

Remarks on *social protection as a productive factor*

Lecture notes of presentation to the University of Maastricht
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A spectre is haunting the world — the spectre of social security. The ruling elites of old and new Europe, of the Americas, of Asia, of Africa – be they government, employers or trade unions, be they media or other institutions: they all believe in, or find themselves in a defensive position with respect to the dominating paradigm of contemporary economic policy, which is that social protection is the cause of unemployment.

Why this alliance? This alliance is, allegedly, about the well being of people. It is about employment for all, it is sometimes about decent employment for all; it is, most seldom, about occupation for all. Social protection is being seen as an old-fashioned instrument of the past century. Social protection is related to stagnant old Europe, it is seen counterproductive to dynamic growth, allegedly proven by the US and East Asia. In short: social security must meanwhile serve as the main suspect when it comes to explaining to people why, after over 150 years of capitalist production (be this under market or under command rules), it is still not possible to provide everyone on this globe with a decent income.

The media around the world offer their topless beauties on page three, and tsunamis of soap-operas; they are most inventively adjusting to the recreative needs of the physically and mentally exhausted of the formal and informal sectors, but they have no view on social protection: they show the glamour of the world, in exceptional cases the world's poverty - but provide no solution; most of the media share the view that social protection is negative for employment - if they have a view at all.

When I was first asked by the University to present a paper at this seminar I spontaneously proposed to speak about *social protection as a productive factor*. The reason was that I had just finished a draft paper on exactly the same topic, which I found quite interesting. The paper was written – together with Michael Cichon – as a background document for discussions in the ILO's

Employment and Social Policy Committee at its November 2005 meeting in Geneva. A first draft was initially circulated within the ILO, and heavily criticized for its being too theoretical (for the members of the ESP Committee); very much to our surprise, however, the final draft, marginally edited on basis of some of the in-house comments, was very well received by the Committee, especially by the workers' group and, to a lesser extent, by the governments. The only group, which remained skeptical, was the employers' group.

The employers were against the contents of the paper because, while quite nicely written, it was using standard arguments to be found in the literature and statistical evidence of OECD data. It showed that it is possible to construct quite strong positive correlation between countries' levels of social protection per capita and their labour productivity levels. In plain words, we were able to show that there is no antagonism between "too much" social protection and "high" economic production but, rather, the contrary seems to be true. Of course, the employers did not like this result of our efforts.

PART I

Meanwhile, I share the employers' group's skepticism to some extent, but for totally different reasons, which are the following: In that document, we enumerated a list of aspects of social protection that we think are favorable to economic development. This list included, among others, the following items:

1. Reliable access to social transfers
 - Reduces the need to resort to extralegal or illegal methods of income generation,
 - Reduces the potential for social unrest,
 - And hence creates social stability as a prerequisite for long-term profitable investments;
2. Employment related schemes (including unemployment insurance) help to facilitate labour force adjustments to structural changes of economies;
3. General health care and occupational safety and health increase labour productivity;
4. National pension savings can play an important role in economic growth policies;
5. Social services themselves generate employment;

6. Redistributive smoothing of income over social groups and classes stabilises consumption during recessions and hence supports firms' sales and their restructuring before the next growth cycle;
7. Formal social protection systems contribute to the acceptance of globalisation as they can ship positive income effects of globalisation to the vulnerable persons in societies.

This list reflects kind of the accepted standard when it comes to pinning down the economically favorable characteristics of social protection.

My own unease with this list emerges from the fact that we have not checked it for consistency and redundancy.

Indeed, for example, social protection helps to reduce the potential for social unrest. But, under a world perspective, is not the world full of social unrest – and still fast growing? Is not social unrest usually suppressed by police rather than prevented by social protection? When France was burning a few weeks ago, social protection had most obviously failed in its role of maintaining societal peace.

Employment related schemes may, indeed, help to facilitate labour force adjustments – but are not the most dynamic regions of the world showing us that such adjustments obviously happen much faster in the absence of such systems? Just recall the fast revival of East Asia after the financial crisis of 1997/1998.

National pension savings may indeed facilitate economic growth policies, but do we need pension plans for this, cannot the same effects be achieved more directly by banks?

Even if one is in favor of social protection, as I am, the above list is intellectually not really satisfying.

As it happened, I recently re-read the famous article by Ronald Harry *Coase*, first published in 1937, on *The Nature of the Firm* – for which he later received the Nobel Price in Economics. The problem, which is being addressed by Coase in that article is as follows: If it is correct that prices,

and, basically, only prices, determine whether markets are in equilibrium – this is, as we know, the fundamental belief of economists – why then do we observe, in the real world, entities that we call firms? The interactions within firms are not at all being ruled by prices but by contracts between the people working in the firm; these contracts, among others, prescribe the reporting structure within firms, which are not dependent on price-signals but on quite other needs.

Coase, of course, looked for an economic explanation of the existence of firms – and he developed the concept of transaction costs, which are being substantially reduced through the existence of firms, and thus are a core concept for explaining the real world of economics. (I strongly recommend reading the article. It is shere fun – for an economist, though.)

Following Coase’s approach, it is obvious, which question has to be asked with respect to social protection: If markets are being regulated through prices and, as we now know, through firms as *necessary* entities – why, in the real world, do we observe social protection? We lean back, we contemplate, and we, as economists, ask ourselves: Why does social protection exist at all?

In our search for an *economic* explanation for the existence of social protection, now knowing the concept of transaction costs, we conclude immediately, of course, that social protection institutions do exist in order to reduce transaction costs. Right, but this only explains why social protection is being organized institutionally, it does not yet explain the existence of social protection as such. If social protection is something “natural”, a necessary part of economies, like firms, why then does it not exist since long back in history? Why did social protection institutions not exist, as far as we know, in the Egyptian, the Greek, the Roman empires? Firms, markets and prices always existed – but social protection? Why does social protection exist in Europe, but only at much lesser extent in other parts of the world? Why are countries like Thailand systematically developing social protection systems, while others are not?

The more one dives into these questions the more one discovers that social protection, as we know it, has something to do with the ways and means of capitalist production, and with the impact of this way of producing on one of its production factors, labor.

Both production factors, labor and capital, are being consumed during the production process. The consumption of capital during the production process is being taken account of in the standard accounting of firms, but also, applying a different methodology, in the national accounts. Investment first replaces those parts of the capital stock that have been used up during the production process and only then enlarges the capital stock. In business accounting we call the consumption of capital *depreciations*.

However, when it comes to labour we are not used to think in categories of depreciations. For the consumption of labour during the production process no equivalent exists to capital consumption. As economists we should take the depreciation of labor during the production process into account and, obviously, social protection can be seen as the labor consumption equivalent to the depreciation of capital.

If capital needs replacement in order to maintain capitalist production in the long run, then labour needs similar replacement. The financial industry organizes and finances the replacement of the capital stock as consumed during production - social protection organizes and finances the same activity with respect to labor¹.

If one looks at social protection from this angle of view, then it becomes obvious that Stephenson, when he invented the steam engine, simultaneously invented social protection, without knowing it; Bismarck and Beveridge, in their social policies, were just executors of developments, which were initiated, in nucleus, already when the first steam engine, in the 18th century, brought its noise to the world. This is the first reason why we have social protection: it accounts for the depreciation of labour.

The other reason why capitalist production cannot sustain in the longer run without social protection, is the following: Social protection provides in a most simple way those with cash for their living or with services, which have no own primary income. Whether PAYG or capital

¹ For those thinking this is “solely” an accounting problem, and not the real world, I would like to add that accounting is the remote whip of any, not only capitalist, economic systems of production. Accounting is about making explicit, all costs occurring during production. Accounting decides on economic success or failure. Without using the signals of correct accounting for economic decisions any production system is doomed to fail. (see the decline of the command economies during the 1970s to 1990s)

funded, whether public or private – all social protection systems induce reduction of consumption for some members of society in exchange of consumption options for others. Social protection is a convenient method of providing all with the option to consume and, thus, to contribute to *guaranteeing* full sales of modern mass production of goods and services. The importance is on the word *guarantee*. By way of contributions and tax payments the active are being forced to reduce consumption, in order to provide consumption to the inactive. Benefit levels are being optimized such that the consumption ratio of the inactive is close to 100%. Voluntary savings, instead of mandated contributions and taxes, *can* have (the potential of achieving) the same effect, but the effect is not guaranteed. The reason is that voluntary or forced savings first flow onto savings accounts, where, in principle, they are not growth-effective at all. They only turn into growth when entrepreneurial initiative uses them for the financing of tangible assets; this entrepreneurial activity, in turn, depends on the recognition of market chances, and on expected demand and profits.

If one wants to maintain modern production in order to take advantage of economies of scale and, thus, take advantage of low prices for goods and services for everyone, one has to guarantee full sales. For this to happen, one needs a mechanism that provides everyone in the society with income that allows for the consumption of the goods and services produced. Social protection is a mechanism effectively guaranteeing those sales.

Under this angle of view, social protection is just big machinery throwing money at all those who have no own income. At present, we are still in a process, where capitalist societies make such transfers dependent on more or less complex individual entitlement rules of the following type: Only if you contribute or only if you are a citizen or only if you are qualifying for other reasons, then you will receive a social benefit or a social service. Let us think 100 or 300 years ahead and assume that technology driven capitalist production still exists (if not we do not need to think about social protection anymore the same way as we do today) – then all our complex rules of entitlements will be replaced by a simple monetary machinery providing everyone without own primary income with something like money that provides access to the goods and services produced. Elements of such a future societal design are already being discussed in the literature

under the notion “basic income”. Today’s social protection can be seen as the still complex and bulky predecessor of that simple and elegant machinery of the future.

We know now why social protection exists:

It is a system inherent to capitalist production for two reasons: (1) it is an equivalent to the consumption of labor during the capitalist production process; and (2) it is necessary in order to maintain in the long run low cost mass production.

Indeed, we seem to have found a solid economic argument, which provides us with a foundation of social protection, an argument that helps to understand why social protection does exist in this world. This argument tells us that social protection was existent in the nucleus of capitalist production 250 years ago. Latest after WWII it became obvious that modern technology-driven production would not sustain without social protection mechanisms providing everybody with the necessary means in order to participate in mass consumption.

It is for these reasons that social protection will sooner or later also be introduced in East Asia on a large scale. Countries like Thailand are just the forerunners of this development. Most ruling elites are still resistant to the idea, as they were in Europe over many decades, and as they still are, but social protection will inevitably be developing in regions with capitalist production systems, sooner or later, independent of prevailing moods or fashions of thinking – it will develop because social protection is an inherent and necessary ingredient to the capitalist production process. Whether the Asian social protection systems will look the same as their European ancestors – I don’t know; however, they will have a similar design anyway. The present worldwide anti-social protection move, stimulated by the so-called Washington Consensus of 1989, can only be of a temporary nature.

Now, I have not yet spoken about *social protection as a productive factor*. Indeed, if one acknowledges that social protection is inherent to capitalist production, then the question as to whether social protection, as such, is good or bad for economic growth is quite meaningless. What becomes important is the question whether social protection performs its two core functions

effectively and efficiently. [(1) Replacing the depreciation of labor and, simultaneously, (2) providing those without primary income with transfers to be spent on consumption.] If the system does so we might call this the productivity of social protection.

PART II

Before elaborating more on this role of social protection let me, however, first concentrate for a few minutes on what I would call the standard approach, which economists would use when talking about social protection as a productive factor.

Let me begin with stating that the meaning of talking about *social protection as a productive factor* is not at all clear. The “*as*” in that phrase insinuates that social protection, in principle, could also be investigated from other, possibly many other angles of interest. For example, one might look at social protection as a legal system, or as a form of societal organization, or as a historical phenomenon or as a useful instrument for the furthering of other political aims, like wars, a hypothesis that was recently heavily discussed in the Spiegel, the prominent German weekly magazine.

All such alternative angles of view may, indeed, play a role when talking about *social protection as a productive factor*, but most obviously, they are not at the core of economists’ interest. To them the notion *productive factor* rings two bells.

First, economists think of the *concept of productivity*, which is often and usually defined as output per person, or per employed, or per time unit worked.

Second, the notion *factor* leads us to production theory, or, on the macro-economic level, to growth theory.

The topic rings another, a third bell. It quasi-automatically urges us to investigate social protection in its characteristics of contributing *positively* to economic growth. The list in the ILO document, which I quoted at the beginning of my lecture, is a result of such efforts.

More formally, this approach could tempt us to introduce social protection as an additional variable into the standard function of economic growth theory. As is well known, standard economic growth theory makes output a positive function of the two inputs labour and capital. I have used this concept in my introduction.

Now, it is quite easy to equip the standard function of economic growth theory with an additional variable called *social protection* and to provide the mathematical reaction of the function to that additional variable with the necessary characteristics, which would allow for showing mathematically that social protection stimulates growth like labour and capital. As a result one would then argue, within the standard canon of the contemporary paradigm of economic modeling, that economic output not only grows with additional units of labour and capital but also with additional units of social protection.

Indeed, such an approach is quite tempting. As far as I know *Xavier Sala-I-Martin* undertook the most serious and convincing of such attempts in 1996, in his most refreshing paper *A Positive Theory of Social Security*. (I recommend reading this one as well.)

However, elegant and knowledgeable playing with Cobb-Douglas-functions and garnishing mathematical results with most eloquent economic literacy – must not be mixed up with proving that social protection is a factor enhancing economic growth. While it is immediately convincing to assume and to argue that economic output is dependent on the availability, efficiency and effectiveness of labour and capital, and on their efficient and effective combination in the production process, it takes a very long way to assume and to argue the same for social protection. How, the hell, should social protection positively influence the output of a production site? Is not, intuitively, the contrary true? Avoid any sort of social protection and, as a result, workers' self-interest will induce a significant increase in labour productivity! Actually, so some argue, it is the absence of social protection that would work as an effective productivity whip, not its presence.

It is mainly the following two arguments that have been developed in order to support the view of social protection as a factor that is productive:

- (A) Social protection is necessary in order to replace important functions of families, which, under capitalist production conditions, are in a process of dissolution. It is the invention of formal pension systems that provides the young active with the required flexibility on the labour markets, without having to be concerned overly much about the well-being of their parents. Formal pension systems replace traditional in-kind transfers within families with institutionalized monetary transfers on societal level. It is possible to evolve this argument for different types of social schemes, but it has most prominently been developed for pension systems.
- (B) Social protection performs as a societal institution which buys the production factor labour out of the production process once it has turned unproductive. In doing so, social security very much contributes to maximizing and maintaining the productivity of employed labour, that is of those who remain within the production process. Indeed, no other institution organizes this buy-out equally effective and definite as pension systems. But unemployment insurance, social assistance and health insurance often do the same, sometimes over extended periods.

Now, the above grounds seem to establish good reasons for arguing that social protection has productivity-enhancing effects on production. However, if one looks more carefully at these from a pure logical point of view they are not really convincing.

Point A argues that social protection is necessary in order to provide those youngsters with a good feeling who have to be flexible on the labour market and who, at the same time, have old parents. Ok, fine argument at a first glance. But the anonymous production process of modern economies can, in principle, also work without addressing the feelings of those youngsters. In modern economies, many people work under conditions of frustration – why should capitalism introduce social protection just for the psychological comfort of those with aged parents? Indeed, one can, in principle, think of modern production also under conditions where the aged are not provided with social transfers, where, in other words, their working children do have to be concerned about the well-being of their parents and where, at the same time, work is productive

and production is high. Indeed, there are real world economies which function exactly on this basis and which are productive. In other words, dissolving family structures are only a quite weak argument in favor of social protection under capitalist structures.

Argument B says that capitalism needs social protection as a means of buying labour out of the production process once it has turned unproductive; through this mechanism we increase and maintain high labour productivity. Fine. Personally, I indeed like this argument very much as it is quite sophisticated and standard economic theory has no arguments countering it. However, logically, capitalism does not really need social protection for this to happen. Theoretically, capitalism could also make use of other options. For example, one could just fire unproductive labour and then leave it alone with its income problems. Not only the more gloomy sections of science fiction literature are full of depressing examples of how technological, high productive societies may deal with unproductive labour. Also *this* argument is weak as a foundation for the existence of social protection under capitalist production conditions. [Capitalism could have chosen less costly means in order to achieve the same results.]

There have been many attempts to explain the emergence of capitalism since the 18th century; but social protection played no role in these attempts. One of the best known of such attempts is Max Weber's sociological reasoning about the impact of Calvinist ethics on the ignition of capitalist production in the 18th century.

In his writings Weber also tries to find reasons why not already the old Romans, in their long-lasting empire, were able to start capitalist production: they knew about metallurgy, they had the wheel available, they had a culture of knowledge and good education, they had engineers and architects, they had effective administration – so, many of the ingredients of our modern times were already available. Why not did they already invent the steam engine? Was it the absence of mathematics?

Weber's answer is that slave labour was too cheap at that time, there was no incentive to invent and exploit machines, substituting scarce and expensive labour.

Another answer is that the development of patent rights, existing and enforced only since the 18th century, was essential for the start-up of capitalism: had patents not protected the profits from inventions it would have been impossible to pool the required enormous amounts of capital necessary for industrial production.

We know that also the changes in our way of thinking, of looking at nature, which we started to employ during the so-called *age of enlightenment* was one of the driving forces behind the development of modern scientific developments. Without this new way of looking at the world the type of technology on which modern production is being based would most probably not exist. The theoretical and empirical works of Galileo, of Huygens, Gauss, Fermat, Newton and many others were necessary prerequisites for the inventions and discoveries of all those physicists, chemists, biologists, engineers and others who, during the 18th, 19th and 20th centuries, laid the basis for those entrepreneurs who shaped what we now call modern economies.

It is most obvious that social protection cannot compete with these other fundamental elements explaining the emergence of capitalist production. Social protection simply played no role in the start-up of our modern ways of economic production 250 years ago. While it is possible to argue that other developments – like Calvinism, enlightenment, patent rights – were favorable to the ignition of capitalist production, it can not be argued so with respect to social protection. Social protection was, historically, definitely not a driving force behind capitalist production. It is, however, as we saw, an inherent by-product, so to speak, of modern production.

The idea that social protection can be considered a productive factor of capitalist production does not make much sense. It is non-sense to extend the standard production function of economic growth theory by an additional factor *social protection*. We may do so, but if we do, we only retrospectively provide social protection with a role that it never really had during the 250 years of evolvments of capitalist production.

PART III

Given these results, does it make at all sense to talk about *social protection as a productive factor*?

When I prepared this lecture I came across an article with a promising title, which was *Measuring Value Added in the Pensions Industry*, by David Blake and John Board, published in 2000 by The Pensions Institute, University of London. However, when reading the article I soon became disappointed as it did not at all contribute to my endeavors of finding the link between pensions and labor productivity in the British economy. The main reason for my frustration was, actually, that I had read the title wrong. I read: *Measuring the Value Added by the Pensions Industry*; but actually the title said *Measuring Value Added in the Pensions Industry*, which obviously is something different.

Nevertheless, more detailed reading showed me that the authors have a very basic understanding of value added, and of productivity in the British pension industry. They are not at all concerned about labour market effects or about effects on the financial markets or on labour productivity; they simply say that value added - productivity - of the British pension industry is the higher, the higher the pensions paid per capita after retirement [(at given contributions)].

This approach seems to be so overly evident to the authors that they do not even discuss it. And indeed, it sounds reasonable, like being the natural approach to the topic.

How would we tackle our problem if we pursued exactly the same approach of *more is better than less*?

The prevailing contemporary paradigm tries to make us believe that fewer pensioners are better than more, lower public pensions better than high.

The same paradigm says that fewer unemployed at lower unemployment benefits are better than more unemployed at higher benefit levels.

Fewer recipients of social assistance benefits at lower benefit levels are better than more beneficiaries at higher such levels.

Fewer hospital beds at reduced in-patient costs are better than more beds at higher costs.

Etc., etc., etc.

Our standard reasoning, to which we are meanwhile all used to, is, that all measures reducing social spending stimulate economic growth: reduced social protection is equivalent to increased economic growth. [(The infamous equity-efficiency-trade-off.)]

It is not monetary policy, it is not government investment policies, it is not exchange rate policies anymore, it is definitely not the capitalist way of production – it is social protection being considered responsible for too high numbers of pensioners and too high unemployment, for too high numbers of hospital beds, for too many persons falling on social assistance, it is social protection considered the cause for all this - instead of the requirements of our modern means of production.

However, if we accept that social protection is an inherent by-product of capitalism, needed by capitalism for its own survival, then the question of too much or too low social protection becomes meaningless.

In this case, social protection just has to reflect correctly the depreciation of labour; social protection should provide exactly the financial equivalent of that depreciation².

And in its function of guaranteeing full sales of mass production it should provide the correct amounts of financial transfers (and services) required in order to maximize that production.

The University of Maastricht might be the right place to investigate whether these two requirements can be simultaneously met or whether there is a theoretical inconsistency. (Which I did not elaborate in detail.)

² We do not consider here the related difficult measurement problems.

If one understands social protection this way, then all efforts of reducing unemployment through making savings in social protection will be in vain and, in fact, detrimental to the maximization of production. If the logic of capitalist production is to have as an inherent element social protection, then it is inherent to capitalism to have pensioners and unemployment and recipients of social assistance. It would be against the very logic of capitalism to reduce the numbers of those persons.

Compare two economies with identical population structures and identical total income produced. In the one country, social protection has low numbers of pensioners, unemployed, hospital beds – the other one has high such numbers. Which of the two social protection systems is more productive? The answer is obvious: the one with the higher numbers of social beneficiaries.

The result is:

More pensioners are better than less; higher pensions are better than low pensions.

A pension system that produces more of both is more productive than a pension system that produces less.

More unemployed are better than less; higher unemployment benefits are better than low unemployment benefits. An unemployment insurance system that produces more of both is more productive than an unemployment system that produces less.

More hospital beds are better than less; higher sickness benefits are better than low sickness benefits. A health care system that produces more of both is more productive than a health care system that produces less.

Now, most of this sounds strange to most of us. But take, for example, the case of unemployment: the measured unemployment rates in most African countries are significantly lower than European rates. The reason is that (a) African rates are low because the ILO definition triggers the result; (b) Europeans do have UI systems, which Africans don't have. Obviously, European social protection is much more productive than Africa's. These are extreme examples,

but one can make similar comparisons in other fields of social protection and between other regions of the world. Take the unemployment benefit systems in Western and Eastern Europe: is not the Western system more productive – as it pays higher benefits to more beneficiaries?

The ILO promotes decent employment around the world, and it promotes *full* employment. The *decent* part is fine; the *full* employment part however is more than questionable. The World population amounts to about 6 billion at present; it will grow to around 9 billion in around 2050. Over the next 50 years, the world needs an additional number of 50 million decent work places every year just to keep unemployment rates at present levels. In order to decrease unemployment and underemployment, it needs substantially more than 50 million permanent decent jobs every year. Not only environmental problems will prevent this from happening. Economic policies will not be able to effectively support this aim. Nevertheless, nowadays almost everyone, all leaders of the world, all international organizations under the UN, seem to be singing the same melody of full employment.

In it's striving for full employment the world more and more lacks the right focus, which is

- (1) actively using the potential of shaping societies by the means provided by social protection and
- (2) (2) promoting occupation.

World economic elites have not realized that social protection mechanisms are the only mechanisms that, over the foreseeable future, can bring solution to the world's growing income distribution problems. We will be able, on world level, to increase production, but we will not be able to provide every year an additional number of 50 million people with decent work; we will not be able to do so under the present or any other economic paradigm. A look at the world population pyramid immediately helps to understand.

Why, then, is social protection so important in combination with promotion of occupation?

Social protection is about redistributing the means that allow continuation of modern production while, at the same time, providing everyone with the necessary income to consume. As not everyone will get a decent employment we should pro-actively find ways to release at least those in un-decent employment from their employment. Let us turn all those who are in un-decent employment into unemployed; provide them with income; and, as a third component of this policy, provide the unemployed with occupation, that is with meaningful activities, meaningful to them and meaningful to the societies in which they live. When I say “unemployed” I comprise all who have no work: children, in-actives in their prime ages, and old persons. Occupation of children means sending them to school; occupation of the in-actives in their prime ages and of the old, retired persons means providing them with opportunities for creative works.

Well, I am not falling into the trap of romanticism. The difference between my proposal and standard employment policies is that “soft” occupational activities can in principle be organized by the civil societies who operate capitalist production conditions; under the same conditions, societies will, however, not be able to create employment beyond the extent to which the apparatus needs it.

In order to achieve a new policy approach of that kind, a policy approach where high social spending is not considered bad but good for the economy and for the society, in order to achieve such a revision of contemporary mainstream thinking we still have to go a very long way.

As a matter of fact, all institutional structures of governments, of international organizations are still directed towards the aim of full employment. Not many believe in it anymore, but still all pretend. The idea that it could be good to promote unemployment instead of employment – this idea has still to find its way into mainstream thinking and mainstream action.

I fundamentally believe that a policy reversal of this kind will happen some day in future. However, pessimistic as I am, I think that first something fundamental will have to happen, most probably in terms of a major energy crisis or an environmental crises or a combination of both. The big paradigmatic changes in the world have often happened after catastrophes, except a few, among which was the fall of the iron curtain. May be I should take that event for some optimism.

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