

Chapter 6

Households and firms

Communities and markets are overarching institutions. People operate in them not only directly, but also through a number of smaller institutions, of which households and business enterprises are the most prominent. In exploring these institutions it will pay to ask what it is that people seek to achieve through them. Admittedly, the household is so deeply rooted in humankind that it may seem odd to enquire after its economic purpose. But even that most ubiquitous of institutions has been known to undergo changes in response to resource scarcities. I shall not elaborate on the more obvious roles households and business enterprises play in enabling people to survive and, if they have coordinated well with one another and have been lucky, even to prosper. Instead, we will study some of their more distinctive features so as to get a better understanding of the huge differences between Becky's and Desta's lives.

Households

Among sedentary communities, the family is the institution that has traditionally harboured the strongest personal ties. Economists and statisticians find it useful to work with a more contemporary notion – the *household* – which is a smaller unit than the family. The household is usually taken to mean a unit of housekeeping or consumption. Its members eat meals together or share meals that are derived from a common stock of food.

We assume that parents wish to protect and promote household well-being, by which I mean the well-beings of its members, taken together. But the parents may have different notions of what 'taken together' means. In Desta's world, where the extended family influences household decisions, not only do the parents matter, grandparents (even the wider network of kin) also influence household decisions.

Social scientists have discovered that the allocation of basic needs – leisure, food, health care, and education – are distributed unequally within households in Desta's world. Some of those inequities are borne out of sheer necessity. Consider the allocation of food. About 60–75% of the daily energy intake of a person in nutritional balance goes toward maintenance (blood circulation, brain activity, tissue repair, metabolism, and so forth), while the remaining 25–40% is spent in discretionary activities (work and leisure). The 60–75% is rather like a 'fixed' need: over the long run people need it as a minimum no matter what they do. We should therefore expect food to be distributed unequally in very poor households, even though it would have been distributed equally in those same households had they been rich. To see why, suppose the energy requirement for daily maintenance is 1,500 kilocalories (kcal). Consider a household of four that has access only to 5,000 kcal. Equal sharing would mean that no one

would have sufficient energy to spare. Sharing food unequally enables the most productive member to work and increase the chances that the household's future will be better. On the other hand, if the household had access to a lot more than 6,000 kcal, it would be able to share food equally without jeopardizing its future. When food is very scarce, the younger and weaker members of Desta's household are given less to eat than the others, even after allowance is made for differences in their age. In good times, though, Desta's parents can afford to be egalitarian. In contrast, Becky's household can always afford enough food. Her parents allocate food equally every day – again, allowing for differences in nutritional needs.

Gender inequalities

The considerations I have just outlined can't on their own explain the persistence and magnitude of household inequalities in the poor world. In a notable article, the demographer Pravin Visaria observed that the female–male ratio in India had shown a decline since the Indian Census of 1901; worse, it has been considerably less than 1. According to the most recent census, there are 93 women to every 100 men in India. In the rich world today, the ratio is 106 to 100. In answering a question the epidemiologist Lincoln Chen posed in response to Visaria's finding, namely, 'Where have the women gone?', he and his collaborators collected gender-based mortality and anthropometric statistics from villages in the Indian sub-continent and discovered male bias in the allocation of food and health care in poor households. The suspicion is that parents not only practise female infanticide, but also withhold postnatal health care so as to reduce the number of girls in the household.

Health discrimination against girls isn't limited to the Indian sub-continent; it exists in China too. When social norms insist that parents pay crippling dowries and that sons look after their elderly parents, a preference for male children is inevitable among poor households. However, if we suppose that mothers are likely to have greater empathy than fathers have with daughters, we should expect discrimination against female children over food and health care to be less in households where women are educated, or have access to paid employment, or control the household budget, other things being equal. There is evidence that this is so, both in the Indian sub-continent and in sub-Saharan Africa.

The ratio of females to males in sub-Saharan Africa is 102 to 100, which means the female–male imbalance in India isn't exclusively a reflection of poverty. The demographer Esther Boserup observed that women have a prominent role in agriculture involving hoe farming (such as in sub-Saharan Africa), in contrast to regions (such as the Indian sub-continent) where plough farming is predominant. Boserup drew a connection between the technology of food cultivation and the position of women. Gender discrimination in the Indian sub-continent varies across ecological zones. Women are much involved in paddy cultivation, where manual dexterity, not so much brawn, is needed. Women are less involved in wheat cultivation, where brawn is an essential input (working with the plough requires physical strength). In India the female–male ratio is higher in rice producing states (they are in the south and east) than in wheat producing states (they are, in the main, in the north).

Gender imbalances in health within households in the poor world are related to fertility

choice. Since women bear the far greater cost in bearing and rearing children, we should expect men to desire more children than women. On the other hand, if women are economically more vulnerable than men, they would desire more children than men because children offer an insurance against particularly bad circumstances. Either way, birth rates would be expected to be lower in societies where women are more empowered. Data on the status of women in Desta's world display an unmistakable pattern: high fertility, high rates of female illiteracy, low women's share of paid employment, and a high percentage of women working at home for no pay, go hand in hand.

Property rights and fertility

We have now studied two factors that shape fertility behaviour: conformism and gender relations. The two together go some way toward explaining the striking differences in fertility rates between Becky's and Desta's worlds. But there are significant differences in fertility behaviour between the Indian sub-continent and sub-Saharan Africa also, owing probably to differences in property rights in the two regions. (In recent decades fertility rates there have differed by about 2.) Parental costs of procreation are lower when the cost of rearing the child is shared among the kinship (another case of strong ties). In sub-Saharan Africa fosterage within the kinship is a commonplace.

Children are not raised solely by their parents; the responsibility is more diffuse within the kinship group. Fosterage in the African context doesn't break ties between parents and children. The institution affords a form of mutual insurance protection (see below). Because opportunities for saving are few in the low-productivity agricultural regions of sub-Saharan Africa, it may be that fosterage also enables households to smooth their consumption across time. In parts of West Africa up to half the children have been found to be living with kin at any given time. Nephews and nieces have the same rights of accommodation and support as do biological offspring. If the parents' share of the benefits from having children exceeds their share of the costs, the arrangement creates a free-rider problem. From the point of view of parents, taken as a collective, too many children would be produced in these circumstances.

In sub-Saharan Africa, communal land tenure within the lineage social structure has in the past offered further inducement for households to procreate. Large families are (or, at least were, until recently) rewarded by a greater share of land belonging to the lineage or clan. Communal land tenure and a strong kinship support system of children, taken together, are a source of reproductive externalities, stimulating fertility. In contrast, agricultural land is not held communally in the Indian sub-continent, which is probably a reflection of greater land scarcity there. Large family size leads to fragmentation of landholdings, which dampens the incentive to procreate.

Transaction needs of households

(i) Insurance

To insure oneself against a risk is to act in ways to reduce the risk. People do that by exchanging goods and services across uncertain contingencies, paying small sums no matter

what (the premia) and receiving compensation in case of bad luck. Avoiding risk would seem to be a universal urge. If Desta's parents had a choice between \$5,000 for certain and an even chance of either \$4,000 or \$6,000, they would choose the sure income. Although the mean income in the two alternatives is the same (\$5,000), the latter involves risk while the former doesn't. But what if they were offered a choice between \$5,000 for sure and an even chance of either \$3,000 or \$11,000? The latter option is risky, but its mean (or average) is \$7,000 (namely, $$(3,000 + 11,000)/2$$), which is a lot higher than \$5,000 dollars. Which option they would choose isn't clear. Risk-averse people do take risks, but only if those risks offer correspondingly higher expectations of income. In the present example, the lower value, \$3,000, could compromise the household's future. In which case the risky option would be rejected. Similarly, people pay to lower the risks they face, but only if what they have to pay isn't too high.

Households in Desta's village have no access to insurance companies; nor does the government offer insurance against calamities. Villagers insure one another by practising reciprocity (Chapter 2). The problem is that communities are able to offer individual households very little cushion against risks. When Desta's father's crops fail because the rains have let him down or because there has been an infestation of pests, the crops in neighbouring fields don't do well either. Desta's household needs help precisely when others in their community need help. Similarly, when Desta's household has enjoyed a good harvest, other households have, too. In statistical language, agricultural risks within the village are 'positively correlated'. So, although communities are essential for survival in Desta's world, they are unable to offer households much opportunity to improve their lot. Because people can't insure themselves sufficiently against failure, they are reluctant to undertake activities offering a chance of huge success if there is also an accompanying chance of large failure. Desta's world has remained poor in part because they haven't created institutions that enable people to engage in productive, but risky activities.

As the insurance they are able to obtain against crop failure is very limited, households in Desta's village adopt additional risk-reducing strategies, such as diversifying their crops. Desta's parents plant maize, teff, and enset (an inferior crop), with the hope that even if maize were to fail one year, enset wouldn't let them down. That the local resource base in Desta's village is communally owned could well be in part due to a mutual desire to pool risks. Woodlands are spatially non-homogeneous ecosystems. In one year one group of plants bears fruit, in another year some other group does. If the woodland were divided into private parcels, each household would face a greater risk than it would under communal ownership. The reduction in individual household risks owing to communal ownership may be small, but as average incomes are very low, household benefits from communal ownership are large.

Many social practices in the poor world reflect the common desire to reduce risks. For example, patrilocal residence and patrilineality enable men to exploit the knowledge they have gained from childhood of the idiosyncrasies of their soil. Both practices are the established norm in most agrarian cultures that are based on the plough. Relatedly, the larger is the distance between a pair of villages, the smaller is the likely correlation between their agricultural

outputs. We should expect rural households facing greater risks of crop failure to form marriage alliances with households in villages located at greater distances. There is scattered evidence of this as well.

Becky's parents, in contrast to Desta's, have access to an elaborate set of insurance markets that pool the risks of hundreds of thousands of households across the country (even the world, if the insurance company is a multinational). Moreover, the government comes to the rescue if there are uninsured emergencies (earthquakes, floods). This helps to reduce individual risks a lot more than Desta's parents are able to realize. Why? First, spatially distant risks are more likely to be unrelated to one another than risks nearby. Second, Becky's parents can pool their risk with many more households. With enough households and enough independence of risks from one another, mutual insurance can pretty well guarantee each household a low risk outcome. This is an implication of the famous Law of Large Numbers in probability theory. Bad luck experienced by one household is almost surely matched by good luck in another household living far away under different circumstances. What the Law of Large Numbers says is that if insurance firms are made to compete against one another, the premia that households would be charged would equal the sum of the average liability and the cost of administering insurance. Of course, those costs can be large, for they include not only the time and resources spent in the inevitable paper work, but also the resources needed to screen out bad risks (protection of the insurance firms against adverse selection) and monitoring that due care has been taken by insurees against bad outcomes (protection against moral hazard). By being able to take advantage of the Law of Large Numbers, markets and the government, taken together, are far superior to communities, despite those administration costs. People are able to cover their risks to a remarkable degree in markets. Being able to do so, they are emboldened to accept ventures that are risky but offer high expected yields. This is one reason why Becky's world is now so rich.

(ii) Borrowing, saving, and investing

If you don't take out insurance, your income will depend heavily on whether you are lucky or unlucky. Purchasing insurance helps to reduce dependence on luck. The human desire to reduce that dependence is related to the equally common desire to smooth (that is, equalize) consumption across time. You don't want to feast and fast or experience booms and busts periodically; you want to eat and drink moderately every day, enjoy vacations on a regular basis, and so on. Of course, people do incur large expenditures at certain periods of their life, such as buying a home, paying children's school fees, celebrating marriages, and meeting funeral costs. The flow of income over a lifetime tends not to match expenditure needs. So, people look for ways to transfer expenditure across time.

Mortgages, saving for children's education, and pensions help to do that. Becky's parents took out a mortgage on their house, because at the time of purchase they couldn't finance it without a loan. The resulting debt decreased their future consumption but enabled them to buy the house at the time they did. Becky's parents also pay into a pension fund, which transfers present consumption to their retired future. Desta's father joined the *iddir* in order to pay for funerals.

Borrowing for current consumption transfers future consumption to the present; saving and investing achieve the reverse. Since capital assets are productive, a dollar invested today becomes something more than a dollar tomorrow. This is one reason why in Becky's world borrowing involves having to pay interest, saving in financial institutions means receiving interest, and investing in the stock market yields positive returns (hopefully!).

In order to formalize these ideas about market economies, let us ignore uncertainty and imagine that you can buy a piece of machinery – say from abroad – for \$100,000, which, after annual costs have been met for labour, intermediate goods, maintenance and replacement of parts, and marketing, will yield you a net income of \$5,000 every year. This means that if you buy the machinery, your investment will yield a return of 5% ($5,000/100,000$) a year. Imagine now that there are large numbers of investment opportunities. For you to purchase the machinery and put it to work, it must be that no available investment opportunity yields a return greater than 5% a year. Presumably there are lots of projects that yield less than 5% a year. Those you simply dismiss out of hand.

You happen to have lots of money (in fact, you are a bank!) and someone comes to you for a loan of \$100,000 to finance the purchase of a home. You should charge the borrower an interest rate of 5% on the capital you advance. Anything less and you would lose income (you would be better off investing in another one of those pieces of machinery or any other investment opportunity yielding 5% a year); anything more and a rival bank will attract the borrower by undercutting you with a lower interest rate. But you like to specialize as a banker. So you don't want to go into production yourself; rather, you lend money to entrepreneurs who wish to go into production. What interest rate do you charge those entrepreneurs? 5% of course. If you charge less, you will face an unlimited demand for loans; if you charge more, no one will come to you for a loan.

A simple way to formulate the issues Becky's parents face when they deliberate over their consumption and saving decisions is to imagine that they regard themselves as members of a dynasty. This is another way of saying that Becky's parents are concerned not only with their own well-being and that of Becky and Sam, but also the well-being of their potential grandchildren, great grandchildren, and so on. They don't do that explicitly of course. Becky's parents take only their children's well-being directly into account; but (and this is the point) they know that Becky and Sam, when they in turn come to make their consumption and saving decisions, will take into account the well-being of *their* children, that the grandchildren in turn will take into account the well-being of the great grandchildren, and so on, down the generations. Becky's parents make a considerable investment in their children's education; but they don't expect to be repaid for this, nor do they set aside funds for their grandchildren's education, for the latter are regarded as Becky's and Sam's future responsibilities. In Becky's world, resources are transferred from parents to children. Children are a direct source of parental well-being; they are not investment goods. Needless to say, expectations about future events play a huge role in these intergenerational deliberations.

There is evidence that people prefer to consume now rather than wait, other things being equal.

This is a way of saying that we are impatient. It may be that we are so disposed because of the small chance that there will be no tomorrow for us, or it may be because we fear that the consumption prospect may not be available if we wait (recall the expression: ‘a bird in the hand is better than two in the bush’). Whatever the innate reason, impatience means that we discount future consumption simply because it is to appear in the future. But people also have a desire to equalize their consumption across time, other things being equal; which is another way of saying that we have less of a want for a marginal increase in consumption when consumption is already high than when consumption is low. However, neither impatience nor the desire for smoothing consumption squares with the fact that in Becky’s world people have been growing richer and richer and consuming more and more over many decades, nor with the fact that they expect to continue doing so over the foreseeable future. Why didn’t people save less in the past so as to smooth consumption? Equally, why don’t Becky’s parents raise their current consumption at the expense of some of their children’s future consumption?

In order to find an explanation, we assume, realistically, that the rate of return on saving is greater than the rate at which people are impatient to consume now. For theoretical purposes we may as well then imagine that the rate of impatience is negligible and that the capital market offers a positive return on saving – say, 5% a year. Consider now a household that can afford a consumption level of \$120,000 this year and \$120,000 next year (which we write as $(\$120,000, \$120,000)$). As the rate of return on saving is 5% a year, the household can certainly also afford the prospect $(\$119,999, \$120,001)$. The desire for equality of consumption over time means that the household regards $(\$120,000, \$120,000)$ to be a bit more desirable than $(\$119,999, \$120,001)$. So, if the household were asked to consume \$119,999 worth of goods and services now, it would desire something in excess of \$120,001 worth of goods and services next year as compensation. Is there a consumption prospect that the household can afford and that it regards to be more desirable than $(\$120,000, \$120,000)$? The answer is ‘yes’. We can even say something more: the desire for smoothing and the prospect of a positive return on saving mean that of all those consumption prospects a household can afford, the one it would find most desirable would have consumption rising over time.

To prove that, it will help to define a new term. Let us call the percentage rate at which the household is willing to substitute this year’s consumption for consumption next year the household’s *consumption discount rate* between the two years. If that rate is r , the household requires $\$(1 + r)$ worth of additional consumption next year for a reduction in \$1 worth of consumption this year. Which is another way of saying that an extra dollar’s worth of consumption for the household next year is worth $\$1/(1 + r)$ of consumption this year (a reasoning we deployed in [Chapter 2](#)). The magnitude of r depends on the consumption prospect. For example, the consumption discount rate of a household facing the prospect $(\$120,000, \$120,000)$ is *zero* (the household is not impatient, remember, and desires to smooth consumption over time, other things being equal); whereas the consumption discount rate of a household facing the prospect $(\$120,000, \$125,000)$ is *positive* (the household is not impatient and desires to smooth consumption over time, other things being equal).

We can now state a general result, whose present form is due to the economist Irving Fisher and the mathematician-philosopher-economist Frank Ramsey: among all consumption prospects the household can afford, the most desirable is the one along which, at every date, the consumption discount rate equals the rate of return on saving. The proof is simple: if the consumption discount rate is less than the rate of return on saving, the household would wish to save a bit more now. But to save a bit more now is to consume a bit less today, and this tilts consumption more toward the future, which in turn raises the consumption discount rate. Alternatively, if the discount rate is greater than the rate of return on saving, the household would wish to save a bit less now. But to save a bit less is to consume a bit more now, and that tilts consumption more toward the present, which in turn lowers the consumption discount rate. We have therefore proved that the best consumption prospect is the one along which the household's consumption discount rate equals the rate of return on saving.

The desire for consumption smoothing and an absence of impatience mean that the household's consumption discount rate is positive only if consumption increases with time. This explains why the desire to smooth consumption over time translates into growing consumption in a productive economy. We can generalize the result further: if the rate of impatience to consume is less than the rate of return on saving, then a household that desires to smooth its consumption would save so as to enjoy increasing consumption over time.

For Desta's parents the calculations are very different. Their household is heavily constrained in its ability to transfer consumption across time because they have no access to capital markets. Admittedly, Desta's parents invest in their land (clearing weeds, leaving portions fallow, and so forth), but that's to prevent the productivity of land from declining. Moreover, the only way Desta's family is able to consume maize following each harvest is to store the produce. The cruel fact is, though, that rats and moisture are a potent combination. Stocks depreciate, which means that the rate of return on storage is *negative* (a kilogram of maize stored today becomes less than a kilogram of maize tomorrow). An argument identical to the one we have just invoked for Becky's parents can now be used to show that Desta's parents would find it best to consume more in the weeks immediately following each harvest than in later weeks. This explains why Desta's family consume less and less and become physically weaker as the next harvest grows nearer. But Desta's parents have realized that the human body is a more productive bank than the floor where they store their maize. So the family consume even more maize than they otherwise would during the months following each harvest, but draw on the accumulated body mass during the weeks before the next harvest, by which time maize reserves will have been depleted. Across the years maize consumption assumes a saw-tooth pattern, a practice that has been observed widely among households in subsistence agriculture. As Desta and her siblings contribute to daily household production, they are economically valuable assets. The transfer of resources in Desta's household, in contrast to Becky's, will be from the children to their parents.

Earlier we noted several reasons why people in sub-Saharan Africa aim to have large numbers of children. Desta has five siblings. Unfortunately, high population growth has placed so much

additional pressure on the local ecosystem, that the local commons that used to be managed reasonably well are now deteriorating. That they are is reflected in Desta's mother's complaint that the daily time and effort required to collect from the local commons has increased in recent years.

Firms

We define firms as institutions whose sole purpose is to produce goods and services for the market. Firms that move savings from those whose income and liquid assets exceeds their expenditure (young households, such as Becky's) and transfer them to those who wish to spend more than their income and liquid assets (retired people, such as Becky's grandparents) make up an economy's financial system. Financial institutions include banks, credit card companies, and savings and loan associations (in the UK they are known as 'building societies').

Similarly, insurance firms enable people to transfer income across uncertain contingencies. Then there are firms that produce commodities (machine tools, repair services, food, and so on). Bankruptcy is a widespread phenomenon among firms. To give you a sense of the order of magnitude in Becky's world, although about 646,000 new businesses were incorporated in the US in 1990, about 642,000 businesses filed for bankruptcy that year. Evidently, firms appear and disappear.

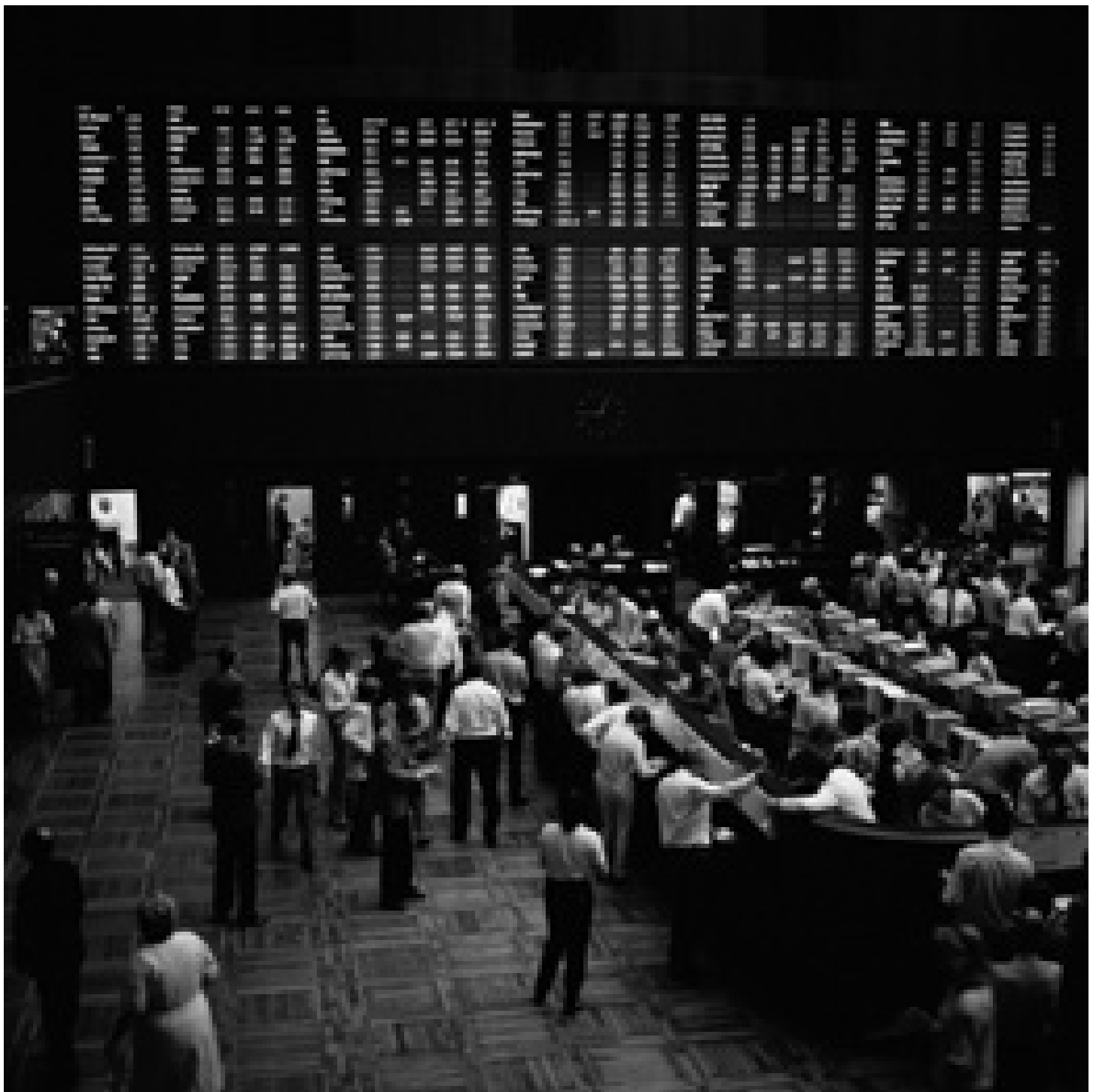
Limited liability and joint stock companies

As with infrastructure ([Chapter 4](#)), manufacturing industries and even the retail sector enjoy economies of scale. In order to grow, a firm typically has to make large investments, meaning that it needs to spread its financial source of new investments widely. Proprietorships (single owners) and partnerships are unable to do that. A firm's owners are able to absorb greater risks if they acquire a charter that gives them the privilege of *limited liability*; which is when the firm is called a *corporation*. Corporations can raise capital by going 'public' and issuing shares (known as the firm's stock). By purchasing a corporation's stock, an investor is entitled to a share of the firm's dividends. The corporation is liable for all its debts. In case it goes bankrupt, its assets are sold. The money obtained by selling its assets goes first to creditors (banks, bondholders); following which, if there is any money left, it goes to shareholders. If a corporation goes bankrupt, shareholders could well lose all the money they invested by purchasing its shares, but they won't lose any more than their original investment (that's limited liability).

That a firm has gone public means that its shares can be traded in the stock market. By allowing people to buy shares in diverse firms and to sell them when they wish to, the stock market enables investors to spread their risks even while saving for the future. The return from buying shares in a corporation is the dividend plus the capital gains (or losses) on the shares.

Corporations are able to finance new investments by (i) borrowing from the financial sector or by issuing bonds; (ii) retaining some of their earnings; or (iii) issuing more shares. From the point of view of shareholders, the ideal behaviour on the part of a corporation's management would be one that maximizes the firm's stock market value. The problem is that no two

shareholders are likely to agree what that ideal behaviour is, nor is the management likely to agree with shareholders. Moreover, shareholders face a moral hazard because many of the management's activities are likely to be unverifiable. Share prices in the stock market aggregate the investors' beliefs about the risks involved in purchasing shares. The ratio of a corporation debt to equity influences its management's incentives: too little debt, and management has little incentive to work hard for greater efficiency; too much debt, and the greater risk of bankruptcy disrupts the firm's behaviour. A corporation's financial structure is therefore a signal to the outside world. It influences the market's beliefs about the firm's prospects. Seen from the point of view of management, issuing debt signals to stockholders that management have the incentives to work hard to protect and promote the firm's prospects. Moreover, in the US, interest payments on a firm's debt are tax deductible, but until recently dividends were not. These facts help to explain why established corporations finance most of their investments (in excess of retained earnings, that is) by borrowing from banks and issuing bonds. Today in the US more than 90% of new investment in corporations is financed by debt.



12. Trading at the Frankfurt Stock Exchange

The emergence of the joint stock company with limited liability, which was consolidated in 1855 by the British Parliament's Limited Liability Act, is widely regarded to have been one of the most significant institutional innovations in business history. In the public's mind corporations reflect Big Business. That isn't entirely unjustified, but it misses much of the point. In the US, the number of corporations is less than 20% of the number of private firms, but they earn over 80% of the revenue. That said, the ability of households to spread their risks even while investing in far off places via the agency of corporate firms is an enormous advantage to society. It has been a significant factor behind the economic success of Becky's

world.