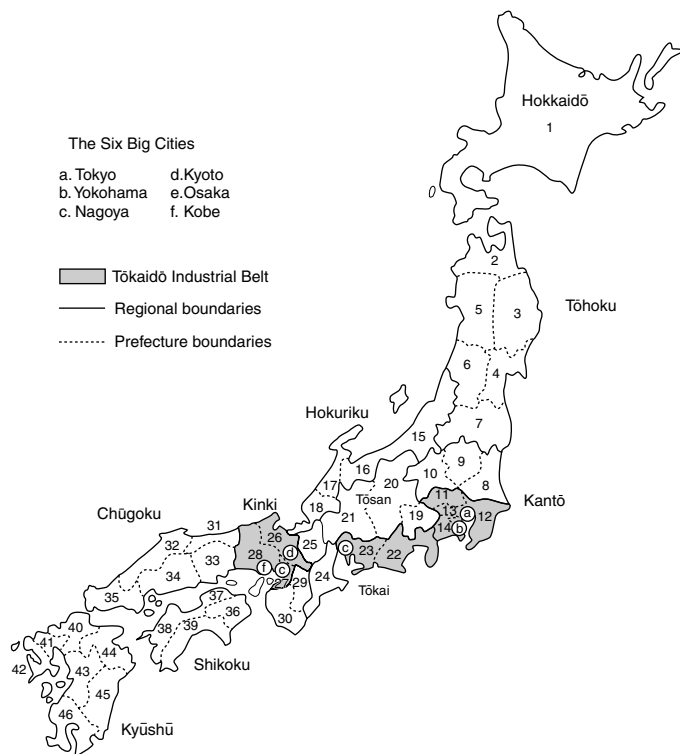
Throughout the early 2000s my knowledge of Japan's contemporary economy has been enriched through internet-based interchange in forums. In particular, I have found NBR's Japan Forum (Econ) especially useful. Among the contributors to this forum I have found particularly informative are Arthur Alexander, John Campbell, Gregory Clark, Earl Kinmonth, Richard Katz, Robyn Lim, William Stonehill and Michael Smitka. While I believe the terms "globalization" and "information age" are much overused, like so many others I have found internet-based interchange a convenient way to keep abreast of recent developments involving the Japanese economy. In this arena I am particularly indebted to NBR's Japan Forum.

xx *Acknowledgements*

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Finally I wish to express my greatest debt to my wife Donna for bringing me immense joy and warm wonderful companionship. Without her in my life I know that this book would never have seen the light of day.

Carl Mosk, Victoria, 2007



Regions and Prefectures

HOKKAIDŌ
1 Hokkaido

TŌHOKU
2 Aomori
3 Iwate
4 Miyagi
5 Akita
6 Yamagata
7 Fukushima

KANTŌ
8 Ibaraki
9 Tochigi
10 Gumma
11 Saitama
12 Chiba
13 Tokyo
14 Kanagawa

HOKURIKU
15 Niigata
16 Toyama
17 Ishikawa
18 Fukui

TŌSAN
19 Yamanashi
20 Nagano
21 Gifu

TŌKAI
22 Shizuoka
23 Aichi
24 Mie

KINKI
25 Shiga
26 Kyoto
27 Osaka
28 Hyogo
29 Nara
30 Wakayama

CHŪGOKŪ
31 Tottori
32 Shimane
33 Okayama
34 Hiroshima
35 Yamaguchi

SHIKOKU
36 Tokushima
37 Kagawa
38 Ehime
39 Kochi

KYŪSHŪ
40 Fukuoka
41 Saga
42 Nagasaki
43 Kumamoto
44 Oita
45 Miyazaki
46 Kagoshima

Map The prefectures and regions of Japan, the Tōkaidō industrial belt, and the six big cities.

Note: Smaller islands and the southern prefecture Okinawa (the forth-seventh prefecture are not shown on the map.

Part I

Introduction

1 Markets, norms, constraints

Prologue

The corpse of a samurai is discovered in a grove, his breast pierced by the stroke of a sword. Blood from the wound soils the bamboo-blades but the sword is nowhere to be found. A rope at the foot of a nearby cedar suggests that the samurai had been bound before being killed.

An investigation ensues. A Buddhist priest testifies that he saw the man accompanying a woman – his wife the priest learns later – who was riding on a horse. A robber infamous throughout the region is taken into custody. He confesses that he forced himself on the samurai's wife, then killed the samurai in a sword fight, urged on to battle by the violated woman declaring that she could not endure to live if two men survived to tell of her shame. The wife confesses as well. She says that her husband's expression of contempt for her once she was violated by the thief brought her such grief that she attempted a double suicide, stabbing her husband who silently begged her to dispatch him, failing to kill herself. Finally a medium relates the story as told by the deceased samurai. In his account he died a suicide, the act of desperation brought on by the horror of hearing his wife encourage the thief to kill him.

The story is one of the great classics of Japanese literature, "In the Grove" by Akutagawa Ryunosuke.¹ At its heart is a brutal acknowledgement that we never really know the full truth about an event. Rather we operate with interpretation. In the Akutagawa story each person gives an account that reflects his or her sense of pride, or his or her sense of guilt. Facts do matter (certain outcomes need to be fitted into any account, namely the death of the samurai by a sword wound) but so does the inner life of the interpreter. We need to acknowledge that interpretation can be multifaceted, the facts called upon to buttress it shifting from account to account.

I would like the reader of this volume to approach the study of Japanese economic development with an appreciation of how and why interpretation varies. In particular I want the reader to approach the question of why growth in Japanese per capita income took the form that it did in Figure 1.1 with an open mind. I want the reader to understand how different social sciences might arrive at radically divergent accounts explaining the fact of long-run growth in the standard of living in Japan.

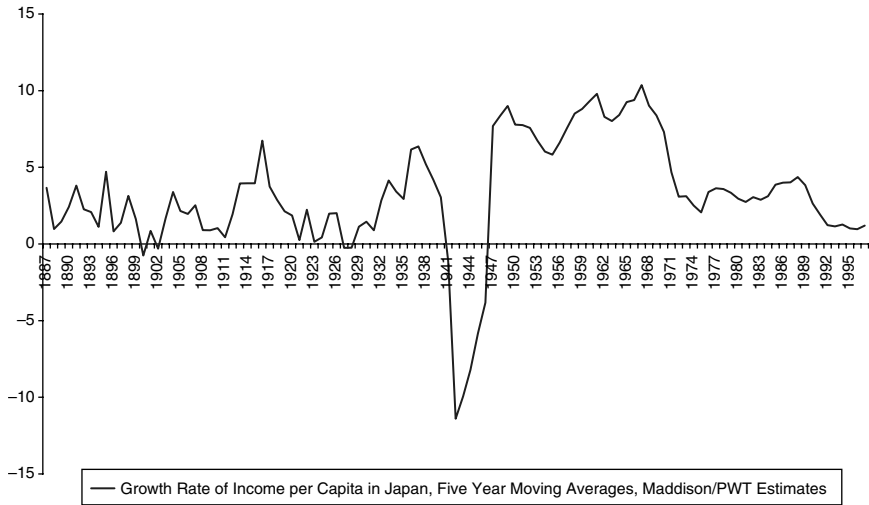


Figure 1.1 Growth rate of income per capita in Japan (based on Maddison and Penn World Table figures), five year moving average.

From a philosophical or methodological point of view, this text operates with an assumption that over-determination takes place in economic, social and political affairs. The over-determination concept assumes social norms and values, political and legal constraints, and the way markets operate mutually reinforce one another.

Why are Japanese automobiles built to high standards, generally requiring few repairs over the first ten years of their use? Is it because there is a Japanese law requiring rigorous vehicle inspection after a few years? Or is it because of the production methods instituted in Japanese manufacturing establishments, the way quality control operates on the shop floor? Or is it because Japanese consumers are fussy and demanding? The over-determination argument acknowledges a multiplicity of possibilities, stressing interaction. For instance, if Japanese consumers were bitterly opposed to the regulations, they could voice their opposition in the political arena, promoting an aggressive consumer advocacy campaign by forming and funding an organization devoted to doing away with the testing. Because the Japanese consumer is quality conscious, he or she typically supports – grumbling about it but doing precious little to get rid of – regulation as a mechanism for setting and maintaining quality standards. Knowing this, Japanese car and truck manufacture's organize their assembly lines and components-producing divisions with a focus on generating high-quality vehicles conforming to mandated quality standards at minimum cost to their bottom lines.

What is the chicken? What is the egg? Each social science discipline offers a compelling account containing a kernel of truth. Despite this, each explanation is incomplete.

In the remainder of this chapter we will explore the basic elements of three approaches to understanding economic development in Japan: the market oriented approach; the approach that emphasizes norms, values and ideas; and the approach that highlights political and geographic constraints.

The student should keep in mind that the intertwining of advocacy and analysis is typical of social science. One rarely if ever meets an economist, a political scientist, or a sociologist who is completely disinterested in the implications of his or her research for public policy. An author's having an axe to grind is not a bad thing. A reader's failure to recognize that an axe is being ground is not a good thing. Always keep in mind that advocacy colors analysis, most notably in setting up "idealized benchmark scenarios" against which other so-called real world scenarios are judged and evaluated.

Markets

Any credible account of Japanese economic development must wrestle with purely economic arguments. In this section we shall consider the elements of the mainstream neo-classical theory taught in most North American, British and "modern economics" (*kindai keizai*) departments in Japan. The term "neo-classical" highlights the fact that the discipline grew out of the classical school of economics, a school that developed in England during the eighteenth and nineteenth centuries.

The initial elaboration of the classical British theory that price driven markets provide the most effective device for allocating resources, distributing income and generating growth is usually assigned to the critics of British mercantilism, especially to Adam Smith in his famous treatise *The Wealth of Nations* published in the 1770s and still considered today as the founding cornerstone of neo-classical economics.

Mercantilism involved the development of a set of policies designed to regulate domestic commercial activity and especially the foreign trade of a nation in the interests of maximizing the power, notably the military power, of the nation. To that end mercantilists advocated running a positive balance of payments in trade, exports exceeding imports, so that gold and other precious metals – being the basis for securing mercenaries and outfitting armed forces – would flow into the coffers of the state's central authorities. To that end mercantilists attempted to promote technological progress by subsidizing economic activities viewed as simultaneously augmenting the military and economic prowess of the state.

The critics of mercantilism rejected this view of the world. They argued that the wealth of a nation would be far greater if markets were left as unregulated as was practically feasible than if they were shaped by the state. They maintained that allowing prices established in markets through the buying and selling of goods and labor services, each buyer or seller pursuing their narrow self interest, each buyer or seller anonymously attempting to maximize their individual wealth through these exchanges in response to the prices that they observed in the markets to shape behavior, was a far more effective mechanism for maximizing national wealth than was mercantilist regulation.

Central to the advocacy of the critics of mercantilism was the freeing up of labor markets. Many British defenders of market principles were vocal advocates for the abolition of slavery and serfdom, the dismantling of the vestiges of feudal labor exchange and onerous guild rules that created impediments to the freedom of workers to hire out their services at the highest wage offered by employers. In this sense the early classical school in England took up the natural law views of classical political liberalism (of John Locke for instance), grounding their arguments in a decided emphasis on individualism. Advocates of this position extolled the virtues of individual rights in both economy and polity. Relying upon the invisible hand of the market in which prices and profits refereed the system, allocating resources where they could be most judiciously utilized was optimal. Protecting free and unfettered voice in public affairs should be the foundation for the political infrastructure of a properly organized state.

The classical English school made the supply price of labor central to their analyses: Malthus built his theory of the iron law of wages (according to which the nature of fertility, especially marriage customs, and mortality shape the long-run supply price for labor driving the level to a so-called culturally determined subsistence wage), Mill and other classical writers of the nineteenth century adhering to a wages-fund doctrine linking the supply price of labor to the prices at which goods exchanged in the market. This is known as the labor theory of value.

It should be kept in mind that the classical school in England developed during the industrial revolution that gradually but inexorably transformed the nature of employment in that nation. Workers shifted out of agriculture into manufacturing, flocking to the rapidly expanding industrial towns of the midlands, to Manchester, Sheffield, Leeds and Liverpool, famous for their steam machine driven textile mills, their iron and steel works, their mass production of household goods (the industrial revolution is discussed in Chapter 2).

Manchester school doctrine emerged in early nineteenth-century England as a concomitant of industrialization. It advocated free trade in goods, especially foodstuffs, arguing that imports would cut down the price of domestic grains, meats and vegetables, the cost of which was crucial to determining the real purchasing power of domestic manufacturing wages. Associated with the name of David Ricardo, the political drive to secure free trade set the stage for the abolition of mercantilist policies like the Navigation Acts, the repeal of the Corn Laws that restricted imports of grains, and the negotiation of a most favored nation trade agreement between England and France. All of this occurred between 1800 and 1860, ushering in a regime of free trade and free mobility of labor, forging a model of capitalism that the rest of the world had to take seriously.

It is important to keep in mind that alternative economic doctrines other than classical British economics flourished in the nineteenth century, often justifying policies diametrically opposed to those associated with free trade. For instance in Germany, the historical school predominated, emphasis being placed on the stages economies went through in moving from pre-monetary exchange to monetized market exchange. In both Germany and the United States theories of

infant industry protectionism were elaborated. These theories noted that free trade in all goods might consign a country to remaining pre-industrial, its domestic manufacturers being unable to compete against the most efficient producers in an advanced industrial power like England. Protecting domestic manufactures in certain key sectors behind high tariff walls, promoting national infrastructure development (e.g. canals, roads and natural waterway improvements during the eighteenth century, the railroads during the nineteenth century), were enticing vehicles for building up domestic industry. In Germany Frederick List stepped forth into the public eye as a critic of free trade; in the United States, Alexander Hamilton preached the virtues of a national system of manufactures, rejecting the views that became central to the English classical school in the nineteenth century.

The protectionism advocated by List and Hamilton is best characterized by the term “economic nationalism.” Economic nationalism shares some ideas with mercantilism. It is aimed at promoting specific industries, by protecting them from foreign competitors through tariffs and quotas, or through direct subsidies (e.g. tax breaks, direct payments from government). By restricting imports protectionism tends to diminish the magnitude of any positive gap between imports and exports that might develop through international trade. However, there are important differences between mercantilism and economic nationalism. Protectionism is not necessarily aimed at enhancing the economic and political prowess of nation states. It might have that aim but it might not. Nor is one of its priorities necessarily the generation of a trade surplus, exports exceeding imports as it is under mercantilism. Generating a trade surplus might be a goal of government officials pursuing a strategy of economic nationalism. But it might not be.

From a purely theoretical viewpoint the chief weakness of the classical English school was its preoccupation with supply, namely the labor theory of value, the idea that commodities exchanged at prices determined solely by the cost of labor embodied in them. Counterexamples were well known to economists – gold and other precious metals are usually cited in this context – and on the continent theorists did elaborate frameworks taking into account both demand and supply. In England rejection of the supply driven approach and the embracing of a full blown demand and supply analysis that explained how prices were shaped both by the demand for them as well as by their supply (hence by the costs of producing them that was the main focus of the classical school) is most prominently associated with the name of Alfred Marshall whose *Principles of Economics* became a classic textbook for the field, going into manifold editions and shaping the views of economists throughout the English speaking world. The Marshallian “scissors” of supply and demand operating independently of one another became one of the great cornerstones of neo-classical, as opposed to classical, theory. In the Marshallian world the equilibrium price for a market is the price that just exactly equates supply and demand, the price that just clears the market.

Building a theoretical foundation for the Marshallian scissors became a preoccupation of many economists during the period between World War I and World War II. A rigorous theory of consumer preferences, and a mathematical framework for analyzing production on the supply side with production functions

(like the Cobb-Douglas production function discussed in the Appendix to this chapter), advanced the neo-classical paradigm whose basic concepts were laid out in the *Principles of Economics*. Ironically, all of this research took place when unemployment rates soared in many of the industrial countries, in England during the 1920s, in the United States during the 1930s in the aftermath of the 1929 stock market collapse.

If markets were operating as Marshall suggested they did, why was there sustained unemployment? For unemployment to exist, the demand for labor must fall short of the supply of labor. In this case one would expect the cost of a unit of labor to fall, until supply and demand equalized at the lower wage that clears the market. It was this problem, perplexing to the advocates of Marshallian neo-classicism, that encouraged some mainstream economists – most notably John Maynard Keynes in his famed *General Theory of Employment, Interest and Money* published in the mid-1930s – to reject a theory of employment founded on the “scissors” logic of individual commodity markets, substituting for it a theory rooted in the notion of aggregate economy-wide demand.

To be sure Keynes developed his ideas of effective aggregate demand around advocacy. Arguing that unemployment was rising because capitalists were becoming increasingly gloomy and pessimistic about future demand for their products, therefore cutting back on their investment levels, Keynes felt that government spending had to take up the slack dragging down aggregate demand. At the same time that he rationalized the policies he favored by elaborating a theory that he believed was general, he also brought into the fold of economic theory national income accounting, a statistical discipline devoted to estimating the annual flow of goods and services within an economy.

In the aftermath of World War II, American economists in particular developed a neo-classical “synthesis” that wedded Keynesian aggregate demand analysis to the Marshallian “scissors” principles. The resulting synthesis can only be described as an intellectual alliance of convenience, economists realizing that market clearing principles are not consistent with the idea that sustained unemployment can arise in a market oriented economy, the demand for labor falling short of the supply of labor. For this reason some economists have developed theories of the second best, rooted in analyses about how and why friction develops in the real world, generating employment and booms and busts as outcomes. We shall consider a group of these theories in the text that follows. The point to keep in mind is that there are differences of opinion among mainstream economists concerning the importance of friction as a general concept, and of the various possible types of friction.

Some economists cling to the view that markets basically work well, that it is government interference that causes them to go awry. Others believe that there are fundamental economic principles undermining market clearing, at least for certain markets, thus offering a rationale for Keynesian type approaches and Keynesian type policies, including the aggressive use of fiscal policy to correct sustained bouts of unemployment potentially destabilizing liberal capitalism itself.

Having completed this brief overview of the evolution of neo-classical doctrine, let us turn to a discussion of a select group of economic models, treating

them as stories. This discussion is meant to ease the student gradually – especially the student who has not been exposed to any formal economic analysis, the student who is not especially comfortable with graphs – into an understanding of the basic principles of mainstream economics. Slightly more formal presentations of these principles, including some graphs designed to illustrate the logic of particular arguments, appear in the Appendix to this chapter.

The student should attempt to master the basic logic of the various economic models, going back and forth between their description in the main text of this chapter and their corresponding elaboration in the Appendix, thinking about the models as formalized tales, stories, ultimately not really very dissimilar from the short stories of writers like Akutagawa who always has a point to make, a pointed message to deliver. To drive home the story-like aspects of the theories, I will distill a small set of economic principles from the analyses.

The theory of market equilibrium in which a downward sloping demand schedule intersects an upward sloping supply schedule – price on the vertical axis and quantity supplied and demanded on the horizontal axis – is the workhorse model of mainstream neo-classical economics. The slopes of these lines are meant to capture the common sense notion that demand for a good or service falls off as its relative price rises; and willingness of producers to supply a good or service responds to the price that they can get selling it.

Graphs illustrating the equilibrium principle appear in the Appendix to this chapter as Figures 1.2 A and 1.2 B. Where the supply and demand curves intersect determines the equilibrium level of price and the equilibrium level of goods or services transacted in the market. This should be considered the benchmark model, the ideal type, against which more complex economic models, more elaborate economic arguments, are compared.

Note from Figure 1.2 A that an outward shift in demand for a good – demand increasing at all price levels perhaps because the good has been extremely fashionable, or because substitutes for it have risen in price relative to the good itself, or because the real incomes of consumers have risen – raises the equilibrium level of price and the equilibrium level of goods transacted. Suppose, for instance, within the personal computing market the demand for mobile laptop computers shifts out to the right because more and more business travelers are encouraged by their companies to stay connected to corporate headquarters while they are on the road. According to the basic logic of markets we would expect to see the relative price of laptops rise.

Pursuing this example further, let us see what happens in the market for desktop personal computers. These are substitutes for laptop computers, imperfect substitutes of course since taking a desktop on a trip is onerous, expensive and annoying. We would expect the demand for these to shift in to the left as the demand for laptops shifts out to the right, other things being equal. In the scenario we have just considered, we would expect the market adjustment to yield a rise in the relative price of laptops compared to desktop machines. For instance if laptops were initially twice as expensive as desktops, the impact of the market adjustment might be a situation where laptops were three times as expensive as desktops.

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Now consider the impact of technological advances in the production of miniaturized chips and liquid crystal display screens generating a reduction in the costs incurred by producers of laptop computers. This state of affairs is captured in Figure 1.2 B in the Appendix. As a result of the advance, the supply of laptops shifts out to the right. The relative price of laptops falls.

Underlying this equilibrium analysis are two basic principles: arbitrage and the invisible hand.

The arbitrage principle says that equilibrium prices emerge in markets because any differences in price will be eliminated through the activity of market arbitrageurs who buy goods where they are cheap and sell them where they are dear. For instance suppose the price of a particular type of digital camera is cheaper in Osaka than it is in Tokyo, selling for the equivalent of \$300 in the Osaka market and for \$400 in the Tokyo market. Assume the cost of transporting the camera from Osaka to Tokyo is \$10, including crating up a large box and shipping it by a nighttime running freight train. If this disparity persists for a while, we would expect an enterprising camera distributor in Tokyo to order cameras from Osaka, thereby driving down the price of cameras in Tokyo (more are supplied in Tokyo), and driving them up in Osaka (less are supplied in the Osaka marketplace). Eventually we would expect a single price – the only potential difference reflecting transport costs for shipping cameras from Osaka to Tokyo – to prevail in both markets.

The invisible hand principle refers to the idea that a market economy – as opposed to a centrally planned economy in which goods are produced in response to production quotas set forth by bureaucrats – is socially efficient because it operates through the anonymous force of supply and demand shifts spewing out price information to consumers and producers. Social efficiency here means that purchasers of goods and services can do as well as possible in allocating their income. And suppliers of products and services can maximize their profits, moving in and out of various lines of activity in response to changing opportunities to garner revenue net of costs stemming from shifts in the prices established for goods and services in markets. It should be emphasized that social efficiency occurs because everyone is acting rationally in the sense that they cannot do any better than they are already doing by changing the purchasing plans or their production decisions.

In a pure invisible hand world buyers are assumed to respond instantaneously to changes in the relative prices for goods and services, adjusting their purchases – substituting tuna for halibut when the price of tuna falls relative to halibut for instance – in such a way as to reach the highest level of welfare possible given the income that they enjoy, maximizing the real purchasing power of their economic resources.

In a pure invisible hand world producers, incurring no cost to refocusing their activities – computer manufacturers seamlessly switching from manufacturing desktops to laptops for instance – jump around in response to movements in the relative prices of products, forcing profit rates in all endeavors to a common level, competition squeezing out any excess profit opportunities. Barriers to entering

exciting new endeavors and exiting from tired old lines of business do not exist in the benchmark model.

As should be apparent from this discussion, the benchmark case is highly idealized. It assumes perfect information about goods and services in the present. It assumes that sunk costs do not deter corporations from abandoning declining markets, and leaping into buoyant expanding markets. Before we consider a host of factors that economists take into account in modifying the benchmark model so that the resulting analysis corresponds more sensibly and closely to actual real world conditions, we need to say something about the prices for consumer durables like automobiles, refrigerators and houses and machines like lathes and dynamos.

The price of a consumer durable or a machine is typically hefty, far more than the price of a meal, or even the combined total of the cost of meals a household consumes over an entire year. Why are we willing to pay so much? The answer is that we do not consume a durable good the way we do the food we purchase in a supermarket. Typically we enjoy the benefits of owning and using the durable for an extended length of time, for years, perhaps decades. Thus it is the discounted present value of the benefits we expect to obtain from the durable that we should set equal to the purchase price, namely

$$\sum_{i=1}^N \frac{b_i}{(1+r)^i} = p \quad (1.1)$$

where b_i are the flow of benefits expected from the purchase of the durable in the i th year, N is the number of years one expects to utilize the durable, r is the interest rate at which one would have to borrow funds to purchase the durable if one were securing it on credit (alternatively it is the interest rate that one forgoes by taking one's money out of bank account in order to secure the durable). If the discounted present value of the expected benefits falls short of the purchase price we should not buy the durable; if it is equal or exceeds the purchase price we should go ahead and buy it.

Likewise corporations make decisions about purchasing capital goods – trucks, factory buildings, electrical motors, stamping machines, hammers and screwdrivers – by comparing the cost of the purchase with the benefits they expect to secure from the purchase. If the price exceeds the expected present discounted value of the flow of benefits, management is making an economic mistake in going ahead with the purchase. If the price is less than or equal to the discounted present value of the expected benefits, an enterprise behaving rationally should acquire the equipment, build the building, secure the truck.

This is known as the cost/benefit principle. If the cost falls short of the discounted present value of the anticipated benefits, the project, the purchase, should be a go. Otherwise it is a mistake, at least from a strictly economic point of view.

It should be emphasized that benefits might include psychic rewards, enhanced social status, a feeling of being wealthy and powerful. Introducing this source of satisfaction from ownership of automobiles, televisions and microwave ovens is

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all fine and well – economists appeal to this logic all the time and we have probably all made decisions in which psychic rewards played a major role – but doing so makes rationalizing even the most stupid, ill conceived, economic decision possible. Just say that you are getting a warm glow from owning the durable, even if you are never using it!

To be frank, some critics of mainstream economics contend that most mainstream economic arguments contain a kind of “after the fact” rationalization, imparting a kind of self fulfilling circularity rendering them always true even in the face of evidence suggesting they are false.

That the benchmark arbitrage/invisible hand model is only an idealized framework for carrying out serious economic analysis is widely recognized in the profession. For this reason most economists subscribe to the theory of the second best, namely the view that perfect market outcomes are not possible, distortions occur, and policy makers should take these frictional elements into account in drawing implications from the models. The trick is bringing economic insights into the discussion of frictions impeding perfect market outcomes.

We shall consider seven sources of friction suggesting that simple supply/demand equilibrium stories about how prices are determined fail: information asymmetry; transactions costs; externalities; barriers to entry due to monopoly, oligopoly or organized cartels; the tragedy of the commons; crime and corruption; and moral hazard.

In the real world we have to work, we have to expend resources whether time or money, to acquire information. Suppose you are purchasing a home. You read the disclosure form signed by the sellers of the property. They claim that there are no defects in the structure. Can you believe them? One does not have to be suspicious by nature to doubt the validity of the claim. For this reason most real estate agents recommend a housing inspection by a licensed agent before completing an offer to purchase a home. The point is that the seller may know something about the property that the purchaser does not know and is unwilling to reveal lest the deal fall through. The information is asymmetrically distributed.

In the case of the used car market, it is well known that a good used vehicle sells for below its actual value, its reputation tarnished by the vehicles that are money pits that owners are trying to unload on an unsuspecting victim, the owners sick and tired of making repairs. In both the housing market and automobile market the principle is identical: it is information asymmetry.

Transactions costs refer to the costs involved in bargaining and haggling over wages, work conditions or the prices of goods and services. You can not run a business effectively if you have to engage in daily contract negotiations with every worker you employ from the janitor on up to managers. You need a regular employee pool that shows up every day prepared to do an assortment of tasks within their specified job assignment profiles, perhaps even take on chores that they have never before worked at. This is one reason why market approaches are rarely used by enterprises hiring workers, employers preferring a hierarchy approach in which the employee is paid a fixed wage only occasionally negotiated in exchange for carrying out a range of duties mandated by upper level

management. Organizing a hierarchy is more cost effective than carrying out daily transacting in most employment situations, casual day labor markets being a prominent exception. Call this superiority of hierarchy over the market a major illustration of the transactions costs principle.

Externalities refer to benefits enjoyed by the public or producers or costs imposed on the public or producers spilling over from a particular activity. Pollution is an example of a negative or costly externality. If a chemical manufacturer disposes of its waste products in a stream, lake or bay it may well contaminate the water, sending out deadly toxic substances that are consumed by fish that are eaten by consumers who then become ill. If a steel plant burns coal as a byproduct of its manufacture of steel bar and plate, sending foul smelling black dust into the atmosphere that may cause lung diseases amongst the surrounding population it is creating a negative externality. If a bee keeper locates next to a flower producing farm it creates a positive externality for its neighbor, the bees pollinating the flowers. If a railroad company opens up a new station in a remote rural village it creates a positive externality for the villagers, who can now dispatch their rice, their raw silk, their pickles speedily at low cost to cities where they command far higher prices than they command in their isolated locality.

The point about externalities is that they cannot simply be handled through the force of supply and demand working through private markets. Regulation or government intervention is required to cope with their fallout. In the case of positive externalities like those generated by infrastructure – paved roads, deep water harbors, railroad lines, public schools, water purification plants, hydroelectric systems – there is a strong case for government subsidy or government regulation to ensure proper standards and consistency. In the case of negative externalities there is a strong case for government monitoring, setting acceptable and unacceptable cutoff levels for the externality, and for fining agents that violate the standards.

Barriers to entry most commonly arise when an enterprise's unit costs fall across a broad range of its production or when the unit costs for its marketing of its output are driven down as the scale of its production increases. Consider automobile production. Setting up a plant to produce three cars a month makes no sense if the plant is marketing cars for the mass market (it probably would not even make sense for a specialized automobile manufacturer delivering vehicles to a small coterie of extremely wealthy customers). Too much capital, too many skilled workers are required to make this an economically viable proposition. Setting up mass production means exploiting economies of scale. It also means exploiting learning by doing on the part of the employed labor force that gains skills as it repeats tasks over and over again.

Where steep fall off in production costs prevail within an industry it is extremely difficult for start up enterprises to break in. Already established firms can manufacture and market their products at lower cost than can a novice to the field. They can even collude temporarily – starting a price war, cutting their prices in tandem – to make it that much more challenging for the new entrant to survive for long.

Barriers to entry tend to appear in transportation, communications and utilities. Railroads, hydroelectric power suppliers, telephone companies or satellite telecommunications service providers are examples of firms that enjoy economies of scale that restrict competition. Not surprisingly, oligopoly – competition among the few – or even monopoly results in these cases. Markets in which there is competition amongst the few are known as concentrated markets.

In analyzing the way concentrated markets operate economists differentiate between three types of market concentration: monopoly in which there is a single seller for a commodity or a service – for instance the national militia within your country probably has a monopoly over certain types of legal violence – oligopoly, and monopolistic competition. Oligopoly refers to a situation where a small number of firms produce or process a homogeneous product, for instance coal, natural gas, unprocessed wheat, corn, soybeans and so forth. The product is not differentiated: coal is coal, gas is gas. Monopolistic competition refers to a situation where a small number of firms differentiate their product while competing with one another. For instance they may differentiate their product through brand name and advertising, usually employing design, unique taste or styling, or packaging to differentiate their peculiar version of the product from that offered by competitors. For instance Toyota cars are famed for their reliability and quality, Honda cars for their stylist racing car feel, BMWs for their driving performance and luxurious features, and so forth.

Where monopoly, oligopoly or monopolistic competition exists in markets, economists look for explanations in terms of scale economies, barriers to entry, and the way market power influences market choice.

Indeed, much economic analysis – applying sophisticated game theory in the case of oligopoly for instance – has gone into the study of industries where barriers to entry are overwhelming. It has been demonstrated that monopolies selling their output at a single set price tend to set this above the price that would prevail in a perfectly competitive situation with costless entry. At this price they produce an output that falls short of the output generated by competition with costless entry. Monopolists can move closer to, or even reach, the competitive level of output by segmenting the market, setting high and low prices for different subsections of the market in order to expand their scale of operation, in the extreme charging a different price for each consumer.

The point is that price determination in markets with a single, or a very small number of firms, does not usually follow the rules set down in the simple supply/demand equilibrium story. Strategic behavior – predatory pricing for example – is a problem commonly encountered in an industry characterized by oligopoly or monopoly. Stifling innovation by keeping out new startup competitors is another problem.

Citing the ills caused by strategic behavior and the snuffing out of innovation, many economists argue that there is a case for either regulating monopolies and oligopolies or alternatively using antitrust action to break them up. The principle of barriers to entry joins our other principles of market friction – information

asymmetry, transactions costs, and externalities – that warns us off accepting blindly the invisible hand principle.

The tragedy of the commons refers to the possibility of resource depletion. Suppose a resource – fish in a lake or a particular zone of the ocean, oil in an oilfield, timber taken by cutting down forests – can be exhausted at least for a very long time, perhaps hundreds of years. If private actors are allowed to exploit these environments on their own without regulation by government or by a disinterested third party none of them have a selfish incentive to hold back on their level of activity so that exhaustion will not occur. What happens if the group of resource users cobbles together an agreement to slow down or temporarily cease use of the resource? Since each actor cannot completely trust his or her competitor, he or she must assume that someone else will take advantage of any moratorium that is arrived at. This is because each has a narrow short-run incentive to extract the maximum possible gain from the resource. Thus the forest may be decimated before forest rejuvenation can occur, leading perhaps to soil erosion and long-run destruction of the environment; the fish population may be wiped out; the oil reserves completely depleted before alternative sources of fuel are developed.

This is called the tragedy of the commons because it mimics the problems that arose in some open field agricultural settings on European manorial estates, the peasants and the lord of the manor jointly using a commons for grazing their sheep. The tragedy refers to the possibility that the commons is overgrazed, potentially leading to the starvation of sheep and humans alike.

In one sense the problem is that contemporary prices do not reflect long-run supply. If prices were set fully taking into account future outcomes, being discounted present values that reflect long-run scarcity of the resource of the sort envisioned by equation 1.1, exhaustion might not take place. As long as expectations about the future are unrealistic – for instance expecting forest to grow back faster than it actually can – prices for the resources might be too cheap, the unregulated market generating exhaustion of the resource. If prices are set high enough, demand for the resource will be less, and the market might yield an outcome appropriate for the long run.

Engaging in crime and corruption are two of the less attractive but nevertheless valid aspects of human activity undermining the simple logic of the invisible hand principle. The invisible hand principle assumes honest behavior. It assumes that people sell their labor services or the fruits of their efforts on the market if they are self employed, expending these earned resources upon food, clothing and housing, living within their budget constraints. Borrowing on credit is an option in the model since a borrower is still living within his/her long-run budget constraint, paying back the loan with future income flows (recall the logic of equation 1.1). Stealing from one another is not consistent with the simple invisible hand story since robbers do not live within their budget constraint, and those robbed may find themselves more constrained in terms of available resources than they expected based on their earning power.

The existence of a policing authority – private militia, protection by a powerful local warlord, or the military and police forces of a nation state monopolizing the use of force – and a judiciary typically operating with courts and the intent of protecting and the enforcing private property rights is usually considered a *sine qua non* for efficiently operating markets. This is sometimes known as the “night watch man” theory of the state, the state being responsible for maintaining law and order with its police and courts, providing security to ward off international aggression with its military, otherwise staying out of economic matters to the fullest extent possible. The government that governs least is the government that governs best.

What ensures that the courts will play by the rules, not favoring the interests of some parties over other parties, not falling into the hands of criminals and gangsters who through bribes and intimidation escape justice? The “night watch man” state can only operate effectively if corruption, especially corruption in government and the judicial system, is somehow boxed in, albeit not completely eliminated.

The doctrine of “neo-liberalism” popular in common law countries like the United States, Great Britain, and some of the nations of the British Commonwealth, is an ideology that has evolved out of the classical British liberalism of the eighteenth century. It argues that there is a social infrastructure – a set of political governance practices – that appears to be necessary for the emergence of efficient markets. This infrastructure includes:

- 1 the guarantee of civil liberties, and an independent media, the public able to voice its objections to corruption in high circles through free speech and a free press;
- 2 political accountability, politicians deriving their power from the public through regular cycles of referenda or elections;
- 3 a high-quality civil service that can operate independently of short-run political pressure;
- 4 a high level of regulatory quality, policies being developed that are market friendly, monitoring of bank activity and guarantee of shareholders rights in the event of bankruptcy being one important area of regulation;
- 5 the rule of law; and
- 6 control of corruption.

The influence of American thought in developing the doctrine of neo-liberalism is evident. Most of its principles were embedded in the Constitution of the United States written by the political founders of the United States of America during the late eighteenth century.

Let us use the term “the neo-liberal” principle to invoke the political and social management of crime and corruption.

In this context it should be noted that Ramseyer (1996) makes a strong case for the view that Japan – even though it is a civil code as opposed to common law country, hewing to the French and German traditions in which bureaucracy plays

a greater role in regulating markets than do the courts through their decisions – has had most of the social infrastructure envisioned by the neo-liberal view since the late nineteenth century.

The final economic principle bolstering the argument that carefully crafted extra-market, political, constraints must be developed so that markets operate in an efficient manner, is the principle of moral hazard. Moral hazard refers to the fact that parties providing insurance to other parties may encourage profligate, irresponsible behavior on the part of the insured. Parents spoil children, being overprotective, failing to let them become independent adults responsible for their own actions. Governments spoil banks, using tax payers' funds to bail out financial institutions that have made bad loans, rashly throwing their depositors money at fantastical "pie in the sky" get rich schemes. This is one reason why insurance companies are reluctant to provide coverage that does not include a deductible, setting an extremely high price for deductible free premiums. The insurance company wants you to be a good driver, it wants you to take care of your home, fixing leaks, making sure rot does not set in, replacing your roof when necessary. Forcing you to bear part of the costs of repair in the event of a disaster – water damage, a fire – is one way to encourage you to be responsible.

In the remainder of this text we will illustrate each of these principles of economic friction. We will also explore some of them in more detail in the analytical Appendix to this chapter.

In addition to the various principles that we have just considered – involving information flow, transactions, externalities, barriers to entry, the tragedy of the commons, neo-liberalism, and moral hazard – economists have also concerned themselves with quantity adjustments at the aggregate level. As with the friction principles, quantity adjustment invokes the theory of the second best.

Economic models emphasizing quantity adjustment assume that price fluctuations are less important in the way economies adjust to exogenous shocks – to natural disasters like hurricanes or tidal waves or droughts, to collapsing international trade, to a dramatic collapse in the optimism of entrepreneurs about the wisdom of investment in plant and equipment for meeting future demand – than fluctuations in the quantity of production, fluctuations in the degree to which the labor force is employed.

The two models of quantity adjustment that we consider here – the input/output model and the Keynesian aggregate demand model – were initially developed during the period between World War I and World War II, the input/output model being elaborated by economists in the Soviet Union grappling with the problem of setting quotas for different industries in a centrally planned economy using the command and control methods characteristic of military organizations, the Keynesian model being elaborated to provide an escape from the unemployment gripping the United Kingdom after World War I and the United States after the collapse of the stock market in 1929. In the input/output model used by central planning regimes bureaucratic directives about quantity levels replace the signals that price imparts in an invisible hand world. In the aggregate demand model wages and prices are assumed rigid in the short run – perhaps because of

monopoly and oligopoly, perhaps because wages are set at too high a level by consumer durable producing industries such as automobiles (see the Appendix to this chapter for the efficiency wage model that explains why this might occur in a world with information asymmetry) – quantities of output demanded falling in one or several key sectors of the economy generating a wave-like collapse, a ripple effect, throughout the remainder of the economy, as workers in the affected sector are thrown out of work, thereby cutting back on the purchase of goods and services in other sectors that in turn disperse with some of their employees.

The input/output example is most easily explained with a numerical example. Consider the following flow chart:

The basic flow table for a two sector economy without government

Selling sectors	Purchasing sectors and final demand components				
	A	M	C	I	Total
A	\$25 (5 bushels)	\$50 (10 bushels)	\$200 (40 bushels)	\$50 (10 bushels)	\$325 (65 bushels)
M	\$100 (5 tons)	\$100 (5 tons)	\$400 (20 tons)	\$100 (5 tons)	\$700 (35 tons)
Labor (wages)	\$250	\$350			
Investors (profits & interest)	\$50	\$100			

Where **A** stands for agriculture producing bushels of wheat, **M** stands for manufacturing producing tons of steel, **C** stands for the output that is delivered to the consumer, and **I** for the investment (capital) goods delivered to producers (farmers in the **A** sector, manufacturers in the **M** sector). Agriculture sells \$25 to itself, farmers buying fertilizer for their orchards and vegetable gardens, grain to feed to their pigs and cows, from one another. Agriculture sells \$50 of output to the manufacturing sector (for instance coal extracted from some of the farm land in this simple two sector example). In this simple flow chart the sum total of intermediate products (to be used as inputs into the final production of goods and services) sold by the **A** sector to itself and to the manufacturing **M** sector is \$75. The remainder of its output – \$250 – goes to final demand, to either consumers or investors. For manufacturing the sum total of its sales of intermediate products is \$200. A total of \$500 goes to final demand, consumers and investors.

It should be emphasized the final demand in the economy is equal to the income supplied. The final demand in this example is the sum of the value added generated by the agriculture and the manufacturing sectors – the sum of their revenue net of purchase of intermediate products that they employ to produce output going to final demand – namely \$250 plus \$500 which equals \$750. If the total payments to labor and the owners of capital in this example are added – \$250 plus \$350 plus \$50 plus \$100 – the same figure is reached. Demand equals equal income generated.