Chapter 4
Under Valorized Areas

Abstract A region or a city, with local specific resources that are untapped or badly employed, would have *potential* for development if interaction between agents and institutions were able to bring about appropriate intentional actions. This condition is very hard to fulfill. Even if some actors are oriented towards change, they must exit the circular causation mechanism, where everybody waits for someone else to make the first move. In this chapter we will see a simple representation of the trap. The experience of change can be considered as a condition for changing routines at the level of individual private actors and changing narratives at the level of interaction between actors and institutions. We can therefore simplify by describing persistence and change in the allocation of resources as dependent on decisions of firms that are affected by the experience of other firms. We will also discuss two obvious but ineffective ways of getting out of it: the "big push" and the drop of wages.

4.1 Untapped Resources

It is important first to qualify the remit of the discussion. The object of our analysis will be how to take advantage of the development opportunities offered by existing significant resources, which are currently untapped or employed at low productivity. We are thus dealing with *under-valorized areas*, a term with a broader scope than 'lagging regions'. We may well find under-valorized areas in developed countries.

The most common situation is where a firm that wants to leave a traditional activity and invest in a modern one, finds it difficult, if not impossible to do so, if it is the first one to make the move. The first firm to move must be prepared to pay very high costs for gaining knowledge and skills, and building relationships, which are all indispensable for this new activity. If others had already successfully made the transition, everything would be easier. In general, the transition to a more productive set up only takes place if a sizeable block of resources shifts at

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the same time. The problem is that nobody knows how big the block needs to be before the transition can take place. The situation becomes a trap because a small number of immobile resources cannot exit low productivity, while individual holders of resources cannot come to a spontaneous agreement to transfer a block of sufficient size, since nobody knows how big the block needs to be.

In completely valorized conditions, these reallocations take place all the time, with little or no difficulty at all. Resources are disinvested from activities with low profit margins and reinvested in activities with higher margins. This is the main difference between valorized and under-valorized areas. In valorized areas, the opportunity for resources to be tapped is wider and more articulated than in under-valorized ones. In valorized areas a sole firm can disinvest from one activity and invest in another without incurring excessive costs.

4.2 The Trap

An example might be firms that are unable to recruit locally-available highly educated workers—even when they need high-skilled labor to innovate—owing to a vicious circle. These firms cannot achieve the competitive position that they would only be able to achieve through innovation, so they will not grow and will not employ other workers. The same firms also under-employ machinery. They thus run the great risk of demand instability in a market characterized by a high level of competition owing to low levels of innovation.

4.2.1 An Example

Let us consider a partly artificial example, that refers to a real situation that took place in a small Italian town. The example also takes into consideration a Dutch study on the relationships between universities and businesses, which deals with specific problems in different faculties (Bekkers and Bodas Freitas 2008). A specific and valuable resource of this Italian town was longstanding, high-quality research and teaching in mathematics at the ancient local university. The university comprised a full range of faculties, some decent, others low quality (such as engineering and economics), still others very poor, such as the law faculty. The prestige of the faculty of mathematics gave rise over time to a large assignment of teaching and technical staff by the Academic Senate, and the faculty had a high teacher/student ratio, which led to high-quality teaching. There were 70–100 mathematics graduates per year and the majority of them found job as high school teachers in the same city and/or in the region, or even in other regions. Individual returns were good, as teacher salaries were satisfactory.

About twenty years ago, however, a long period of reduction in the real value of their salaries and in teachers' social prestige started in the country, while the

salaries and prestige of other jobs, such as engineering, management and marketing increased. A process of slow but steady enrolment reduction in mathematics started, while the number of students in engineering and economics grew, despite worse teaching. Within a few years, the faculty of mathematics had only 15–20 students per year and a significant excess of "productive capacity". A valuable resource began to be poorly employed, continuing to produce teachers for a traditional sector that was unable to pay enough. In the Academic Senate there was a clash between those who wanted to help the faculty of mathematics to find more students by dedicated initiatives, and those who wanted to take resources away from it.

At the same time, some medium-sized enterprises in local and regional industry were potentially affected by the ongoing push towards greater R&D intensity. These enterprises, operating in advanced "new sectors", would have been able to recruit graduates in mathematics, even though they had never done it before. If such firms had hired graduates in mathematics, the graduates would have earned high salaries, and firms would have gained better innovation capacity. There would have been new incentives to enroll in the faculty of mathematics. The number of students would have increased, making the best use of its teaching capacity. The conflict at the university would have been balanced and would probably have led to a solution that would not have penalized, and might even have favored, the mathematics faculty. Firms would have achieved greater competitive skills, would have grown, would have employed more people, would have had a higher productive capacity utilization, would have made more investments, and so on. However, none of this actually took place.

There was a serious problem. The gap between the language and way of thinking of traditional graduates in mathematics—more so of their professors—and what firms were seeking was too wide. These two worlds, one very abstract, the other completely concrete, would have had to make reciprocal efforts in order to close the gap. The breech was so deep, the attitudes of the two parties so mutually offensive, with one describing the counterpart as ignorant, coarsely pragmatic, and the other as abstract time wasters. The *shared narrative was that the two worlds could not in any way understand each other.*

However, in places where a successful relationship between universities and business has been established, there are chances of success even in the extremely arduous case of mathematics, provided some conditions are met. These conditions are that universities adapts their programs and teaching methods, and that firms create a favorable environment. These requirements, however, implicate serious difficulties (and costs) in designing organizational change. The difficulties and costs are significantly reduced when a number of mathematics graduates are hired by a number of companies. At that point (imagine, for example, 50 graduates hired in ten different companies), the way programs should be adapted would become quite clear and teaching methods would already have made several steps forward. Likewise, organizational arrangements best suited to creating a favorable environment in firms to welcome these graduates would have been found.

Yet, a question remains. How can a process able to reach that threshold point be put in motion? A firm on its own, before hiring even one graduate, will want to be

sure (let us assume this for now, we will abandon this assumption later in a more complex model) that the experiment will be successful. Being the first, however, and lacking other experience, the organizational costs of guaranteeing the experiment would be very high. In our example, none of the subjects involved made the first move. Nobody was willing to pay these costs, even though everybody was vaguely convinced that it was a useful thing to do, as they stated during several conferences on the relationship between university and business.

This probably means that graduates in mathematics were offered a job, but did not accept because the wages offered were too low—lower than teacher's salaries in fact—as companies tried to shift the cost of their adaptation onto wage reductions. Reducing the number of enrolments in mathematics has also increased the proportion of gifted students whose preferences were fairly distant from the business world. Mathematics professors, with fewer but brighter students, and very low teacher turnover in the faculty, accentuated abstract and speculative teaching. A combination of aging professors and students receiving increasingly theoretical teaching walked together down a path that led them farther and farther away from the world of business. That was a trap.

4.2.2 A Simple Model

The under-valorization of resources creates a condition that tends to be permanent, since nobody has sufficient strength to move away, and those who do not want change tend to prevail. Economic development literature has often gone back to this point, from Leibenstein (1957) and Nurkse (1953) to the early formalization provided by Murphy et al. (1989), and by Krugman (1993), up to and including the proliferation of works published in the 1990s (Hoff and Stiglitz 2001).

A simple model summarizes the point in question.

Let us take into consideration a stock of local resources that constitutes the input for two possible kinds of production function: a traditional one (well known) or a new one (the modern sector). An example could be the university that could generate a flow of 100 graduates in mathematics either as teachers for the traditional sector (high school) or as researchers for R&D departments. Let us also assume that these input flows (graduates) are paid a given wage in the traditional sector. In the new sector, the wage will be higher, due to higher productivity, and when a block of input units is transferred to it. It will be lower than in the traditional sector before this, due the firms' learning and organizing adaptation costs (transfer costs).

Let us assume:

w unitary wage in the traditional sector linked to the prevailing wage in the economy as a whole, normalized at 1;

w_{m} unitary wage equal to the productivity of an employee in the new (modern) sector minus transfer costs;

N total number of available employees;
N_{m} total number of employees in the modern sector;
n share of employees in the new sector $n = \frac{N_m}{N}$.

The unitary wage in the modern sector w_{m} will rise by increasing the share of employees in this sector. This dynamic is caused by the gradual reduction of transfer costs thanks to the learning (in a broader sense, including acquiring capacity to combat conservative forces and to concur with changes in narratives). Let us assume a law of motion by which the *rate of growth* of the unitary wage in the modern sector is one minus the wage *level*. We conceive in this way a learning process that permits a significant reduction of transfer costs. Gradually this reduction decreases, reaching a final point when all that is needed has been learned or acquired.

Let us designate:

$$\widehat{w}_m = \frac{\frac{d}{dn} w_m}{w_m}$$

We assume:

$$\widehat{w}_m = 1 - w_w; \quad \frac{d}{dn} w_m = w_m(1 - w_m) \tag{4.1}$$

As a numerical example, starting at $w_{\mathrm{m}}(n = 0) = 0.6$, this (4.1) differential equation has the solution:

$$w_m = \frac{0.6}{1 + e^{-n}} \tag{4.2}$$

That is the logistic function (Fig. 4.1).

The dashed line to the left and the continuous line to the right represent alternative payoffs for employees. As long as a share of them, less or equal to a little more than 40 % (at the point ***T***), is in the modern sector, they will still find it advantageous to stay in the traditional one. The threshold ***T*** is not known to agents. Therefore, they cannot cooperate in deciding together the transfer of

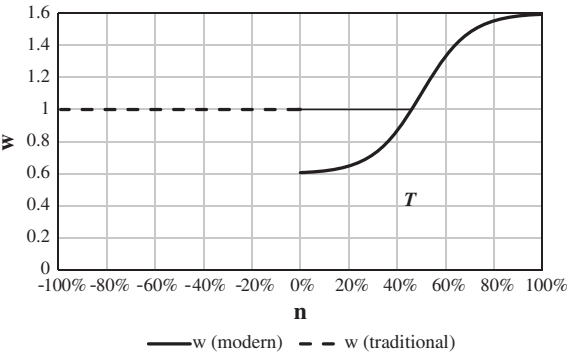


Fig. 4.1 The trap

a large enough share of employees in order to earn a better wage in the modern sector than in the traditional one.

This simple representation of a trap is useful to understand the basic cause of a state of specific local resource underutilization. The cause is the lack of information. If the ***T*** threshold were common knowledge, agents would find ways of establishing a process of confrontation-collaboration in order to reach it. The trap occurs because of a lack of information that prevents this collaborative or conflictual process. This is another reason why narratives are so important in shaping behavior.

4.2.3 Discovered or Created Opportunities

Common knowledge about the ***T*** threshold could avoid the trap although this knowledge may be dispersed. If there is any knowledge of the opportunities for better use of resources, even if this knowledge is dispersed or fragmented, the problem is to conceive and put in place incentives and organizational forms to induce actors to share whatever fragments of partial knowledge they hold, and then use the revealed knowledge to the full. This might be done by an intermediary who knows about other experiences underway because it is his or her job to operate in a wider context of economic activities. There is a growing body of literature involving different disciplines[1] that deals with the mechanisms, means and governance of this knowledge transfer and pooling. However, if the information is simply not there because improvements require firms to go beyond their experience and move towards new prospects, then the problems are different.

In the entrepreneurship literature, which deals primarily with this issue, a distinction is made in a large number of theoretical and empirical works[2] inspired by two different definitions of the entrepreneur: Israel Meir Kirzner's definition and the Joseph Alois Schumpeter's.

> In Kirzner's research the role of the entrepreneur derives from an assumption that human behaviour is bounded by its context and entrepreneurial capacity arises from an ability to recognize opportunities and make decisions in an existing set of circumstances. […] For Schumpeter, the assumption of human behaviour has a greater element of agency, indeed the role of the entrepreneur is to *create* new circumstances rather than to be alert to new opportunities in existing circumstances. (Pittaway 2005, 211; italics added).

Leaving aside the aspects concerning entrepreneurs' motivations, *modus operandi*, and character, the main difference between the two paradigms regards the meaning of *ignorance*. Neither Schumpeter nor Kirzner accept the hypothesis of perfect information. However, they have different opinions about imperfect information. Kirzner maintains that knowledge imperfections produce imbalances in the market, which

[1] For a general overviews, see Zuo et al. (2013) and Contandriopoulos et al. (2010).

[2] Reviews are provided by Rauch et al. (2009) and Dimov (2011).

can be detected (as mistakes) by a careful special agent (the "alert entrepreneur"), so that profits remedy these errors. Information, in this view, exists but it is dispersed so that individual agents do not have access to it. It can be acquired, however, though only after its shortcomings have already produced imbalance effects. «Each market is characterized by opportunities for pure entrepreneurial profit. These opportunities are created by earlier entrepreneurial errors, which have resulted in shortages, surplus, misallocated resources. The daring, alert entrepreneur discovers these earlier errors» (Kirzner 2000, 16, 23). According to Schumpeter, all this is true, but exploits neither the landscape of opportunities nor the entrepreneurs' functions, which are different. These are related to a third kind of transactions, in addition to those that are «exact repetition» and those that are a «plus or minus variation» of them. The «third class of transactions […] consists of new transactions mostly, those effected by entrepreneurs or induced by entrepreneurial activity […], [following which] the old total or marginal cost curve is destroyed and a new one put in its place» (Schumpeter 1939, 578 and 88–89). For Schumpeter, lack of knowledge is essential and irremediable. Needs are not generally considered an appropriate explanation for innovation either. Innovation, in Schumpeter's view, does not stem from potential knowledge of those needs. «It might be thought that innovation can never be anything else but an effort to cope with a given economic situation. In a sense this is true. For a given innovation will satisfy them, and as a rule they can be satisfied in many different ways. Most important of all, they may remain unsatisfied for an indefinite time, which shows that they are not in themselves sufficient to produce an innovation» (Schumpeter 1939, 84).

There is a passage from Schumpeter that is very important for our analysis.

> If there are indivisibilities and the innovation becomes possible only beyond a certain quantity of output, while below it the old method remains superior […], we may indeed draw one cost curve to combine costs with the old method in one interval and costs with the new method in another interval. But this is possible only when the new method has become familiar and the whole system is adapted to it, which means that it enters the production functions—i.e., the practical range of choice open to all—and is no longer an innovation. (Schumpeter 1939, 84).

For Schumpeter, innovation may be costly but, once it has been realized, it helps others decide to change. Conversely, when it is lacking, it prevents change. This is the very definition of the trap.

We may thus regard our trap as "Schumpeterian". In an under-valorized area with opportunities for development brought about by badly-used local resources—of course—the conditions emphasized by Kirzner may exist. These resources, that is, may be amenable to better use without altering the existing production function, since the agents have not used them optimally. The existence of thresholds for innovation (traps), however, makes Schumpeterian changes more likely. These thresholds, in fact, may condemn local systems to a longstanding invariant state of their economic and social structures. This, in its turn, gives plenty of time to everybody to gain more than sufficient knowledge and exhaust every possibility to improve these structures, namely Kirzner's opportunities. However, Schumpeterian opportunities remain, which are ultimately the decisive ones.

4.3 A "Big Push" Way Out and Its Limits

The more classical indication of a way out from the trap, foresees a policy-maker's action that is big enough to produce the required move, by direct intervention or by providing hefty financial support to private agents. This is not due to policy-maker's best knowledge, which would be unrealistic. Policy-makers do not know the threshold of the trap that private agents ignore. The reason for a suggested public intervention is different and relates to its large dimension (in size and in time) the State can provide. The State can implement a "big push", a formula dating back to Rosenstein-Rodan (1943).

In proposing a big push, he suggested two reasons. The first and best-known is the claim that development based on existing wealth was impossible because «capital must be supplied internally at the expense of standard of life and consumption which are already at very low level» (Rosenstein-Rodan 1943, 203). This was the first argument, namely a "poverty trap". In this case the big push policy would have to continue until it reached a saving capacity of the economy, making growth self-sustaining. Its level may be known based on other countries' experiences.

Rosenstein-Rodan indicated a second reason for the state of under-development, considering that private entrepreneurs had a subjective perception of risks worse than they were objectively. «[…] subjective risk estimate is [in a depressed area] bound to be considerably higher than the objective risks» (Rosenstein-Rodan 1943, 206). This remark about the difference between real and perceived risks indicates that Rosenstein Rodan had in mind not only the lack of capital but also the lack of knowledge that prevented optimal use of existing resources. But the big push recipe has strong shortcomings in the case of uncertainty. The big push should last for so long and be so extensive as to allow the whole economic and social system to achieve new levels (of productivity and welfare). These should be significantly higher than those they started with, but without knowing what these new levels should be, the big push idea indirectly supports the "big government" prospective. This is why it was strongly challenged. For example, William Easterly, showed how in the mid-2000s the concept of trap «has returned to favor in the development policy-making community» (Easterly 2006, 289), and remembers that its rejection was a reaction after the failures of the widespread public interventions and of the 1980s big government ideology. That experience soon revealed its limits. Not knowing how big a push is needed and how long it should go on for, governments need to push without imposing credible limits and a credible time-frame. The agents, in this case, would be those more interested and better able to collect public funds than to make entrepreneurial changes. Since taxpayers know that this happens, they will be encouraged to evade taxes over a certain threshold. Ultimately, the way out of the trap through a big push provided by the State is not likely to be effective, and more likely to be a detriment than a benefit.

We may consider that public intervention has diminishing returns: a very large or indefinite intervention is inefficient. Furthermore, public intervention, beyond

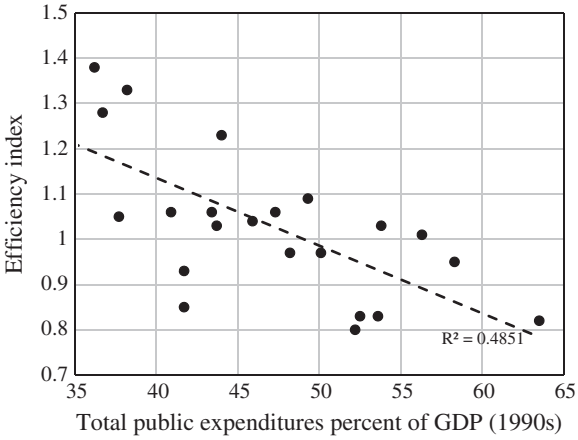


Fig. 4.2 Efficiency and government size in 23 industrialized countries. *Notes* The efficiency index takes into account the relationships between outcomes and expenditure in the public sectors of general administration, health, education, infrastructure, economic performance in the 1990s. *Source* Figure obtained by processing data from Afonso et al. (2005)

certain limits, may lack legitimacy among taxpayers. Some empirical results appear to confirm this. For the diminishing returns hypothesis, we may consider the research conducted by Afonso et al. (2005) on 23 industrialized countries,[3] which includes various items of public expenditure as a percentage of GDP and efficiency indices in terms of results in relation to expenditure (see Fig. 4.2).

These data show a negative correlation between public spending and an efficiency index that takes into account the ratio between outcomes and costs in different public activities. This may indicate the presence of diminishing returns in public administration. For the legitimation profile, Slemrod’s research is particularly interesting. «The association of government size with prosperity is positive until a level of government spending somewhere between 31 and 38 % of GDP, after which its marginal effect is negative. Thus, although a trusting citizenry allows larger government, the tax burden this entails erodes the rule obedience taxpayers exhibit toward government» (Slemrod 2002, I). These results are also in accordance with Acemoglu’s research. «There needs to be a certain degree of balance of powers between the state and the citizens. […] excessively weak states are likely to be as disastrous for economic development as the unchecked power and expropriation by excessively strong states» (Acemoglu 2005, 1211). We can therefore conclude that most likely there is a definite limit of the public spending posed by diminishing returns that are not offset by corresponding increases in the availability of funds. However, if such a limit exists, it may be lower than the big push needed to get out of the trap.

[3] United States, Japan, Australia, Ireland, Switzerland, United Kingdom, Iceland, New Zealand, Spain, Portugal, Luxembourg, Canada, Greece, Germany, Norway, Netherlands, Italy, Belgium, France, Austria, Finland, Denmark, Sweden.

4.4 Another (Opposite) Way Out: Low Wages

One limit of the simple trap model we have proposed is that the difference between the two sectors' (traditional and modern) wages is given. If this difference were variable, and possibly endogenous, shrinking in the event of unemployment, there would be a different way out of the trap, opposite to the big push idea. The big push idea calls into action the State while this different way calls into action the market mechanism that provides a price reduction in case of excess of supply.

In the simple trap model, a given *initial* wage gap (in the numerical previous example, $1 - 0.6 = 0.4$ is the initial difference in favor of the traditional sector's wage) prevents a single employee from moving from a traditional to a new sector. Suppose, however, that there is complementarity between the predominant activities in the traditional sector and significant overall unemployment as in some endogenous growth models. A small or absent modern sector may implicate structural vulnerability to external shocks in the economy, which is dominated by traditional activities in which the lack of innovation heightens exposure to competition. There would thus be significant instability in the demand for labor, with frequent periods of high unemployment. If wages were flexible, their reduction in the traditional sector could entail a way out of the trap, provided that wages net of adaptation costs do not decrease in the modern sector. This would reflect a realistic state of labor market segmentation. Wage reduction lowers the convenience of staying in the traditional sector and increases the convenience of accepting low wages in the modern sector (see Fig. 4.3).

However, we should first ascertain whether wages really decrease with unemployment, and then discover whether this drop is really desirable.

As to the question of wage flexibility-rigidity, we may take into account that the labor market does not work like other markets because the "good" that is exchanged implicates the life of workers. Today, a downward rigidity of wages in the presence of unemployment has been systematically observed, and there is a vast literature on wage rigidity. This literature has shown that wage flexibility-rigidity depends on the specific characteristics of each country (including its history), its institutional system, and its organization of collective bargaining. Given these conditions, wage flexibility-rigidity also depends on the relative intensity of various inputs in production processes.

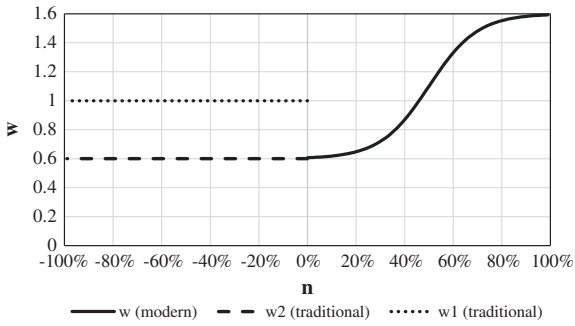


Fig. 4.3 A way out from the trap by a wages' drop

4.4.1 Wage Flexibility

A review of the empirical literature shows that wage flexibility is lower, at least in Europe, mainly in sectors that are intensive in high-skilled white collars, and in labor-intensive sectors (Babecký et al. 2009). The first (high-skilled white-collar intensive) is a typical characteristic of modern sectors driven by new technologies. Considering only this variable, we should say that in the more traditional sectors wages tend to be flexible. The second (labor-intensive), however, is a feature of traditional sectors (Peneder 2003). All that remains is to examine both hypotheses.

Jacques Drèze pointed out that «when the absence of markets prevents agents from hedging price variations, it may be second-best efficient to limit price variations in the first place. […]. In this way, […] wages should fluctuate less than marginal value products, to provide income insurance to risk-averse workers» (Drèze 1999, 2 and 5). On the other hand, the *theory of efficiency wages* attaches importance to the fact that entrepreneurs do not have all the information in order to act efficiently when hiring workers, and to glean from them what they need. They are thus willing to pay a higher wage compared to the equilibrium one, in order to increase the quality of their workers, reduce turnover, and gain greater work commitment.

Higher wages increase the overall quality and ability level of the job applicant pool and helps win the most talented workers away from competitors. Firms spend on recruiting and hiring new workers and then training them so that they can be fully productive at their jobs. Lower worker turnover leads to a reduction in the costs associated with recruiting, hiring, and training, so it can be worth it for firms to offer incentives that reduce turnover. Paying workers more than the equilibrium wage means that it is more difficult for workers to find equivalent pay if they choose to leave. Workers exert more effort when they receive a higher wage. If a worker has an unusually good deal with his current employer, then the downside of getting fired is larger than it would be if the worker could just pack up and get a roughly equivalent job somewhere else. If the downside of getting fired is more severe, a rational worker will work harder to ensure that he does not get fired. There are also psychological reasons why a higher wage might induce effort, since people tend to prefer working hard for people and organizations that acknowledge their worth and respond in kind. Empirical findings appear to support this theory in general, although they cannot clearly distinguish the relative strength of the different possible mechanisms, nor completely ascertain whether the theory of efficiency wages is better than other possible theories at explaining wages above the equilibrium level.[4]

[4] A preference for psychological (moral) reasons emerges from direct surveys (Agell and Lundborg 2003; Bewley 1999; Howitt 2002).

4.4.2 The Italian Decline

The legal framework can act in a decisive way on wage flexibility. Rules may thus be adopted which impose wage reductions even in violation of any rationality. At the end of the 1990s in Italy, contracts that constrained firms and workers less were introduced by law reducing the workers' bargaining power regarding their wages. Rationally, the most innovative companies should not have adopted them since these new contracts would reduce workers' loyalty and dedication. However, the fact that other less innovative companies adopted them, because loyalty and dedication in their case was rationally worth little to them, persuaded other firms to use them under the pressure of imitation.

Under conditions of uncertainty, in fact, it is not known a priori if a company is or could be more or less innovative. The result of this change of rules, then, pushed many companies to behave irrationally behavior. If efficiency wage theory holds, this should produce negative effects on development in an industrial system mainly comprising labor-intensive sectors where workers' loyalty and dedication represents a primary factor of competitiveness. This is what seems to have happened in Italy, and could help explain its decline in the last 15 years.

4.4.2.1 Facts and Figures

The growth of per capita GDP, which is an indication (albeit partial) of the welfare of the population, is the result of two elements in a simple arithmetic decomposition. It depends on the number of hours worked, which in its turn depends on internal and international economic trends. It also depends on hourly productivity, mainly caused by internal factors.

The variation of GDP on the population ($\Delta pil/P$) is approximately given by the sum of the variation of hours worked on the population ($\Delta H/P$) and the variation of the GDP on hours worked ($\Delta pil/H$).

$$\frac{pil}{P} = \frac{H}{P}\frac{pil}{H}; \Delta\frac{pil}{P} \approx \Delta\frac{H}{P} + \Delta\frac{pil}{H} \tag{4.3}$$

The three Figs. 4.4, 4.5 and 4.6 show, for EU 27, the rates of change (2001–2011) of these three values: GDP per capita, hours worked and hourly productivity.

As figures show, Italy had the least GDP growth per capita.

However, this does not depend only on external conditions such as the global crisis, which have influenced the reduction of working hours. In fact working hours have gone down in Italy less than in Ireland, the United Kingdom, Romania, Latvia, Portugal, Hungary, Spain, France, Denmark, all countries that have grown more. It appears to have depended on productivity per hour, which in Italy recorded very low growth not only from 2006 to 2011, but from 2001 to 2005 too. This is a strong *Italian anomaly*. It is also an anomaly compared to the past. In the 1980s and 1990s, the hourly productivity growth in Italy was appreciable, better

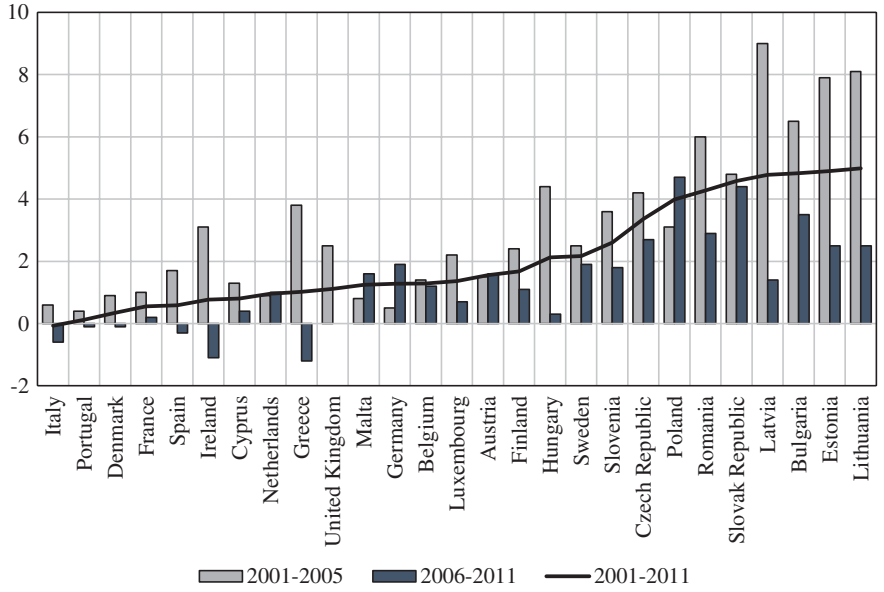


Fig. 4.4 EU 27, GDP per capita rate change (%). *Source* Adapted from Van Ark et al. (2013)

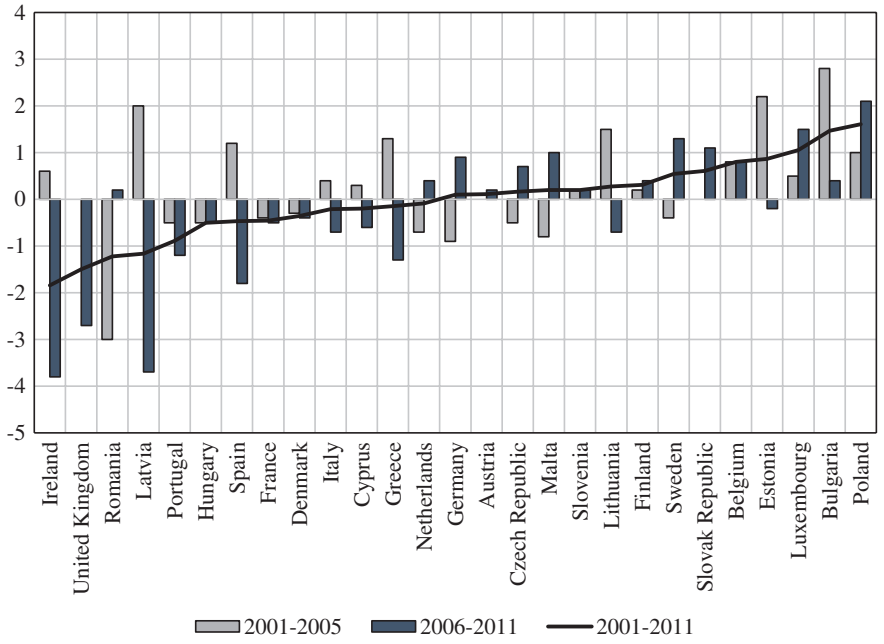


Fig. 4.5 UE 27, worked hours rate change (%). *Source* Adapted from Van Ark et al. (2013)

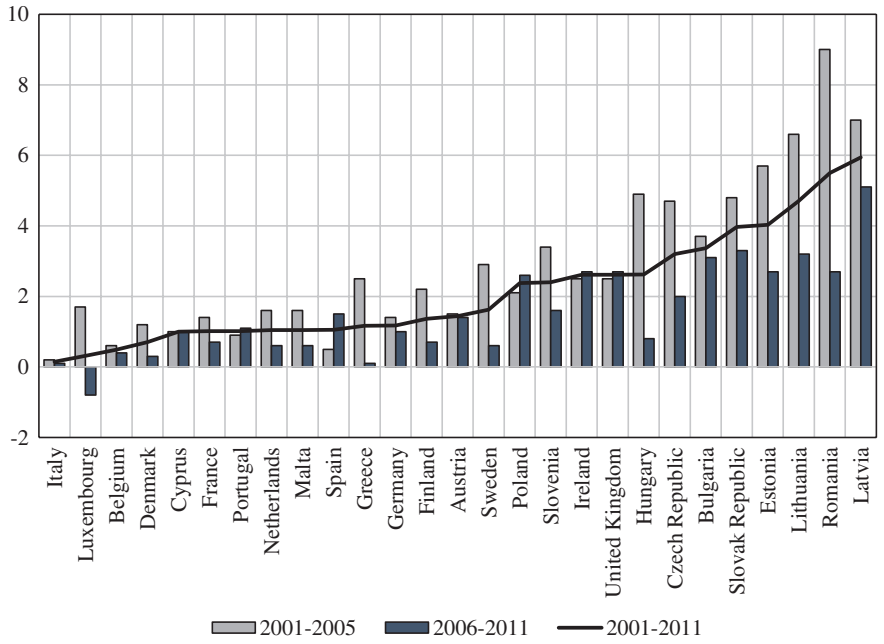


Fig. 4.6 Hour productivity rate change (%). *Source* Adapted from Van Ark et al. (2013)

than in Greece, the Netherlands, Spain. It was similar to that of Belgium, and just under that of Sweden, Denmark, Austria, Germany, UK, and France (Fig. 4.7).

As shown in Fig. 4.8, the responsibility for this disappointing trend in the hourly productivity in Italy during the ten years from 2001 to 2011 was mostly attributable to industry, a sector in which productivity has recorded zero growth.

The rate of change in hourly productivity can be decomposed into four additional components that correspond to the most significant factors affecting it. They are: (1) the change in the composition of employment by level of education and training: more educated workers are more productive; (2) the accumulation of traditional physical capital (machinery and equipment): the job is more productive with more facilities; (3) the accumulation of capital in new technologies, tools that are recognized as particularly important to productivity performance; (4) residual (*tfp* total factor productivity) in which all the other factors of productivity are included, and therefore it is believed to represent efficiency and innovation. Given this decomposition, Fig. 4.9 shows an even more pronounced Italian anomaly. In the ten years from 2001, Italy represents an anomalous case of low hourly productivity growth, especially in industry, because the residual *tfp* (efficiency and innovation) had a *negative* value, while the contributions were modest but positive of human and physical capital accumulation, both traditional and of new technologies.

The negative *tfp* in Italy is not recent. It began to emerge in the early years of 2000 (see Fig. 4.10).

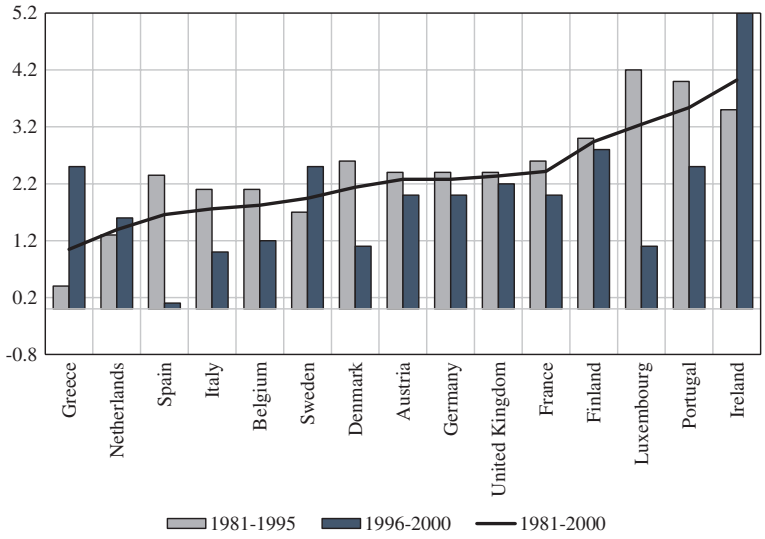


Fig. 4.7 EU 15, hour productivity rate of change (%). *Source* Adapted from Koszerek et al. (2007)

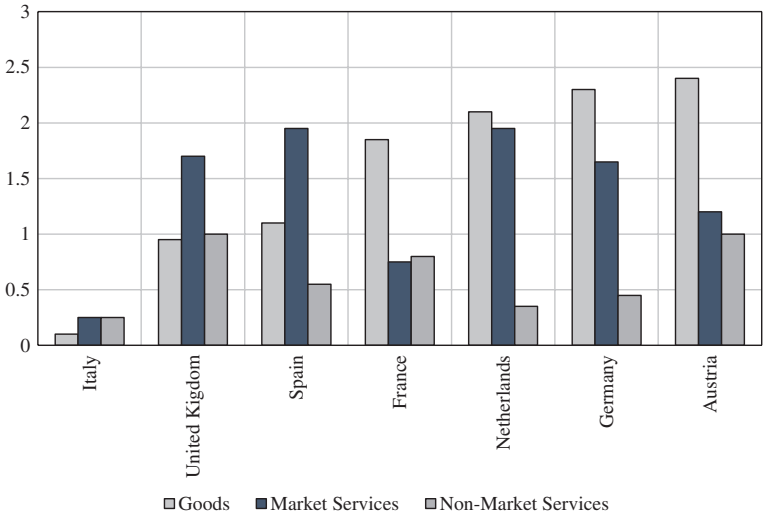


Fig. 4.8 Hour productivity rate of change by sectors 2001–2010 (%). *Source* Adapted from Van Ark et al. (2013)

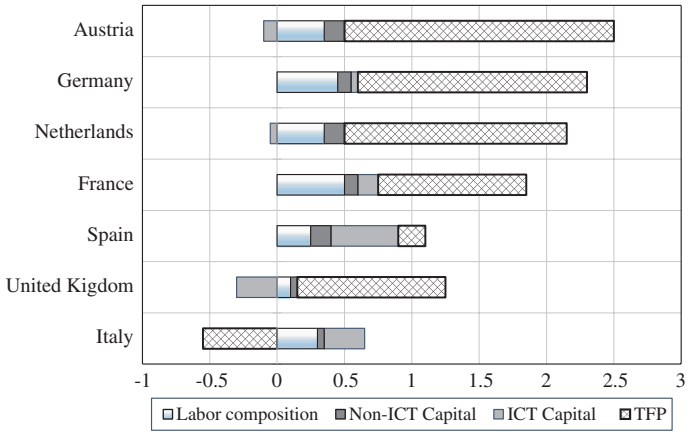


Fig. 4.9 Industry, components of per hour productivity growth 2001–2011. *Source* Adapted from Van Ark et al. (2013)

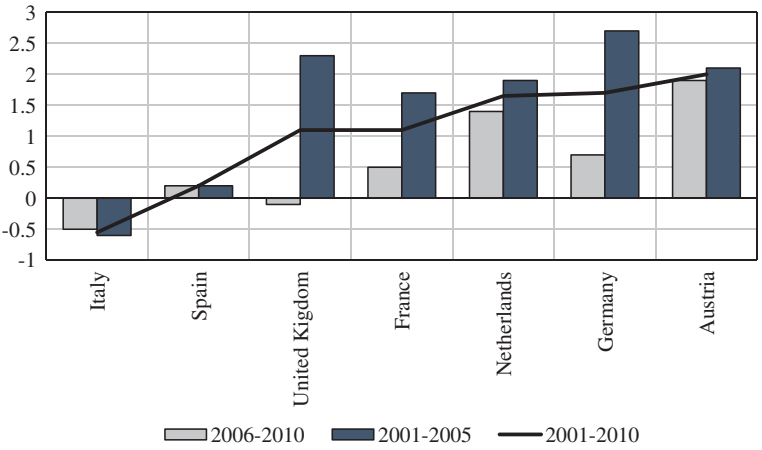


Fig. 4.10 Industry, tfp component of hour productivity growth 2001–2011. *Source* Adapted from Van Ark et al. (2013)

4.4.2.2 Explanations

Desperate times call for desperate measures. The Italian anomaly could be considered the opposite of the economic miracle of the 1950s and 1960s. No convincing explanation of the anomaly has been provided, and its causes and effects are not easy to untangle because there cumulative mechanisms at work.

Since the 1990s there have been plenty of negative factors that have contributed to the anomaly. These include a huge national debt, which hinders expansionary

policies and spending on public goods and services (included research and education), in addition to a lack of political legitimacy which almost certainly had a negative social and economic impact. Some researchers have listed further factors as being particularly negative. These include the impact on the private sector of public administration inefficiency, a slow-moving legal system, widespread tax evasion and corruption, organized crime, and an unsatisfactory system of public procurement and payments. Others, perhaps the majority, insist on the problem of firms' dimension. The backbone of the Italian industrial system, they claim, is made up of small firms, which innovate and grow less than larger ones.

The results reported by a few researchers provide a different explanation. Damiani et al. (2011) for example, show that a low *tfp* in Italy can be attributed to limited spending on research as well as to *job insecurity*. Taking job security into account, we could propose the following explanation of the Italian anomaly.

There are two schools of thought on small firms. The first considers them unable to sustain the competition of larger firms and foreign producers. Only Italy's longstanding policy of devaluing the lira, according to this view, allowed small firms to survive. Suppose that the selling price of a machine tool on the international market was $1,000, its production cost[5] in an Italian small firm was one million lire, and the rate of exchange was 600 lire per dollar. The manufacturer earned 600 thousand lire, but spent a million. In order to survive by covering the costs, the exchange rate had to be increased to 1,000 lire through devaluation.

The second school of thought considers small businesses able to compete and saw devaluation policy as a method for supporting profits. Suppose that the small firm's production cost for the machine tool was 600 thousand lire, devaluation would have led to a profit of 400 thousand lire: one million of revenue (at a rate of 1,000 lire per dollar) versus 600 thousand lire of costs.

Over a period of about thirty years there was a worldwide increase in the share of small firms in manufacturing, with an Italian peculiarity of an increase in absolute values between 1971 and 1981. This trend came to an end ten years ago. Table 4.1 shows that, from 1971 to 2001, Italian manufacturing firms with less than 50 employees have increased their employment by about 760 thousand units, balancing the loss of 960 thousand workers of firms with 50 or more employees.

For both these two schools of thought, Italy's inability to devaluate its currency owing to its inclusion in the Euro zone, has forced firms to intervene on the cost side. In our example, if the exchange rate was fixed at 600 lire per dollar, the survival of the small firm in the first case required a reduction of production costs from 1 million lire to 600 thousand, while in the second case this reduction allowed extra profits equal to 400 thousand lire. When external devaluation was no longer an option, it was decided that small businesses should be supported by "internal devaluation". That is, workers' job security was reduced in order to limit their bargaining power and thus reduce their real wages. Two laws were passed, on June 24, 1997 n. 196 on February 14, 2003 n. 30 that enacted these changes.

[5] Including raw material costs, labor costs, depreciation, and a normal remuneration of capital.

Table 4.1 Employment in the Italian manufacturing sector, firms with at least one employee

	Workers	Shares of employment (%)	
		From 1 to 49 workers	Form 50 workers upward
1971	5,101,563	42	58
1981	5,828,409	49	51
1991	5,212,273	58	42
2001	4,895,858	59	41
2011	3,891,983	55	45

Source Table obtained by processing data from Brusco and Paba (1997, 270) and from Istat http://dati-censimentoindustriaeservizi.istat.it/

Table 4.2 Three different machine tool's quality, costs, and selling prices

Producer of reference	Selling price	Features	Production cost in Italy	Profit
South-East Asia	€600	Low quality, standard, poor assistance	€600	€0
Germany	€1,000	High quality, standard, medium assistance	€800	€200
Italy (protected labor)	€1,200	High quality, customized, good assistance	€900	€300

As Table 4.1 shows, the internal devaluation recipe has not been successful: small firms in Italy lost a million workers between 2001 and 2011.

An explanation for this failure could be linked to the fact that both schools of thought paid insufficient attention to a functional link between employment conditions and production quality (and therefore selling price) in the Italian industrial system of small firms. The "made in Italy" label was a strong element of competition. Small firms in the manufacturing sector were able to hold up to the competition, making products comparable to those of major competitors owing to their flexibility. This made them highly adaptable to specific customer requirements without diminishing the quality of their products. The unique capacity for flexibility while maintaining quality was only possible thanks to the loyalty and dedication of workers in the small firms. What was neglected, when labor reforms aimed to reduce workers' bargaining power, was the *potential* for a situation such as the one illustrated in Table 4.2, with ad hoc artificial but credible assumptions.

If this information had been common knowledge, small firms would obviously have chosen the third alternative. These firms, however, were led to fear the competition of South-East Asian producers, who were able to sell a product at €600 when the production cost in Italy was €900. The firms were induced to believe that, by reducing labor guarantees and bringing production cost down to €600, their product would still maintain its high quality. By paying less for the labor, however, the product was of a much lower standard, and became marketable for €600. Rather than defending their profit margins, firms erased them. Internal

devaluation, with *reduced labor guarantees* brought about by new rules, has taken away the key lever of productivity in small firms. The *workers' loyalty and the mutual trust* between workers and employers was destroyed.

There were some other causes for the difficulties small firms faced that could have been avoided. These include the downgrading of the vocational training system, an unjustified multiplication of administrative and bureaucratic procedures, the degradation of local credit (in the context of mergers and acquisitions of local banks by large financial companies). All these factors represented additional costs for small firms. The deregulation of the labor market, then, rather than averting these difficulties, led firms to offset these additional costs—as well as the cost of not being able to devalue currency we have already seen—by reducing workers' wages and thus contributing to their disaffection.

4.4.2.3 Empirical Evidence

Data regarding the *tfp* component (compared to the U.S.) from 2005 to 2011 for Belgium, Denmark, Germany, Greece, Spain, France, Italy, Netherlands, Austria, Portugal, Finland, Sweden, UK are provided by Penn World Tables. Eurostat also provides data on the risk of employee poverty for the same countries: that is, the percentage of employed people who have an income below 60 % of the median income of the population. Let us take the logarithm of *tfp* by country and year from 2005 to 2011 as the dependent variable (LTFP). Let us also take the risk of poverty (ESCL_1) as an independent variable delayed by a year (from 2004 to 2010). We can thus make a regression with panel data (fixed effects for the country), two stages (there is simultaneity) and EGLS cross-sectional weights (there is heteroskedasticity and autocorrelation of errors). The instrumental variable used for each country is the GDP share of total social benefits 2004–2010, which is correlated (negatively) with the variable ESCL_1 but not with LTFP. We have:

$$\text{LTFP} = -0.023\text{ESCL\_1}; \quad \text{Ra}^2 = 0.76, \quad \text{F} = 24;$$
$$\text{t(coef ESCL\_1)} = -2.1.$$

This is indeed a surprising result, which has not been noticed until now and which deserves a broader research. It shows that workers' poverty (proxy to general low wage regimes) is correlated with (and probably induces) an important negative effect on the level of *tfp* in the years 2005–2011, taking Italy and other 12 European countries into account.

4.4.3 Overexploitation of Renewable Local Resources

As the Italian case shows, there may be wage flexibility even if it is irrational in the light of the efficiency wage theory and practice. Moreover, some possibly very

severe "collateral damage" must be taken into account. In fact, economic activities are often based on renewable resources and infrastructures. Low wages lead to their overexploitation and ultimately to their destruction. A classic example is that of over-fishing, which ultimately leads to a complete depletion of fish.

An interesting example can be drawn from the contemporary story of the most celebrated Italian industrial district. The example, although partly artificial, is inspired by tragic events in Prato, where there have been high influxes of Chinese immigrants. In 2001 Prato's district employed to 38,000 (Italian) workers; only 13,000 are employed today. Similarly textile firms have declined from 5,800 to 2,000. During the same period, a huge number of firms owned by Chinese, many of whom immigrated illegally, have been instated.

> At least seven people died and three were injured when a clothing factory in an industrial zone in the Italian town of Prato burned down on Sunday, killing workers trapped in an improvised dormitory built on the site. […] «No one can say they are surprised at this because everyone has known for years that, in the area between Florence and Prato, hundreds if not thousands of people are living and working in conditions of near-slavery», Roberto Pistonina, secretary general of the Florence and Prato section of the CISL trade union, said on his Facebook page. Prato, a town with one of the highest concentrations of Chinese immigrants in Italy, has at least 15,000 legally registered in a total population of under 200,000, with more than 4,000 Chinese-owned businesses, according to official data. Thousands more Chinese immigrants are believed to be living in the city illegally, working for a network of wholesalers and workshops turning out cheap clothing for the export market.[6]

The point is that this transformation of Prato, now the largest European ethnic district for clothing, and the drastically reduced local textile system, was accompanied by the almost total destruction of what was once the essence of the industrial district. As explained by Dei Ottati (2009), «entrepreneurs will be induced […] (to) trigger an actual price-war [… which] accelerates the closure of many firms and a consequent […] reduction of external economies of specialization» (Dei Ottati 2009, 28). In this way the two fundamental components of the district were shattered: a fair system of prices (of final and intermediate products) that ensured a balance between competition and collaboration, and a well shared-out, efficient division of tasks.

Two combined elements were key to the destruction of the organizational, technical, and cultural entirety of the district. First, there were no entrance fees for the Chinese, who, because they were undocumented did not pay taxes of any kind. «The few checks that were carried out in the Tuscan city gave the Chinese the opportunity to work undisturbed […]. To this we must add the collaboration of Italians, who helped the Chinese to set up this illegal district».[7] Second, Prato's

[6] Reuters in Rome; theguardian.com, Monday 2 December 2013. «While textile was losing weight, clothing made by the Chinese exploded to the point that in a few years in Prato was born a true ethnic industrial district for clothes low cost, unique in Europe, consisting of 4 thousand Chinese companies employing at least 30 thousand compatriots (including illegal), capable of sewing nearly one million item per day. The system covers all phases except the production of the fabric, bought in China at low prices». Silvia Pieraccini—Il Sole 24 Ore—10 August 2012.

[7] Sonia Montrella, "Agichina 24", 14 December 2013.

textile entrepreneurs preferred to withdraw from the market and collect rent from industrial warehouses, rather than invest in innovation. «The district did not grasp the moment when it had to change how we produce and propose, and it stopped investing, resting their laurels on guaranteed income from rents paid by the Chinese».[8]

The framework of renewable resources is useful in this discussion. Very low wages and freedom of entry complemented each other because there was a lack of legal control. This lack was consistent with one of the characteristic features of the district, namely, the idea—disseminated by researchers and shared by local (and national) institutions—that social and economic forces were *capable of self-organizing*. That this capability had serious limitations has now generally been acknowledged.[9] The Chinese were able to set up business in large numbers. They were willing to pay high private rents, but in return gained access to a complex of infrastructures, a commercial network and the "made in Italy" reputation of the industrial district at a very low price. Up to a certain point, the intensity of their presence and their labor could have helped the district develop, by giving it the means to restructure. Nevertheless, the lack of barriers to entry and low labor costs led to an excess. The new ethnic clothing district with cheap, low-quality production effectively wiped out the old textile district of luxury, high-end fabrics.

Let us consider a numerical, partly artificial, simulation.

The total cash flow achieved by the Chinese district is estimated at two billion euro per year, the result of a million items of clothing sewn every day with the "made in Italy" label by an army of 40,000 workers. We may assume the average price per item to be 8 €.[10] Two calculations give approximately the same realistic result: every Chinese worker produces approximately 200 € per day.[11] The total labor cost consists of two components. The first is the direct monetary wage paid to the employee, 20 € per day, as several witnesses reported. Suppose that this part of the cost of labor is standard for Chinese workers, regardless of location. The second most important component is the cost of housing for migrant workers, and the payment of social security contributions and taxes. In Italy, contribution and taxes are high (about 50 % of labor costs) if the labor is regulated. The cost of accommodation is also important because, given the very low wage, workers

[8] Silvia Pieraccini, cit.

[9] «A revival of development would require profound changes which can no longer exclusively and primarily rely on familiar experience, behavioral models, the division of labor, and the integration and innovation that were typical of the former equilibrium. Instead, it requires the conscious construction of a new equilibrium through a deliberate individual and collective action capable of introducing into the economy and into the society substantial innovations consonant with both the local resources which can be activated and with new opportunities of the changed global and local context» (Dei Ottati 2009, 29).

[10] «Shirts 3 €, jeans 7.50 (but negotiable), leggings 2.5, dresses long and light between 6 and 7» (Laura Montanari, La Repubblica Firenze.it, 15/12/2013).

[11] Two billion euro divided by 40,000 workers divided by 350 days per year, gives 214 €. One million items multiplied by 8 € divided by 40,000 gives 200 €.

cannot pay market rates. Again, the cost depends on whether the workers are documented or not. If the workers are documented, the housing costs are high because market rates refer to formal rental contracts for suitable rooms certified as fit for habitation. If workers are illegal, they may be unlawfully housed in insalubrious cellars or overcrowded warehouses, at very low cost. This second part of the cost of labor (housing and taxes) depends, of course, on location. If the work is regular, the cost of taxes and housing is high. If it is irregular, great savings can be made.

Let us introduce a concept of "gross local residual" defined as sales (200 € per day per Chinese worker) minus those production costs that are independent of location:, that is, costs that would be incurred in any other place. Let us assume that these costs are raw material costs, estimated at €10 per day, other overheads €5 per day, and the already mentioned standard monetary part of the labor cost, 20 € per day: a total of 35 € for each day's work. Let us then define a "net local residual" (to be compared with localized costs) as gross local residual minus two costs (if paid): (i) local taxes for the maintenance of logistic infrastructures and services, and (ii) the cost of using the local trading system. Let us assume a quantity of €145/day per worker of these two costs at the limit where all the firms are Chinese (assumed at 57,000 workers) and when they have to pay for the whole logistic complex because the traditional textile industrial district has been wiped out. The net local residual would then be €200 – 35 − 145 = 20 € a day per worker at the limit.

By contrast, the Chinese in Prato pay a limited amount of taxes because of the widespread use of illegal workers in Chinese firms, and they have access to the logistical complex maintained by the residual firms operating in the district. This was the main advantage of the Prato location. It offered an oversized logistical system at almost zero cost to start with. Let us assume, then, a starting net average local residual equal to €200 − 35 = 165 €. We have to imagine that this average advantage will decrease as Chinese density increases and as the former district is displaced. The displacement of traditional firms, in fact, reduces the capacity of the former district to maintain the logistical complex. The Chinese will thus have to pay an increasing cost to maintain the complex, or they will suffer from the inefficiencies due to its progressive reduction.

In Fig. 4.11, *y* denotes the *average* daily per worker net local residual that goes from 165 to 20 going *x* number of worker days from 0 to 20 million (from zero to 57,000 workers) *R* denotes the *total* net local residual.

As far as localized costs are concerned, finally, let us assume they are rents paid for buildings and housing, and the cost of advice and corruption of local agents, essential for a large, mostly illegal settlement of this kind. Let us say *C* denotes the average total of rents and bribes that we imagine increase with the increase in the number of Chinese settlements. The progressive reduction of available accommodation and warehouses, and increased social alarm, make bribes more necessary. The total cost has a component that directly depends on the contractual power of workers, which is an important part of their real wage. This component is the cost of housing made available to workers by the owners of Chinese firms. The low bargaining power of workers implies that this cost component is very low, if not inexistent, and explains the appalling, almost slave-like conditions in which Chines workers live.

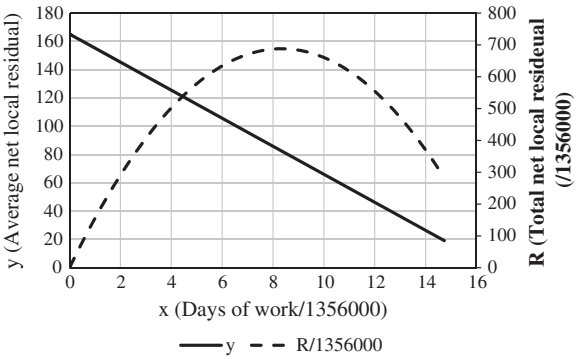


Fig. 4.11 Prato, total and average net local residual

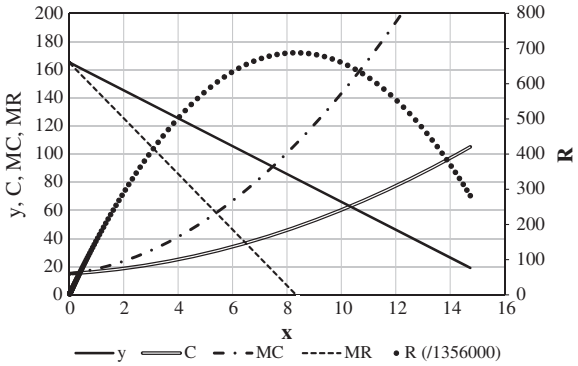
We thus have a complete picture of the relevant variables:

x number of days' work of Chinese people who have settled in Prato (from 0 to 20 million)
R Total localized revenue: $R = 165x - 9.8554x^2 - 0.0033x^3$
y Average localized revenue: $y = \frac{R}{x}$
MR Marginal revenue: $MR = \frac{dR}{dx} = 165 - 2 * 9.8554x - 3 * 0.0033x^2$
C Average cost: $C = 15 + 1.1837x + 0.348x^2$
MC Marginal cost; $MC = 15 + 2 * 1.1837x + 3 * 0.348x^2$

Figure 4.12 shows three possible equilibria:

1. Economically efficient, maximum profit, it should require barriers to entry: $MR = MC$ at $x = 5.4$ (20,900 workers)
2. District and logistic system sustainable, maximum R, $MR = 0$ at $x = 8.3$ (32,000 workers)
3. Maximum district and logistics exploitation, entry totally free, $y = C$ at $x = 10.3$ (40,000 workers).

Fig. 4.12 Prato—costs, and revenues, equilibria



It follows that at costs as low as *C* and without any entry barriers, the exploitation of the districts' economies in the exemplified form of its logistical complex exceeds the sustainability threshold. Chinese settlements have increased to the point of equal total revenues and total costs (i.e. equal average costs and average revenues), further than the maximum profit and beyond the point of maximum average revenue. In order to stop the exploitation at a sustainable point, higher costs would be needed, which would require workers' having greater bargaining power.

This model is applicable to any renewable resource that can remain unproductive if it is scantily used, but can become also unproductive if it is used in excess because of the low costs required for its exploitation.

There are other models explaining possible mechanisms where low wages (and a possible increase in jobs today) hold back development and therefore reduce jobs in the future. They all apply the same principle, however. If you go too far in pursuit of immediate results, this will affect longer-term outcomes. In one classic, vintage model, if wage pressure is weak or absent, it is not worthwhile for entrepreneurs to renew their plants. In this way, however, they lose the productivity gains that could be achieved by means of renewed plants incorporating the most advanced technical solutions (Salter 1960). In another model (Rodrick 1993), entrepreneurs may be presented with the choice between investing in a labor-intensive, less growth-enhancing sector, or in a more capital-intensive, more growth-enhancing sector. The model shows they opt for the first if wages are low.

We may thus conclude by stressing that, under trap conditions, it is highly unlikely that wage flexibility will provide a reliable way out. All that remains is to consider a different strategy for getting out of the trap. To find out what this strategy might be, however, it is necessary to understand more precisely how lack of information prevents optimal exploitation of local resources. One might well think that all that is needed is to *buy* the missing information. If this were the case, involving a new private actor with a specialty for collecting information and providing support to trapped agents for a fee would be sufficient. Chapter 5 will discuss this issue, and we will see why this seemingly simple scheme is destined to failure. We will discover that you cannot buy the required information because it is not a commodity like any other, as the *Greenwald-Stiglitz's theorem* demonstrates. The strategy for getting out of traps we are looking for is more complicated. As Chap. 5 will show, it consists in facing uncertainty and risk and dealing with it rather than attempting to avoid it.

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