Wealth and Desired Wealth

3

Abstract

With increasing general prosperity, desired wealth increases faster than current consumption. There is thus a secular tendency for the "waiting period" Z to grow. This is already the case for demographic reasons that hold for the global population as a whole. The proportion of the global population living in absolute poverty is rapidly declining. A monetary system offering stable purchasing power represents an important contribution of society to facilitating adequate private provision for the future. The "savings triangle" is a highly simplified, but neat representation of these interrelationships. It offers a good approximation of the facts.

3.1 The Concept of Desired Wealth

Other things being equal, most people prefer more wealth to less wealth. But when we speak of "desired wealth," we mean something else. Let us assume that individual A has a given intertemporal budget for consumption purposes at his or her disposal and that this budget consists of initial wealth and expected labor income. Let us assume, furthermore, that the individual is confronted by certain returns on invested wealth. This individual decides then on a given *work and consumption plan η*. We also speak here of a *life plan*. We can now ask: How does the wealth of this individual evolve in connection with the life plan η that he or she has chosen? The values that are thus derived for the individual's wealth are what we call the "desired wealth."

The concept of desired wealth thus always involves the individual's awareness that there is a trade-off between consumption at different points in time. If you want to consume more today, then this comes at the cost of future consumption or at the

cost of future leisure. This understanding of desired wealth corresponds to the usual neoclassical explanatory scheme for consumption and saving behavior.

For a closed economy, we can state the following: Desired wealth has always to be distinguished from actual private wealth; but in full-employment equilibrium, it must be the case that aggregate desired private wealth and aggregate actual private wealth are equal. This statement corresponds to the more common formulation that in macroeconomic, full-employment equilibrium, "voluntary" or "planned" investment must be equal to "voluntary" or "planned" saving in the economy as a whole. It is not, however, identical to the latter, since, on the one hand, we are speaking of desired *private* wealth and actual *private* wealth, but, on the other, of *overall* investment and saving.

The reason why we speak of desired wealth, instead of saving, and of actual wealth, instead of investment, is connected to our approach. We primarily consider steady states, in order to make use of the clarity of the steady state's intertemporal relationships. In addition, we distinguish between the private sector and the state. If the state is a net borrower, the wealth of private persons is greater than national wealth. In this case, the desired wealth of private persons can also exceed national wealth.

> The main thesis of this book is that a free economic and social order can only be stabilized in the twenty-first century if private persons are accorded their desired level of wealth under conditions of price stability—and that this is not possible without considerable net public debt.

The derivation of this main thesis only succeeds if we work with the stock variables "wealth" and "desired wealth," from which the flow variables "saving" and "investment" are then derived.

3.2 Demographics: The Example of the Savings Triangle

A simple example for deriving desired wealth is the "savings triangle." Although we are aware that the assumptions for deriving the savings triangle involve an extreme simplification of people's actual arrangements for their futures, we develop this example, because it makes the influence that demographic conditions have on desired wealth particularly clear. Moreover, it has the additional benefit of fitting the facts of a country like Germany quite well (see Sect. 3.3).

Let us consider an individual who expects to live $a + b$ years as an adult. Here, a is the length of time in which the individual earns money by working. The length of time b is the subsequent period of retirement. In order to be able to finance consumption during retirement, the individual has to amass savings during the length of time a: i.e., to accumulate wealth. In order to simplify the presentation, let

us assume that, firstly, the annual labor income remains constant (equals $\hat{w}$), that, secondly, the individual wants to distribute consumption equally over his or her entire lifetime (consumption per year = $\hat{c}$), and that, thirdly, the rate of interest is zero. We should note, however, that the same result is obtained, if labor income and consumption increase at the rate g per year and the rate of interest is $r = g$.

It is evident that

$$\hat{c} = \frac{a}{a+b}\,\hat{w}$$

then applies.

During the length of time until a, the individual annually saves the amount

$$\hat{s} = \frac{b}{a+b}\hat{w} = \frac{b}{a}\hat{c}.$$

For $0 \leq t \leq a$, this gives an evolution of wealth

$$\hat{v}(t) = \frac{bt}{a}\hat{c}$$

and for $a \leq t \leq a + b$,

$$\hat{v}(t) = (b + a - t)\hat{c}.$$

Averaged over the whole adult life of the individual, we obtain "average wealth" $\bar{v}$

$$\bar{v} = \frac{a}{a+b}\frac{b}{a}\frac{a}{2}\hat{c} + \frac{b}{a+b}\frac{b}{2}\hat{c} = \frac{b}{2}\hat{c}.$$

The ratio between intertemporal average wealth $\bar{v}$ and annual consumption $\hat{c}$ is thereby given through half of the retirement period. This is, however, precisely the waiting period $Z = b/2$. The waiting period is the average time lag between labor income and consumption expenditure. The temporal "center of gravity" of labor income is at $a/2$. The temporal "center of gravity" of consumption expenditure is at $(a + b)/2$. The average time lag between income and expenditure is thus

$$\frac{a+b}{2} - \frac{a}{2} = \frac{b}{2}.$$

If, for a population in a steady state, we now consider this steady-state economy as a whole with overlapping generations that are all of this same sort, then the per capita wealth of the population is equal to the above-calculated current average wealth of an individual during his or her lifetime. This is a simple example of the result derived in Chap. 2: At a rate of interest $r = g$, per capita wealth is equal to the waiting period Z times consumption per capita (Fig. 3.1).
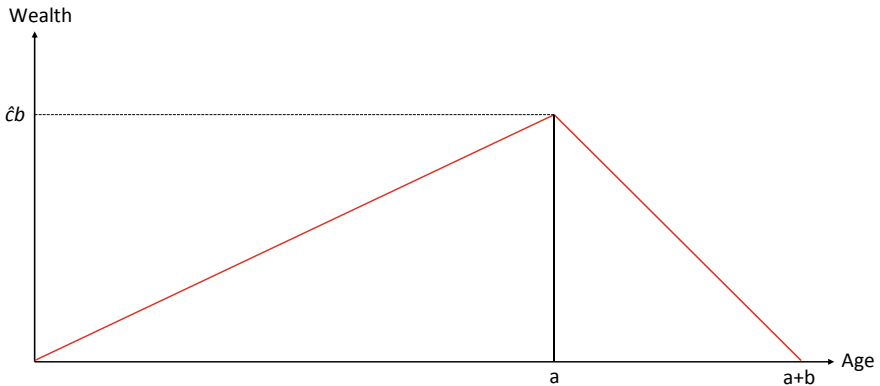
Wealth

Fig. 3.1 The savings triangle. *Source* Author's own presentation

The wealth of the individual age cohorts or the evolution of the wealth of an individual person during his or her different stages of life can also be graphically represented. This brings us to the savings triangle.

It is clear that the average height of the red line between 0 and $a + b$ is equal to $\hat{c}b/2$.

3.3 The Savings Triangle Closely Fits the Saving Rate of the Members of the German Social Security System

Although this model is a gross simplification of reality, consider the following facts as regards Germany.

We can assume that the average length of time that compulsory participants in the social security system remain in the active labor force is not more than 40 years. So, to be on the safe side, let us here postulate 40 years. The average length of time that social security beneficiaries are paid retirement benefits is today around 20 years and the tendency is rising. As a rule of thumb, we can thus say that for this group of people, the ratio b/a is around ½. In our simple model, this gives a value $b/(a + b) = 1/3$ for the saving rate during an employee's active working life.

It is interesting to note that this value roughly corresponds to the actual value for Germany. The conventionally measured saving rate of employees enrolled in Germany's social security system is just under ten percent. This is "voluntary" saving. The employee and employer contributions to what is known as the Statutory Retirement Insurance—in other words, the public retirement plan—have to be added to the latter. These contributions currently represent between 18 and 19% of the gross wage. A not inconsiderable part of contributions to the Statutory Health Insurance—viz., Germany's public health care plan—must also be included as de facto saving. As is well known, the public health insurance providers generate a

high contribution surplus among active employees, which serves to compensate for the contribution deficit among retirees. This contribution surplus in the Statutory Health Insurance can be seen as analogous to old-age provisions in private health insurance, which likewise have to be interpreted as a form of saving on the part of the insured. For the details, see Sect. 6.2. Finally, public nursing care insurance is also to a very large extent to be regarded as a form of saving, since the contributions of younger people to nursing care insurance far exceed the contemporaneous claims made on it within the age cohort. Details on this matter are likewise to be found in Sect. 6.2.

If we add together these items, we get a saving rate of at least one-third. Here, we have to put the following in the denominator: gross wage income minus income tax and minus the employee contribution to the Statutory Health Insurance and plus the employer contribution to the Statutory Retirement Insurance. This is the "real" net wage income of the employee. Income tax is obviously not part of it. But the contribution to the Statutory Health Insurance is also a "tax," since its amount has nothing to do with a premium calculated using actuarial methods. Along with the employer's contribution to the Statutory Health Insurance, it is, for all intents and purposes, a second income tax. On the other hand, the employer contribution to the retirement plan is a (tax-free) form of saving for the employee, which, in accordance with Germany's retirement benefits formula, results in greater benefits. Depending on the level of the (average) income tax rate, this corrected net wage payment is higher or lower than the gross wage. The overall deviation from the gross wage for all employees is, on average, relatively small.

3.4 The Law of Increasing Relative Desired Wealth

Formulated very generally, we can put forward the following empirically robust proposition:

> The Law of Increasing Relative Desired Wealth: With increasing general prosperity, desired wealth increases faster than current consumption.

We can, in particular, make the following three observations: 1. In every national economy, in a given year, the conventionally measured saving rate of individual households rises with annual household income (cross-sectional analysis). 2. With rising average prosperity over time and, consequently, rising life expectancy, the time during which retirement benefits are drawn rises considerably faster than the duration of an employee's active working life. In the language of the above example: b/a rises with increasing national wealth and rising life expectancy. For most OECD countries, the ratio b/a is today about twice what it was a half century ago (trend analysis). 3. As concerns conventionally measured wealth, the share that is left as inheritance also rises with rising prosperity.

In the following sections, we will discuss the second point (demographics) and the third point (inheritance). The cross-sectional import of the first point is obvious.

3.5   Demographics: The Third Stage of Life Is Increasing Around the World

Provision for retirement age is greatly increasing. In Germany, for instance, life expectancy has risen by around 10 years in the last half century. Parallel to this rise, the length of time during which retirees draw benefits from the Statutory Retirement Insurance has likewise risen by around 10 years. This is to say that the b in our simple example has doubled, whereas the a has remained more-or-less constant.

   We can expect a further increase in life expectancy in the future: both around the world and in the OECD plus China region. Figure 3.2 is taken from the latest world population forecast of the United Nations. If we can assume, in keeping with the trends observed up to now, that by the end of the twenty-first century, many of what are today developing countries will also figure among the "rich" countries, then the UN forecast of continued growth in life expectancy suggests that the third stage of life b will also continue to increase on average worldwide. If we assume, on the "model" of Germany in the last half century, that one hundred percent of the further rise in life expectancy will be used for extending the third stage of life, then life-stage b will grow by around 12 years by 2100 on the global average.
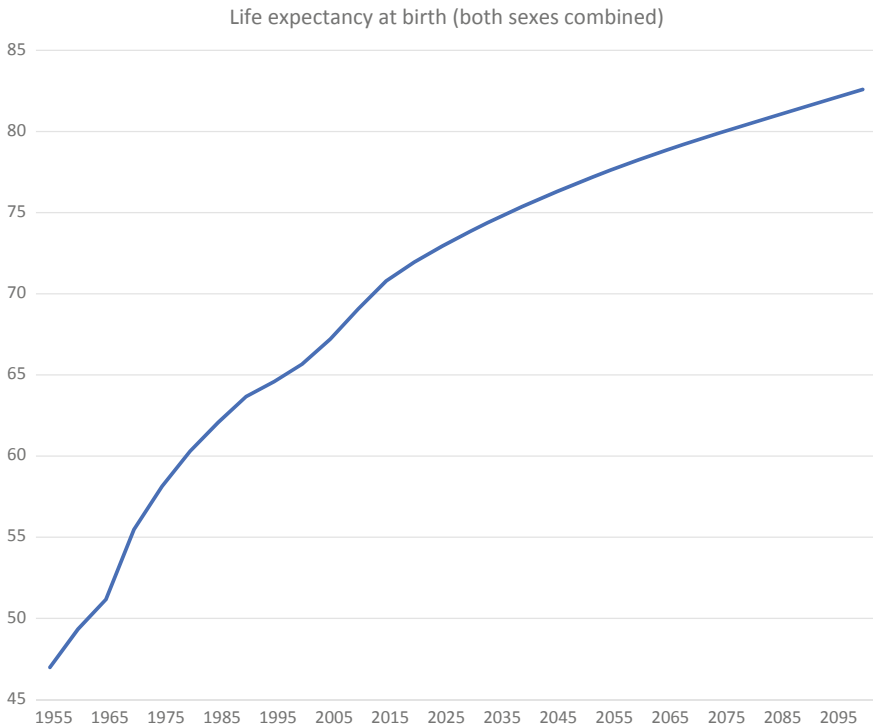

Fig. 3.2 Life expectancy of the world population. *Source* United Nations DESA/Population Division, World Population Prospects 2017

Of course, it is possible to have doubts about whether the "use" of rising life expectancy will entirely consist of extending the third life-stage. In Germany and many other OECD member states, there are often calls for people to work longer, in order to avoid overburdening the welfare state. This is a reasonable demand, but up to now an unpopular one. For this reason alone, an increase in the length of active working life in parallel to the rise in life expectancy is not to be expected. On average, the value of b will rise globally.

The answer to the question of how much b will rise depends in large measure on the further evolution of the institutional conditions. But the latter are subject to the vagaries of politics. In order to provide recommendations to policymakers in this regard, it is interesting for economists to engage in a thought experiment. We should ask the following question: On average, when do people want to retire, if, firstly, the social security system gives them the freedom to decide the point in time when they retire and if, secondly, it offers them retirement benefits that have been correctly calculated using actuarial methods as a function of their contributions. We are not able to answer this question here. Theoretical and empirical research on the issue would thus be useful.

We want merely to call attention to one point that affects all countries. It can be formulated as a question: How, on average, is the "*disutility of labor*" evolving in the population? There are prominent economists, like, for instance, Edmund Phelps, who complain that economic growth is lower today than it was in the past (Phelps 2013). Phelps explains this by massively increased "corporatism." Nonetheless, we have to ask whether we have a correct measure of economic growth. Or could it be that our measure leaves out or only partially includes an important characteristic of social progress: namely, the "quality" of jobs?

Decades ago already, Robert Solow observed, "You can see the computer age everywhere but in the productivity statistics" (Solow 1987). In light of the current, virtually universal debate on digitalization, this quote is more relevant than ever. Does the progress obtained by humanity from the trend toward digitalization lie, above all, in the fact that the average "disutility of labor" has decreased and will continue to decrease? According to the neoclassical calculation, voluntary work for pay will continue up to the point at which an additional hour of paid labor brings about a negative marginal utility whose amount is equal to the additional marginal utility of consumption from the wage for this labor. This negative marginal utility is described as the "marginal disutility of labor."

Now, we can observe that there is a secular tendency for the share of paid labor-time in people's lifetimes to decrease. This fact alone suggests that the overall disutility of labor is considerably lower today than it was in the past. But indicators like work-related accidents and illnesses also suggest that the disutility of labor has become less significant. Therefore, it may be that nowadays a larger part of the annual growth in welfare is yielded in the form of a reduction in the disutility of labor. This could mean that, taking into account this effect, growth in rich countries has not decreased, but merely changed its form. The measured decline in growth could be based then on an error in the definition of what is to be understood by "growth."

We bring up this question in connection with our main thesis, because the secular decrease in the disutility of labor could also lead to people persistently wanting indeed to work until a more advanced age. This would have a dampening effect on the further growth of b.

Economists who are worried about the stability of public finances propose that the statutory retirement age should be raised in proportion to the rise in the life expectancy of social security beneficiaries, such that the coefficient b/a remains constant. If this recommendation were to be put into practice, the saving rate of employees in our savings triangle example would remain constant at $b/(a + b)$. The contributions of employers and employees to the retirement plan would not have to rise in relation to the net wage defined above. Nonetheless, even in this case, rising life expectancy means that the ratio of retirement-related desired wealth to current consumption will continue to rise in parallel to the rise in life expectancy. This ratio is, after all, given by the value $b/2$. In other words, even if the rate at which employees save for retirement purposes remains constant, with the greater length of active working life (i.e., in our savings triangle model, with rising a), the ratio between average wealth during a lifetime and current consumption rises.

The thesis of rising desired wealth for retirement purposes in relation to current consumption is thus secure, even if the call for not reducing the share of active working life in total adult life should prevail.

> The rising life expectancy of the global population is thus the robust demographic cause for the increase in desired wealth for retirement purposes in relation to current consumption.

Here, we should mention an idea that often gets expressed, but that involves a structural error. The rising coefficient between "elderly" and "active" is frequently attributed to the gradual passage of "baby boomers" into retirement. On this account, the age coefficient will later fall again when a balanced age structure is restored. With a given average life expectancy, this analysis is correct. In the meanwhile, however, life expectancy is continuing to rise. Therefore, we cannot realistically expect a return to the status quo ante of the elderly/active coefficient. The three dominant factors influencing this coefficient are life expectancy, the average retirement age and the growth rate of the population. We will come back to this last factor in Chap. 12.

3.6 The Inheritance of Wealth

Continuing our simple example on retirement planning, we can connect the motive of transmitting an inheritance and desired wealth. We again assume a steady-state economy and consider an individual who expects to earn money by working a years

and to be a retiree for b years. He or she tries to distribute consumption equally over the lifetime $a + b$. As before, the annual wage $\hat{w}$ is constant and the rate of interest is zero. In contrast to the previous example, this individual can expect an inheritance corresponding to e years of consumption. The individual wants, however, to leave the same amount to his or her heirs.

Thus, consumption per year remains at the same level as without any inheritance motive. The average wealth is, however, simply increased by the amount of the inheritance, i.e.,

$$\bar{v} = \frac{b}{2}\hat{c} + e\hat{c} = \left(\frac{b}{2} + e\right)\hat{c}.$$

It is again the case that the calculation remains valid, if annual income and annual consumption grow at the rate g, the rate of interest is $r = g$, and the planned inheritance likewise grows proportionally with annual consumption. Here too, we can speak of a "waiting period" $Z = b/2 + e$. In this respect, we can theoretically apply the "First In—First Out" principle to the individual's wealth: Current consumption expenditure is always financed by the financial resources that have been available the longest. Thus, the consumption expenditure of individual A in the first e years is assigned to the labor performed by the testator, whereas, on the other hand, the first e years of the consumption of the heir of individual A are assigned to the labor income of individual A. The temporal "center of gravity" of the labor performed by individual A is thereby $a/2$, as before, whereas the temporal "center of gravity" of the consumption expenditure assigned to the related labor income is now $(a + b)/2 + e$, since it is now a matter of consumption expenditure between time e and time $a + b + e$. The difference between these two centers of gravity is thus $Z = b/2 + e$.

More generally speaking, the motive of leaving wealth to one's heirs is part of the future-directedness of human action. Our theory is thus a version of the hypothesis of an increasing future-directedness of human action as prosperity increases. We will come back to this hypothesis momentarily.

Before we do, however, we would like, in connection with the inheritance motive for desired wealth, to point to the *interdependence between the inheritance motive and the motive of risk planning*. In our simple example, we assumed that individual A can foretell the moment of his or her death. Needless to say, this is unrealistic. In modern society, there is, however, the institution of life insurance and, more specifically, the availability of life annuities serving as a kind of "longevity insurance." The annuity paid by the life insurance company treats the purchasers of such insurance, with regard to their annual consumption for their age, as if the time of their death corresponds to the average for their age cohort. The insurance provider is able to do this by internalizing the balancing of risk among them. The conclusion of a life annuity contract is, however, tied to considerable "transaction costs" for the purchaser. The insurance provider can only continue to exist, if, from the premiums paid in, it is able to obtain a considerable actuarial surplus over the annuities paid out. This surplus is needed to cover the provider's

administrative and acquisition costs. As consequence, the premiums that have to be paid are considerably greater than the expected value of the annuities. There is thus a strong incentive to do without this type of risk protection: all the more so inasmuch as there is another form of protection against the risk of longevity, which we will discuss now.

It has always been the case—and hence was already the case even before there were life insurance companies—that an individual A who wanted to leave an inheritance to his or her descendants could make the potential heir into an implicit or explicit life annuity insurer. When individual A creates a risk cushion, he or she does not pay too dearly, since, to the extent that it is not used, the wealth thus amassed can be bequeathed as an inheritance. The use of the inheritance mitigates the testator's own sacrifice in foregoing consumption to build up a cushion against the risk of longevity. The longevity risk is borne by the heir.

In the social strata in which the inheritance of wealth is customary, there has thus existed for ages an implicit intra-family, but intergenerational longevity insurance in the form of an implicit life annuity for the testator.

3.7   With Increasing Prosperity, the Future-Directedness of Human Action Increases

We now return to the *thesis of the increasing future-directedness of human action as prosperity increases*. This thesis has strong anthropological support. In the animal kingdom, there is an instinctually anchored, limited future-directedness. The drives or instincts—like hunger and thirst, like the sex drive, like nest-building or, in other words, the rearing of immediate descendants—fulfill the function of preserving the species. Thanks to its cognitive abilities and the ability to pursue more distant goals that is based on the latter, as well as thanks to its differentiated language-based ability to cooperate, Homo sapiens has far greater possibilities for acting in a future-directed way. Unlike animals, Homo sapiens can elaborate means in the present that enable it, beyond its instinctual life, to pursue aims in the distant future.

Thousands of years ago, the first "Great Transformation" from the Stone Age hunter-gatherer society to agrarian society took place. In the latter, available land was used far more productively than before. This was accompanied by a further reinforcement of human future-directedness. New forms of social coexistence came into being. In particular, the common lands that were intensively used in agriculture were transformed into objects with strictly limited possibilities of access: the "property rights" of the Property Rights School. Their main function consisted in the fact that with this altered legal structure, far greater agricultural output could be achieved, which, however, for the most part required a longer period of "waiting." The natural processes of maturation of crops and domesticated animals were used to obtain high net yields. But this maturation required time. Furthermore, one had to adjust to the seasons, since the yields were largely obtained in a different season

than the need for them as food. It was thus necessary to maintain considerable stocks—and to take measures to ensure that they did not spoil too soon. In addition, agricultural equipment, pack and draft animals, and often also buildings were needed, in order productively to cultivate the land. Hence, in comparison to the earlier society of hunters and gatherers, there was an increase in the average time lag between the expenditure of labor and the use of the agricultural products generated by it.

But an additional consequence of this first "Great Transformation" was that the massive rise in agricultural output was accompanied by rapid population growth. Hence, the standard of living rose far less than agricultural output. Considerably more people now had to be fed per cultivated unit of land. In retrospect, the economic anthropologist Marshall Sahlins thus calls the society of hunters and gatherers the "original affluent society," in which the burden of labor was significantly lower than in the subsequent agrarian society (Sahlins). At the same time, the new institutions led to a vertical stratification of many societies. There was increasingly now a difference between rich and poor, between landowners and those who worked the land, between nobles, bourgeois and slaves. The ruling upper stratum developed a system of domination whose stabilization required long-term thinking and action. The rule of some over others—often also in ideologically distorted form—was legitimated by, among other things, the idea that the ruling class was able to think and act in the long term, whereas the subjects and, above all, the slaves could not. The predominant religion in each society likewise served to stabilize the vertical status quo. The articles of faith suggested by it made this-worldly action susceptible to punishment by way of other-worldly sanctions: hence, sanctions in a distant future.

Up until industrialization, the standard of living of the vast majority of people remained close to the subsistence minimum. A monetary and credit system had, however, already emerged in classical antiquity. This system made it possible to amass wealth without having to acquire tangible assets to the same extent in the form of means of production. The difference between "saving" and "investment" thus became relevant. For many people, this facilitated an economic orientation toward the future.

Along with the Industrial Revolution or, as Karl Polanyi called it, the "Great Transformation," "modernity" developed (Polanyi 1944). The latter is characterized by a constantly increasing division of labor. Here, it is worth citing the—as it were —"prophetic" opening sentence of *The Wealth of Nations*: "The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgement with which it is anywhere directed, or applied, seem to have been the effects of the division of labour" (Smith 1776, I.i.1). Karl Marx would later describe this process of gradual differentiation of human production activities as the "socialization of labor" (Marx and Engels 1967 [1848]; Marx 1976 [1867]).

Max Weber was also fascinated by this historical process of modernity. He subsumed it under the law of increasing societal rationalization. His thesis of religiously motivated "inner-worldly asceticism" as the basis of the capitalist

economic system captures both aspects: the increasing rationality and the increasing future-directedness of social—and especially, economic—action. Growing calculability goes together with increasing future-directedness, which is manifest in the dynamic of the capitalist saving and investment process (Weber 1992 [1904–05]).

In Marx, we find the exhortation: "Accumulate, accumulate! That is Moses and the prophets!" (Marx 1976 [1867], p. 742). In *Capital*, he justifies this motto of the capitalist class as an inescapable norm, which is imposed on the individual capitalist by competition on the market. The idea of—to use the modern expression—increasing returns to scale already lies behind Marx's argument. As a structural feature of modernity, economic competition (or competition per se: also in intellectual life, in school, in politics, in the most intimate parts of the private sphere) compels individuals to adopt an orientation toward the future when the absence of such an orientation would lead to their downfall.

3.8   Overcoming Poverty Leads to Increasing Future-Directedness

There is a powerful obstacle to the future-directedness of individual action that is commonly designated by the term "poverty." For future-directed action only makes sense if you can expect also to live to experience the future in question. If an individual A does not save, this is not necessarily an indication of unwillingness to make provision for the future. Effective provision for the future is determined by two factors: firstly, the desire to make provision for the future and, secondly, the real possibilities of doing so. An aspect of such real possibilities is that you are very likely also to live to experience this future. To make arrangements for a future that you are highly likely never to experience is not rational. Hence, failing to make such arrangements is not in and of itself an indication that the desire to make provision for the future is lacking.

It thus also becomes clear, however, that we cannot expect an individual A who is barely surviving on the subsistence minimum to "set aside" much for the future. It is not rational to make provision for the future, if by making such provision, you put your present at risk. We do not want to go into detail about this here, but we recommend reading the book *Poor Economics* by Banerjee and Duflo (2011).

We can thus formulate the following "on average" statement: As concerns low incomes, effective provision for the future increases as prosperity increases. One reason for this is that with rising income, provision for the future is less and less detrimental to the likelihood of living to experience the future in question.

A second reason is that with rising prosperity, there is an increasing "return" on currently foregoing consumption to provide for one's future. For greater prosperity makes possible better knowledge of the possibilities of providing for one's future.

Furthermore, there are economies of scale in the use of this knowledge. This especially applies to investment of savings.

If we can assume that absolute poverty is an obstacle to saving, then a dramatically rapid fall in the proportion of the global population living in absolute poverty must represent a powerful impetus to increased saving. The classic example for this is China. In 1980 (as a legacy of Mao Zedong's "Cultural Revolution"), three-quarters of China's population was still living in absolute poverty. Nowadays, absolute poverty is practically unknown among the Han Chinese. Of course, this does not completely explain the high average saving of the Chinese population. The fact that a highly unequal distribution of income has come into being in the course of China's tumultuous economic growth has also contributed to the high saving rate.

In the language of conventional demand theory, demand for current consumer goods has an income elasticity of less than one and demand for goods to be consumed in the future has an income elasticity of greater than one.

3.9   The Separation of Saving and Investment Results in Greater Provision for the Future

Given the desire to make provision for the future, effective provision for the future increases with increasing possibilities for making such provision. The separation between saving and investment is highly significant here. The individual A can save without having to invest. He or she can make provision for the future without taking entrepreneurial risks. If society, moreover, offers a currency with stable purchasing power to individual A, then the cognitive demands of rationally planning for the future are not too great. Thus, we derive the following proposition:

> A monetary system offering stable purchasing power represents an important contribution of society to a high degree of individual provision for the future.

Conversely, the financial system frees investors from the limit of only being able to invest at the level of their own savings. Investors can borrow—and they can provide shares of their business to third parties who make financial resources available to them. On both sides—provision for the future through saving and provision for the future through investment—provision for the future is promoted by money with stable purchasing power.

3.10 The Measure *Z* of Relative Effective Provision for the Future

On the ancillary condition of full employment and with a given level of public debt, a balance between wealth and desired wealth is brought about via the level of the interest rate. As usually maintained in economics and as also shown in Chapter 2 on the natural rate of interest, we expect that in a steady state, amassed wealth will be less with a higher interest rate, but desired wealth will be greater. Without public debt, it is via the natural rate of interest that aggregate wealth and aggregate desired wealth are made to match.

The waiting period *Z* that we have defined provides a measure of relative desired wealth. If the risk-free rate of interest *r* is equal to the growth rate *g*, then *Z* also indicates the ratio between desired wealth and current consumption. Our theory thus amounts to the thesis that with tendentially rising average prosperity, *Z* also has the tendency to rise.

In Chap. 2, we showed that the equation $Z – D = T$ holds for a steady-state equilibrium with a risk-free rate of interest $r = g$. The optimal rate of interest leads the overall economic period of production and the overall economic waiting period to be the same size.

> It is the "optimal" public debt level D that has to ensure that aggregate desired wealth $Z − D$ and aggregate wealth T balance out.

In the following chapters, we will discuss the three components of private wealth in a closed economy that we have defined. These three components are: firstly, the real capital required for the production process; secondly, the value of land in the economy in question; and, thirdly, the net claims of the private sector on the state.

Why these three components of private wealth? To begin with, let us reiterate two presuppositions. We are considering a very large economic area: the OECD countries plus China. We can show that the net asset position of this area vis-à-vis the rest of the world is small. We will thus not be committing any major error, if we regard this area as a closed economy with respect to net asset positions. Secondly, we are interested in distinguishing between the private sector and the state, since we are primarily concerned with the role of public debt in economic policy. Hence, we need to regard the net claims of the private sector on the state as a category of wealth. The distinction between real capital and land is based on the fact that price formation is very different for these two categories. Real capital derives its value principally from its historical acquisition costs or, respectively, its replacement costs, which under competitive conditions are very closely related to the production costs of the investment goods industry. Depreciation is also based on the empirical values for the useful life of investment goods.

Land prices have an entirely different origin. They correspond to the capitalized present value of future land rents. They are thus dependent, firstly, on the level of these future land rents, but then also upon the interest rates with which the present values are calculated.

We do not consider one economically important form of wealth: namely, human capital. The reason for this is that, apart from a few exceptions, it is not available to third parties as a capital investment object. Within the family, there are wealth transfers—in particular, from parents to children—that promote the formation of human capital. But we forego any attempt to quantify human capital, since the latter is not directly relevant to the capital market.

The private sector includes both households and firms. In the consolidated balance sheet for the private sector, we assign the wealth of firms to the shareholders in proportion to their shares.

3.11   The Assumption of a Closed Economy for the OECD Plus China Economic Area

When we say in this book that the group of countries comprising the OECD members and China represent a closed economy, what we mean is that the exports of the OECD plus China region to the rest of the world are more or less the same size as the imports of the OECD and China area from the rest of the world. Put differently, we start from the assumption that the OECD plus China region has sustainably and on average approximately balanced trade or a balanced current account vis-à-vis the rest of the world. In this case, the OECD plus China region would also have a balanced capital account vis-à-vis the rest of the world. For the reasons already laid out above, we are less interested in flow variables than in stock variables. In an economic area with a balanced current and capital account, the stock of foreign claims is at the same level as the stock of foreign liabilities. In the long term, the OECD plus China region would thus have a net foreign asset position of zero. This assumption is relevant in our present context, because in this case, the level of wealth desired by the citizens of the OECD plus China region can only be achieved within this economic area itself. In what follows, we show why the assumption of a zero net foreign asset position of the OECD plus China region is roughly correct.

As we define it, the OECD plus China region is comprised of 35 countries altogether: including 34 OECD countries and the People's Republic of China.[1] In order to check whether the OECD and China group of countries has balanced trade vis-à-vis the rest of the world, we need, as a first step, to determine the bilateral trade relations of the 35 countries among themselves and of each of them with the rest of the world. For this purpose, we can use data on the global trade in goods and

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[1]We include all the countries that had joined the OECD by 2015 among the OECD countries. Hence, neither Latvia (accession: 2016) nor Lithuania (accession: 2018) are included in our group of countries.

services of these countries that is provided by the OECD in one of its databases (OECD 2017).[2] The individual country data is then aggregated, in order to be able to derive the trade relations of the OECD plus China group with the rest of the world.[3]

The result of these calculations is represented in Fig. 3.3, which shows the balance of trade of the OECD plus China region with the rest of the world between 1995 and 2011.[4] The balance of trade for each year is given as a percentage of the entire gross domestic product of the region. At the start of the period under consideration, this economic region had a slightly positive balance of trade with the rest of the world of, on average, about 0.5% of gross domestic product. At the end of the 1990s, the balance of trade of the OECD plus China region then became negative. Between 2000 and 2008, the balance oscillated between around − 0.4% and − 0.8% of gross domestic product. During the 2009 global economic crisis, the balance of trade of the region improved for a short time. In 2010, however, it again went into the minuses.

In the period from 1995 to 2011 under consideration here, the negative balance of trade of the OECD plus China region with the rest of the world was, on average, 0.24% of the gross domestic product of this economic area.

Due to the incompleteness of the data, it is not possible to undertake a similar analysis of the net foreign asset position of the OECD plus China region vis-à-vis the rest of the world, using a procedure analogous to that used in the calculation of the balance of trade. The International Monetary Fund (IMF 2017) makes available data on the net foreign asset position of each member country; the data is not broken down by individual target countries or countries of origin, however, but only given in the aggregate for each country vis-à-vis all other countries. Hence, it is not possible to purge the net holdings in other OECD countries and China from the overall net foreign asset position of each country, so as to be able to determine just the net foreign asset position of the OECD plus China area countries vis-à-vis the rest of the world. In what follows, we can thus only present the aggregate *Net International Investment Position* (NIIP) of all countries of the OECD plus China region with respect to all other countries.

Analyzing the result obtained using this data, we find that the group consisting of the OECD countries and China had a fluctuating and—apart from two years representing exceptions—consistently negative balance of its aggregate net foreign asset position from 1991 to 2016 (cf. Figure 3.4). Most recently (in 2016), this

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[2]It would have made sense to carry out an investigation on the basis of current account balances. But the data needed to be able to analyze all the reciprocal current account relationships among countries and between them and the rest of the world is not available for all the countries of the OECD plus China region.

[3]The reliability of the results was also tested using World Bank (2017) data.

[4]We are entirely aware of the limitations of the data on global trade and capital interrelations. For example, from the data of the OECD, IMF, etc., it is possible to calculate a global current account balance that was continuously negative between 1980 and 2005 and has been positive since then (approximately − 0.8% or, respectively, + 0.8% of global GDP). Since the earth does not trade with other planets, this is evidently based on data collection problems—above all, concerning capital flows.
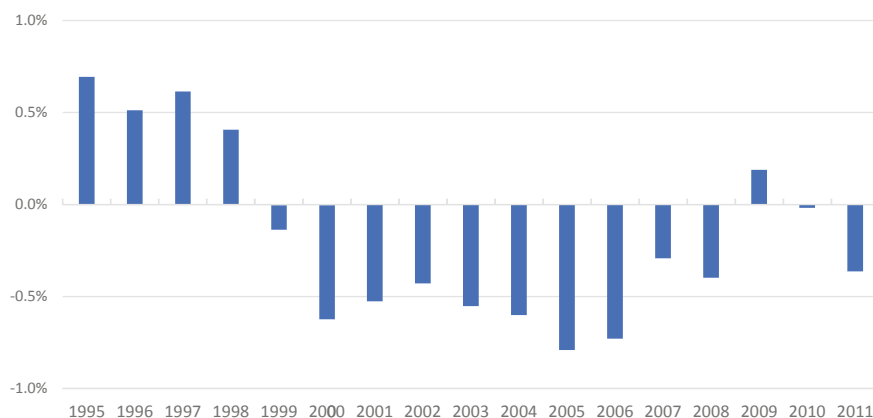
Fig. 3.3 Balance of trade of the OECD plus China area with the rest of the world in percent of gross domestic product. *Source* OECD (2017); Author's own calculations
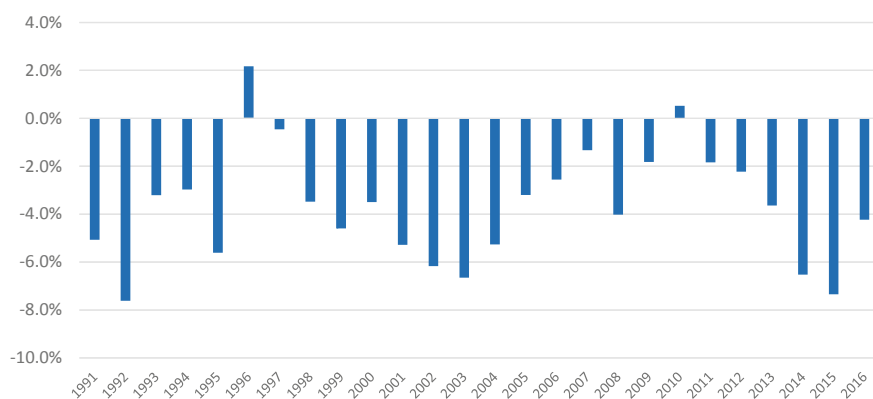

Fig. 3.4 Common net international investment position (NIIP) of the countries of the OECD plus China area toward the rest of the world. *Source* IMF (2017); Author's own calculations

balance amounted to around − 2.3 trillion US dollars, corresponding to 4% of the gross domestic product of the region or the total product of about two weeks.

From 1991 to 2016, the aggregate net foreign asset position of the countries of the OECD plus China region vis-à-vis the rest of the world was, on average, around − 4.8% of the gross domestic product of this economic area.

The analysis of the trade data and the data on net foreign asset positions makes clear that, although not completely closed, the OECD plus China region can certainly be regarded as a nearly closed economic area. In the period from 1995 to 2011, the balance of trade of the OECD plus China economic region vis-à-vis the

rest of the world was − 0.24% of gross domestic product. Even if we only consider the period after 2000, when the balance of trade became negative, the result is merely a slightly negative balance of, on average, − 0.4% of gross domestic product. The net foreign asset position of the OECD plus China region is also fairly balanced, being on the order of approximately − 4 to − 6% of gross domestic product over the last two decades. Although the available data only allows for an approximate judgment, we can, nonetheless, conclude even from analysis of the data on net foreign asset position that the OECD plus China economic area is relatively closed vis-à-vis the rest of the world. Hence, it will be legitimate to treat the OECD plus China region as a closed economy in the further course of the present book.

The cited statistics thus clearly show that the rest of the world does not represent an "outlet" for possible surplus savings of the OECD plus China economic area.

3.12   The Gist

In this chapter, we have discussed desired wealth. The main hypothesis is:

> The Law of Increasing Relative Desired Wealth: The greater the average prosperity of a country, the greater is the ratio between desired wealth and annual consumption of goods.

We have derived this law from the *thesis of the increasing effective future-directedness of human action as prosperity increases.*

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