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On understanding economic reality at the beginning of the twenty-first century: an essay in remembrance of Professor Laski

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Economic objects are objects which are produced by employing inputs and valued by applying a valuation procedure. In a market economy the valuation is performed by the price mechanism. Ideally market prices reflect the scarcity values corresponding to individual preferences. This article argues that new technologies and business models call the separation of production and valuation into question and thereby challenge the theoretical foundation of the market economy. In particular the finance and data industry turns beliefs and preferences from exogenous individual characteristics into produced objects. As a result, at the beginning of the twenty-first century economic activity shifts from the production of objects to the production of values and prices. The paper adopts a classical perspective and uses the production and reproduction scheme to outline a model of the smart economy. A smart economy is an Internet-based economy which employs (artificially intelligent) robots to produce sensor-enabled objects via which the behavior of consumers can be tracked and directed. The robots are owned by capital-owners who employ agents for developing the robots, designing data-based devices and business models, managing them, and financing them. The owners and their agents employ workers to complement robots and to provide personal services. The paper proposes investing more into the production and reproduction of consumer sovereignty, active citizenship, and the res publica, in order to avoid a dystopic brave new world. The author sketches an agenda for the maintenance and renewal of the institutions of a free and democratic society by confronting the smart economy with core concepts of European enlightenment: secularization, constitution and rule of law, separation of powers, nation state, education, and market order.

Keywords: *economic realism, smart economy, big data, market failure*

JEL codes: *B51, D40, D46, B80*

1 INTRODUCTION

Laski has been a compass in my life as economist. Besides humanity, a belief in scientific analysis, and robust modeling, it is in particular his real view of the world that provided one with a sense of orientation for complex relationships. But what is a realistic approach to an economy dominated by beliefs in financial markets and attention focused through the internet or wisdom inferred from big data?

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I got to know Laski in the 1970s as one of my formative teachers in economics (the other one was Professor Rothschild) and later as co-author and colleague. From him I learned that a good way to start with economic realism is to approach economics from the perspective of production. It is the classical approach: Individual actors in the economic process ‘were classified by means of turning the social groups known to common experience into the three categories of economic types (or ‘functional’ classes): landowners, laborers, and capitalists’; the types represent the ‘factors, or requisites – or instruments (Senior) – of production’ (Schumpeter 1954: 554 and 557). So one question to be answered for understanding economic reality at the beginning of the twenty-first century would be: What are the current common-sense categories of participants in the economic process and how are they linked to their role in economic production?

Obviously production in our times is quite different from production in the times of Smith, Ricardo, or Marx. In particular, economic activity is not bound to physical production. Somehow, all aspects of modern life seem to be the object of economic activity. In Section 2 I will therefore take a stand on the notion of economics and economic production. Then I will try to discipline myself, in a kind of experiment, by adopting the classical scheme of production and reproduction to new economic realities. I could get some acquaintance with the role of this scheme for the theory of value and distribution as co-author of Laski (in Falkinger/Laski 1983) and of course as a student of macroeconomics in the Kaleckian tradition. There is another important element in this tradition which should be kept in mind. When asking what economic production is and what its prerequisites are, we should in particular distinguish ‘between those components ... which are active determinants ... and those which rather passively follow’ (Laski 1987: 9).

2 ON THE APPROPRIATE NOTION OF ECONOMICS AND PRODUCTION: A PROPOSAL

In my view, economics is the science of economic objects. An economic object is an object plus a value attached to the object. As a rule, the objects are produced objects. So one could also say economics deals with the production and valuation of objects. From a social perspective the value of an object depends on who has access to the object. Therefore ‘valuation of objects’ includes ‘distribution of objects.’

For classical economists, the nature of objects was more or less obvious: basic goods (corn) for the mass of workers, produced means of production (steel, machinery) for increasing the capacity of production, and things for the amusement of the rich. ‘The poor, in order to obtain food, exert themselves to gratify those fancies of the rich, and to obtain it more certainly, they vie with one another in the cheapness and perfection of their work’ (Smith 1776: 183). Since resources, in particular labor, determine the wealth of nations and its distribution, the costs of production were considered as the basic anchor for assigning values to objects. In richer economies the diversity of economic objects rises. This explains why the notion of choice became important when the so-called neoclassical school took over.¹ Resources, means of production and their distribution were considered as givens; the question was how to use them efficiently. In the words of Jevons (1871: 267, emphasis in original): ‘The problem of Economics may, as it seems to me, be

1. Of course, there may be other reasons as well – ideological ones or the desire to be acknowledged as a natural science. The latter is explicitly expressed by Walras (1874: 75): ‘It is absolutely impossible for us ... to include the question of the production of social wealth, any more than the question of its distribution, within the scope of natural science.’

stated thus: *Given, a certain population, with various needs and powers of production, in possession of certain lands and other sources of material: required, the mode of employing their labour which will maximize the utility of the produce.* Individual preferences are now the anchor for valuing objects. They are taken for 'ultimate data,' which 'constitute the *irrational* element in our universe of discourse' (Robbins 1932: 38, emphasis in original).² The 'givens' in Jevons's quote are of course no ultimate data, nor are the individual preferences. Humans are social beings formed by education and exposed to social influences; advertising played a role in the twentieth century, too. Still, the notion of individual preferences as subjective determinants of economic value captured an important feature of reality: Choices have become feasible.

To outsource the problem of valuation to subjective factors is legitimate in the course of scientific progress by specialization under two conditions: First, that utility or preferences are not themselves core matter of business activity, that is, produced objects. Second, that the outsourcing is not an act of denial, and economics takes into account what other disciplines such as philosophy, psychology, or sociology have to say on preferences and their formation. The second condition may be quite often missed in practice, but not in principle; accounting for it is a matter of scientific professionalism and intellectual honesty. The first condition, however, changes with economic reality. In my view a characteristic feature of economic reality at the beginning of the twenty-first century is that the production of preferences and value assignments has become a significant economic industry. Therefore it must be integrated into the scientific economic analysis just as is the production of commodities.

Valuation of present and future objects on the basis of individual preferences requires mature and autonomous personalities who choose in their interest. Yet to be mature and reasonable is not enough. In addition, people must be able to arrange all existing and potentially producible objects in a complete order. Assuming such completeness may be acceptable as long as the set of all possible alternatives is poor. But who would honestly claim to account for all consequences of the full set of globally available possibilities nowadays? We all rely, knowingly or not, on experts and tools which filter and evaluate opportunities instead of us. In other words, in an information- and variety-rich economy, professional businesses emerge for bringing objects and values to our attention. At the beginning of the twenty-first century such businesses are as generic as the production of commodities. Salient examples are: the new finance industry, message control, production of media attention, and personalized marketing. I will address them in more detail after the next section, which deals with the production of commodities.

3 DETERMINING VALUES AND PRICES BY FUNDAMENTALS

Laski's economic thinking has been clearly shaped by Kalecki, about whom he writes in a powerful portrait for the *New Palgrave*: Kalecki 'was impressed especially by Marx's schemes of reproduction' which he used in a modified form to explain his approach; but he 'was rather allergic to the labour theory of value and to dogmatic Marxism altogether' (Laski 1987: 9 and 10). I think it is fair to say that Laski was equally allergic to the labor theory of value. This becomes apparent in his review (Laski 1978) of Steedman's

2. A broad survey of the views on wealth and wants in the history of economic thought can be found in part one of the book on *Satiation: Moral and Psychological Limits to Growth* (Falkinger 1986).

book *Marx After Sraffa* (Steedman 1977).³ In this review, after paying tribute to the decisive role of Sraffa's *Production of Commodities by Means of Commodities* (Sraffa 1960) in the refutation of the neoclassical distribution theory, Laski emphasizes Steedman's merit in showing how Sraffa's book also undermines the labor theory of value.

In classical economic thinking, economic values were based on objective grounds. Techniques of production and subsistence requirements of workers are the fundamentals which determine prices and distribution in an economy in which workers produce goods with the help of intermediate materials and machinery. Because materials and machines are themselves goods produced by workers, labor is the ultimate productive force.

In its simplest form (without fixed capital), the production technique of such an economy can be described by an $(n \times n)$ -matrix A of inter-industry coefficients and a $(1 \times n)$ -vector a of direct labor coefficients.⁴ Then the 'prices of production' are given by the $(1 \times n)$ -vector

$$p = (1 + r)[pA + wa], \quad (1)$$

where pA is the cost of the intermediate input requirements and wa is the cost of the direct labor input at money wage rate w . On top of these costs, prices have to cover the profit claims of the capitalists represented by costs times profit rate r . Solving equation (1) for p , we obtain

$$p = (1 + r)wa[I - (1 + r)A]^{-1}. \quad (2)$$

Adding to (2) a numeraire condition, for instance $p_1 = 1$, we can calculate for each feasible profit rate the corresponding producer prices as well as the wage rate. The latter is a strictly monotonously decreasing function of the profit rate.

At $r = 0$ the wage rate reaches its maximal value, w_{max} , that is, the wage rate (in units of the numeraire) which results if all income goes to workers. Evaluating (1) and (2) at $r = 0$ and $w = w_{max}$, we have the $(1 \times n)$ -vector v of '(labor) value prices':

$$v = w_{max}a[I - A]^{-1}. \quad (3)$$

These value prices are proportional to labor values, which measure the value of a good by the units of total labor required – directly and indirectly – for producing one unit of the good. In (3), labor values would result with $w = 1$ instead of $w = w_{max}$. By using w_{max} , values are adjusted to the same numeraire ($v_1 = 1$) as producer prices ($p_1 = 1$). Like producer prices, labor value prices also vary with technical change (that is, changes in A or a).

Goods are produced by direct and indirect labor. Yet labor itself is a 'produced good,' too. In order to live and to be productive, the labor force has to be nourished. This gives us a further type of fundamental: the goods basket consumed by workers. Let b be an $(n \times 1)$ -vector representing the basket per unit of labor. Of course, to be affordable, b must satisfy the workers' budget constraint $w = pb$. In contrast to the money wage rate w , which equals the value of basket b in terms of production prices, the value of this basket in terms of labor value prices is given by

$$\omega = vb, \quad (4)$$

where ω is the value wage rate. This shows, if workers spend their wage w for a different bundle of goods b' , also satisfying budget constraint $w = pb'$, then the value wage rate changes to $\omega' = vb'$.

3. See also Laski (1976) and Laski (1979).

4. The following exposition follows Falkinger/Laski (1983).

From a Marxian perspective, the real nature of capitalistic production is shown by the labor value prices, in particular by the surplus value, that is, per unit of labor, the value produced by labor, w_{max} , minus the value of what labor actually gets, ω . This gives the rate of exploitation:

$$e = \frac{w_{max} - \omega}{\omega}. \quad (5)$$

Obviously, as well as ω , the rate of exploitation e also changes if the consumption structure of workers changes.

The labor theory of value is refused on the basis of two main arguments. First, in general labor value prices cannot be transformed into producer prices without going back to their common sources: technology (A , a) and subsistence requirements (b). And, second, the rate of exploitation, or other distributional measures using labor value prices, gives no appropriate guidance for class struggle or distribution policy. If technology and consumption structure change in the course of development, the situation of workers may worsen in terms of producer prices even though it improves in terms of value prices, and vice versa.⁵

Kalecki – as well as Laski – based his distributional analysis on technology and power relations, in particular market power. Firms set prices by charging on variable unit costs, c , a mark-up to cover fixed costs and profit claims. Accounting for material costs, on top of wage costs, the price of final output, p , is given by the equation

$$p = (1 + \mu)c_w(1 + \iota), \quad c_w = wa, \iota = c_M/c_w, \quad (6)$$

where μ is the mark-up ratio, w and a are the wage rate and labor coefficient, respectively, and ι is the ratio of unit material cost, c_M , to wage cost. While c_w is the wage income, $\mu c_w(1 + \iota)$ is the profit earned per unit of output. For the wage share, this gives us:⁶

$$\alpha = \frac{1}{1 + \mu(1 + \iota)}. \quad (7)$$

Mark-up ratio μ is determined by the power relations in the economy such as market power in the goods or factor markets, bargaining power, lobbying power, or information advantages. In a Marxian labor value interpretation, μ would mirror the degree of exploitation. With the familiar neoclassical workhorse model of monopolistic competition (Dixit/Stiglitz 1977), power is pushed aside and μ reduced to a preference parameter: the elasticity of substitution.

Despite my Laskian education, to a large extent my professional life as an economist took place within the framework of general equilibrium theory. So let me conclude with a short discussion of prices in this framework.

In a Walrasian equilibrium, prices are determined by an economy's endowments, E , the distribution of endowment, E_i , the distribution of income, ϑ_i , production techniques, T , and individual preferences, \lesssim_i :⁷

$$p = p^*[E, E_i, \vartheta_i, T, \lesssim_i]. \quad (8)$$

5. What remains is that the profit rate is positive if and only if the rate of exploitation is positive – a fact which was called 'Fundamental Marxian Theorem' (see, apart from Steedman 1977, Morishima 1973 and Roemer 1981).

6. The exposition follows Laski (1987: 10). Note that, per unit of output, total income is $c_w + \mu c_w(1 + \iota)$.

7. The notation is quite loose; it should record in an easily readable way the full list of price determinants in general equilibrium theory. A thorough presentation of the theory is given in the textbook of Mas-Colell et al. (1995).

It is evident that present-day mainstream economics is to a large extent far off the standard model of general equilibrium analysis. In particular, the role of wealth and income distribution for the allocation and pricing of goods is often ignored. But here I want to point to a different aspect: The Walrasian equilibrium assumes markets for all goods and price-taking in all markets. In reality, we have imperfect competition in many markets, and not all economically relevant activities are fully covered by markets – markets are incomplete. In my view, a rational approach to economic analysis must account for these two facts. In contrast to the equilibrium prices in an ideal market economy, in a realistic model of a market economy prices are distorted by two factors: market power and missing markets. We can keep this in mind by modifying (8) to:

$$p = (1 + \delta)p^*[E, E_i, \vartheta_i, T, \lesssim_i], \quad \delta = \mu + \xi, \quad (9)$$

where δ is a vector with μ representing mark-up ratios due to market power and ξ representing distortions coming from incompleteness.⁸

At this point it might be worthwhile to say a word on (post-)Keynesian versus neoclassical economics. I had the privilege of becoming acquainted with both paradigms at their best and have no mission to promote or defend one school against the other. Economic thinking is relevant if it is rigorous and captures essential features of reality. In the context of this essay, to use the wage basket language (b) or the preference language (\lesssim) is a matter of convenience. The essential point, in my view, is: Neither reproduction requirements nor preferences have ever been exogenous in a strict sense. Yet exogeneity of b , and later of \lesssim , has been an acceptable abstraction. This is no longer true in an information- and variety-rich economy dominated by ‘smart’ business models and technologies. Recent technological developments and business models have led to important new channels through which companies influence market power and preferences, or create markets and quasi-markets. In terms of pricing equation (9): μ , ξ , and \lesssim become produced objects. In the remainder of this essay I want to elaborate this point and discuss its consequences.

4 PRODUCTION OF VALUES AND PRICES BY MEANS OF INVESTMENT

I give three examples which illustrate that contemporary economies produce, along with commodities, values and prices by shaping beliefs and preferences.

4.1 Financial markets: spreading beliefs by means of financial products (or innovations)

For investing current means into the creation of future opportunities, households and firms rely on financial services provided by the financial sector. The complexity of financial markets brings forth a privileged role for financial agents who design and price financial products. Apart from specific expert knowledge,⁹ large funds are the basis of this privileged role.

In an efficient market, financial product prices ‘at any time “fully reflect” the information available’ (Fama 1970: 383). Hayek is a bit more precise with regard to which information is

8. As to ξ , it is important to see that prices in existing markets are also affected if things go on outside markets. Moreover, in the market-dominated approach to economics, there are many attempts to find quasi-market values for things for which no proper market exists, for instance environment, intangible assets, etc.

9. Gennaioli et al. (2015) speak of ‘money doctors.’

available. It is ‘the information that is in fact dispersed among all people involved in the [price formation] process’ (Hayek 1945: 526). Now, to be involved in the price formation process in the financial market you need deep pockets.¹⁰ So, in my view, in a realistic picture of contemporary financial markets we have on the one side a group of agents which create financial products and price them by arbitrage trade; and on the other side we have the mass of households and firms who do not participate in this trade. For them, the set of financial products and their prices are given, produced and set by the financial agents.

For the sake of illustration, take for instance a two-period one-good economy with $s \in S$ risky states and a set of Arrow-securities $(z_s)_{s \in S}$: One unit of asset z_s , purchased in period 1, pays one unit of the good in period 2 if state s is realized. Suppose there is a set of risk-neutral financial agents (f) with unlimited access to funds, which trade these assets. Then, in a free-asset market, prices $(q_s)_{s \in S}$ of the Arrow-securities will be given by the condition

$$q_s = \pi_s^f Q, \quad (10)$$

where Q is a constant and π_s^f is the belief of financial agents about the probability of state s . Constant Q fixes the asset price level ($Q = \sum_s q_s$).

A household with savings K , which wishes to insure the future consumption stream out of K , will allocate K on the Arrow-securities according to the financial agents’ beliefs:¹¹

$$K_s = \pi_s^f K. \quad (11)$$

In sum, asset prices as well as the investment structure are determined by what financial agents do and believe.

4.2 Competition for attention and interpretation (framing): controlling perception and diversity by media impact

In standard economic theory, a requirement of rationality is that preferences are complete; that means that individuals can order the set of all possible goods. Let U denote this universe of goods and denote by \lesssim_U the preference order on U .

Contemporary economies offer a tremendous variety of all sorts of objects – from variants of food to convenience and luxuries, from culture and entertainment to more or less useless gadgets and even noxious stuff. Contrary to what is often assumed implicitly, people cannot pick what they like most from the plethora of things. Free choice is only possible among things that we know. Let M be the set of perceived objects and denote by \lesssim_M the preference order on M . In a variety-rich economy, $M \subsetneq U$. Preferences and thus the general equilibrium of the economy, in particular the prices (see (8) and (9)), are subject to the filter M .

In an information-rich economy, information exposure exceeds the information-processing and perception capacity of people. Attention is guided towards salient signals so that prominently placed items have a higher chance to be part of focus M : names and objects presented on the front page or ranked top on a list, links shown first in answers to queries or viral news. So \lesssim_M is the outcome of competition for attention. In other words, individual preferences are a produced object, produced by the efforts of attention-seeking agents and companies. Under \lesssim_U , an object outside M might dominate an object in M ;

10. Technically the condition of free arbitrage requires that agents have access to unlimited funds.

11. To achieve equal pay-offs across states, the portfolio must satisfy the condition $K_s/q_s = \text{const}$. With (10) the condition is equivalent to: $K_s Q = \pi_s^f \text{const}$. Summing over s , we have $\text{const} = K/Q$ and thus (11).

nonetheless no value is assigned to them and no market price. I have analysed the principal structure of such an economy from a general equilibrium perspective in Falkinger (2007) and some further work.

There is another important issue which is often obscured by the impressive diversity presented in global media like the Internet. Saliency is a positional good and prominence tends to be highly concentrated. The ‘ecology of information’ in the Web follows a lot of power laws (Huberman 2001) which generate highly concentrated patterns of impact. As a result, in an information-rich economy with global media, individuals tend to have access to a larger variety of objects and ideas, but more individuals depend on the same set of objects and ideas – chosen by the laws of the Web rather than by individual preferences.

4.3 Personalized markets: construction of selves by exploiting data

In the first half of the twentieth century, revealed preference theory proposed to recover preferences from observed behavior. The second half of the century pointed to the limits of this approach and showed that, in general, preference revelation is impossible by conventional economic mechanisms. It is kind of an irony of history that economic reality at the beginning of the twenty-first century is full of tools which track our preferences online and via direct sensors attached to our selves.

The idea of revealed preferences is to take observed behavior, in a conventional model the quantity offered or purchased at the prevailing price, and look at which preference order could replicate such behavior. Unsurprisingly, the market does not generate sufficient information for recovering individual preferences. But, contrary to markets, current technologies like cookies or sensor-enabled devices make direct tracking of an individual feasible – in all spheres of life, online and offline. This leads to an inversion of the standard economic model, in which preferences are exogenous and markets confront all individuals with the same price (‘law of one price’), to a model in which preferences are produced and prices are tailored to each individual.

A good way to illustrate the inversion is the vision of the ‘selfish ledger’ presented in an internal Google video which was leaked to the media in May 2018.¹² Under the heading ‘Lamarckian user data’ the video picks up Lamarck’s notion of an ‘internal code within every living thing’ and informs us: ‘When we use contemporary technology a trail of information is created in the form of data. When analysed, it describes our actions, decisions, preferences, movements, and relationships.’ In sum ‘this ledger of our data may be considered ... a constantly evolving representation of who we are.’ Thus the ledger of user data not only knows our preferences but everything else – what we know, what we are able to do, how we choose, how we interact with others, how we change, and what changes us.

Yet this is not the end of the ‘Lamarckian user data’ story. The ledger representing the information of who we are is not a private matter; individuals are only ‘carriers’ of information for the species. This allows Google to add missing data in our ledgers and to combine the information in the individual ledger with collective experience. In a further step, the code of who we are could be enhanced artificially. ‘The ledger could thus be given a focus, shifting it from a system which not only tracks our behavior but offers direction towards the desired result.’

So we move from observed user data on to production of new preferences and the direction of behavior.

12. See <https://www.theverge.com/2018/5/17/17344250/google-x-selfish-ledger-video-data-privacy>; <https://www.youtube.com/watch?v=fvUN6Cbogfo>. Quotations from own transcription of text spoken in the video on YouTube.

Whatever one might think of this vision, the tracking of user data and its use for personalized marketing methods are facts. The dominant business model of the digital economy, capturing also traditional markets, consists of two types of transactions: (i) Production of ledgers of user data (data collection and analytics). In this ‘market’ individual data is exchanged for (subsidized) goods or services. Basically we have bilateral barter between client (supplying user data) and provider (supplying goods or services). This barter is usually mixed with market exchange at distorted prices (in addition to the supply of data, the client pays a reduced fee). (ii) User-centered supply of goods or services. This transaction resembles monopolistic markets with differentiated products and first-degree price discrimination. Firms offer objects which match with the users’ profile in exchange for the money equivalent of their willingness to pay. Ideally, the outcome of the transaction is efficient but the whole surplus goes to the producer.¹³

5 FROM MARKET ECONOMIES TO ‘SMART’ ECONOMIES: A DYSTOPIA

Neither the heading nor the text of the following section should be read as predictions. Rather they express, hopefully in an intellectually provocative way, concerns with contemporary market economies from the perspective of an economist who holds the merits of markets in high regard.

5.1 The end of market economies

Are the times of market economies over? Not if a market economy just means that people compete against others for means to get rich; but yes, if we take the notion of a competitive market economy seriously. I will discuss three specific interpretations of the notion of a market economy: partial equilibrium analysis; fundamental welfare theorems; and Hayek’s ‘use of knowledge in society.’¹⁴

In a partial equilibrium perspective, a market economy consists of supply and demand diagrams, representing for each good the marginal cost of production (ignoring potential scope effects) and the willingness to pay for it (ignoring income effects). The diagrams illustrate in a simple way how markets and the law of one price work and why they are good, that is, how the market price adjusts to equilibrium and why maximal social benefit is achieved in equilibrium. The economic developments described in Section 4 can hardly be represented in such diagrams. But then the whole apparatus of Marshallian partial

13. The distribution of the surplus between data producers and goods or service producers is a different matter. Another non-trivial but important question is: How should we think of such types of transaction in general equilibrium? Let me try a bold speculation. Generalizing the argument of full extraction of the consumer’s willingness to pay, in total producers would deliver a tailored basket of objects in exchange for the user’s income. But how is the income generated? What determines an individual’s wage in an economy with full knowledge about individual preferences and abilities? By analogy to the goods market, employers will elicit an efficient level of effort at minimal pay. In sum, this looks like a planner solution under an omniscient but not benevolent planner, who exploits the population up to the point where people refuse to give the planner their allegiance. A possible formal structure of such an economy will be outlined in Section 5.2, using the classical scheme of production and reproduction.

14. I count these as a standard economic understanding of market economies because they fit into the program of modern political economy from Smith’s *Wealth of Nations* to Eucken’s *Grundsätze der Wirtschaftspolitik* (Eucken 1952).

equilibrium analysis for analysing and justifying market economies is gone. Substituting the apparatus with smart jargon and market-inspired metaphors about data as the new resource or attention as the new currency is more an obfuscation strategy to hide the loss of important market mechanisms.

Partial equilibrium analysis is of course not a rigorous foundation of the properties of market economies. The foundation is provided by the so-called ‘fundamental welfare theorems.’ Under certain assumptions – in particular rational agents, price-taking behavior and complete markets – allocations in a market economy are efficient (first theorem) and, under additional convexity assumptions, each efficient allocation can be realized in a market economy by redistributing wealth in an appropriate way (second theorem). Now, if it is hard to draw a supply and demand diagram for describing typical economic interactions at the beginning of the twenty-first century, it is even harder to think of price-taking behavior in such interactions. Furthermore, the prevalence of economies of scale and network effects in financial businesses, IT platforms, and social media do not make the assumption of convex technologies more plausible.¹⁵ But the most worrying thing is this: If preferences are produced objects, the notion of a market economy loses its footing, and the definition of a Walrasian or competitive economy becomes meaningless.

Hayek (1945) argues that prices process all relevant information to coordinate economic interaction in an efficient way. ‘Fundamentally, in a system where the knowledge of the relevant facts is dispersed among many people, prices can act to coordinate the separate actions of different people in the same way as subjective values help the individual to coördinate the parts of his plan’ (ibid.: 524). Compared to a perfect planner solution, perfect markets produce the same allocation without a fictitious ‘central board which’ is ‘integrating *all* knowledge’ (ibid.: 524, emphasis in original). ‘The mere fact that there is one price for any commodity ... brings about the solution which (it is just conceptually possible) might have been arrived at by one single mind possessing all the information which is in fact dispersed among all the people involved in the process’ (ibid.: 526).¹⁶ The Internet led to an alternative system of information-processing. It also started with the vision of a decentralized device but turned into a global business run by ‘central boards’ whose mission is ‘integrating all knowledge,’ in particular by tracking user data. This turns Hayek on its head: The dispersed ‘knowledge of the particular circumstances of time and place’ of Hayek’s ‘man on the spot’ (ibid.: 524) is tracked and combined with the knowledge of other men on the spot. The thus collected knowledge serves then as the basis for marketing goods, that is, for setting prices and giving advice on what to buy.

15. Absence of scale effects and price-taking have always been controversial issues. They were a basis of legitimacy for nationalization or regulation and underpinned the paradigm of ‘Ordnungspolitik’: A strong state should guarantee polypolistic markets by controlling monopolies and oligopolies or breaking them up. In the second half of the twentieth century a new approach to competition policy took over, which made imperfect competition the norm. According to this approach, it is not competition *within* a market that is important but competition *for* markets. The contestable market theory has worked out the conditions under which such competition works (no entry barrier, in particular no sunk cost). According to the argument, free entry guarantees that profits from market power are absorbed by the cost of creating or conquering a market. In sum, from an *ex ante* point of view there is no power and *ex post* there are no profits. Furthermore, so says the argument, the costs for setting up a market are beneficial by generating innovations and enhancing productivity. A perfect story that has immunized economics against critics of economic power and rents. Banks ‘too big to fail’ or ‘internet giants’ raise the demand for the story; do they also raise its credibility? Actually, monopoly power and pure profits have increased over recent decades, as Eggertsson et al. (2018) show for the US. They call this development ‘the emergence of a non-zero-rent economy.’

16. The same idea is applied to financial markets.

Schumpeter was afraid that ‘capitalism is killed by its achievements’ (Schumpeter 1942: xiv).¹⁷ The reflections presented in this section are pointing to a development in which, rather than killing itself, capitalism kills the market economy. It is not ‘a socialist form of society’ that will emerge but rather a kind of hybrid between feudalism, capitalism, and central planning, in which private monopolies act like central planners.

5.2 ‘Smart’ economies

Before I highlight the unpleasant features of current developments in a dystopic model, I want to go back once more to the Google ledgers which codify the information on ‘who we are’ and to the promise that ‘we are able to offer direction to the species.’ As is often the case, the ‘we’ is a warning that we do not face a benevolent planner but a business model. To understand the model it is useful to apply a Kaleckian lesson and to ask who plays the active and the passive parts of the model. Now, it is obvious that the ‘we’ in the ‘who we are’ ledger – the network users – are meant to play the passive agents, whereas the ‘we’ in the ‘we are able to give direction’ – the owners, designers, and influencers of the network – are the active ones.

A smart economy is an Internet-based economy which employs (artificially intelligent) robots to produce sensor-enabled objects by which the behavior of consumers can be tracked and directed. Robots are themselves such produced objects, and are owned by the capital-owners. For developing the robots, for designing and managing data-based business models, and for financing the smart economy, capital-owners need ‘smart’ labor. Apart from specific skills, smart labor must share a certain vision with their principals: the owners of the economy. In sum, we have two classes: an elite of robot-owners supported by smart labor on the one side, and the rest of the labor force on the other side. The first group plays the active role in the economy; the second group has the passive part.

Using the production scheme outlined in Section 3, we can describe the input–output structure of the economy by two equations. Let S be the measure of smart labor. Then:

$$y = Ax - x \quad \text{and} \quad ax = S, \quad (12)$$

where y and x are $(n \times 1)$ -vectors which denote net and gross output, respectively.

Prices are given by (2), evaluated at w_S , the wage of smart labor; and the monotonously decreasing relationship $r(w_S)$, determined by (2) and a numeraire condition, describes the possible splits of income between owners and their agents. We can think of the wage of smart labor, w_S , as being determined by bargaining or in a principal agent contract.

What happens with the rest of the labor force? Will non-smart labor die, and if not, why would the elite of owners, creators, and executives of the smart world feed non-smart labor? To answer the question, another distinction of Kaleckian/Laskian thinking helps, the one between capitalist consumption (in our case consumption of the smart elite) and consumption of workers.

What do wealthy people do with their income? Do they purchase precious things or gold, which are sometimes taken as the symbols of luxury consumption?¹⁸ Not only those. Malthus (1836) reminds us of a further use of wealth:

It is also very important to observe, that menial servants are absolutely necessary to make the resources of the higher and middle classes of society efficient in the demand for material

17. Elliot (1980) compares Schumpeter’s and Marx’s visions of the future of capitalism and shows interesting similarities.

18. It may be worth mentioning that gold and other precious things were also valuable as means of power; they allowed the hiring of soldiers and mercenaries.

products. No persons possessing incomes above five hundred pounds a year, would be inclined to have such houses, furniture, clothes, carriages and horses, and such eatables and drinkables in their houses as they have at present, if they were obliged to sweep their own rooms, brush and wash their own furniture and clothes, clean their own carriages and horses, and had none but themselves to make a demand for eatables and drinkables.¹⁹

To account for this insight, the presented model of the smart economy needs to be extended by a service sector in which personal services, Σ , are produced by non-smart labor, L . Assuming for simplicity that one unit of labor produces one unit of personal services, we have:

$$\Sigma = L. \quad (13)$$

Obviously L must be alimented by a wage. Let b denote the wage goods basket ('real wage') consumed by a personal service worker and let w_L be her or his money wage. Besides the budget constraint $w_L = pb$ the wage must also satisfy some participation constraint – in the form of a minimum wage: $w_L \geq w_L^{min}$, or in some other minimum value form: $u(b) \geq u_{min}$. In a more classical spirit we may think of u as calories; in a neoclassical approach, u would be utility. Hence, we have

$$pb \geq w_L^{min} \quad \text{or} \quad u(b) \geq u_{min}. \quad (14)$$

The commodity surplus (after feeding the personal service workers) remaining for the elite of owners plus smart labor is then

$$y^E = y - Lb. \quad (15)$$

The elite can use this surplus for consumption or investment. According to (13) and (15), there is a trade-off between commodity surplus and personal services. The trade-off depends on the output structure, y , as well as on the wage, b , for personal service workers.

The active part is played by the owners and their agents – smart labor; they are the ones who decide about production and set the wage for non-smart labor. With (13) and (15) the net commodity output y required to satisfy the elite's demand (Σ, y^E) is given by

$$y = \Sigma b + y^E. \quad (16)$$

Moreover, according to the first equation in (12), total output to be produced is:

$$x = [I - A]^{-1}y = [I - A]^{-1}(\Sigma b + y^E). \quad (17)$$

And the second equation of (12) gives us the constraint:

$$a[I - A]^{-1}(\Sigma b + y^E) = S. \quad (18)$$

The constraint shows that, in a smart economy with technology a, A and smart labor force of size S , the bundle of personal services and goods (Σ and y^E) which is feasible to the elite depends on the real wage b , regardless of money wage w_L .²⁰ What determines b ?

So far we have not yet exploited an essential property of the smart economy, namely that it can track and direct consumer preferences and behavior; Section 4 illustrated some specific mechanisms. In other words, the owners of the smart economy and their agents

19. See http://oll.libertyfund.org/titles/2188#Malthus_1462_1099.

20. If non-smart labor is limited by a full-employment constraint $L = N$, we have instead of (18): $a[I - A]^{-1}(Nb + y^E) = S$, leaving y^E for elite consumption and investment.

can control b within the limits of the participation constraints described in (14). Their interest is to direct b in a way that leaves them maximal opportunities. This gives for each y^E the program:

$$\max_b \Sigma \quad \text{subject to (14) and (18),} \quad (19)$$

which traces out the elite's maximal opportunity set (Σ, y^E) .

In sum, robots will not eliminate all kinds of employment, in particular not all low-paying jobs. On the contrary, the smart economy blends well with a servant economy.

6 ROAD TO FREEDOM: PRODUCTION AND REPRODUCTION OF MATURE ECONOMIC AGENTS, AUTONOMOUS CITIZENS, AND THE *RES PUBLICA*

What was Laski's vision for the future? He certainly didn't believe in the 'marvel' of market prices, the unconscious evolution of social solutions, or the automatic advances of civilization praised by Hayek (1945: 527) and many of his followers. But apparently Laski also asked himself the question (about which he writes that Kalecki did not ask it) of 'whether in replacing capitalism by socialism gains of one kind would become offset by losses of different kind' (Laski 1987: 13). And he definitely belongs to the group of people who encourage me to stay a believer in the possibility of enlightenment and progress.

It is not the Internet or modern communication tools that are the problem. The culprits are: (i) intrusion of the market paradigm into all spheres of life – profitable trading of everything and being successful in competition; and (ii) more specifically to the smart economy, the current business model which mixes the exchange of data with the exchange of goods and breaks the wall between production of objects and valuation of objects.

By highlighting the risks of new techniques and business models in the private economy I do not want to downplay the dangers from abuse of the new techniques for surveillance and control by public institutions and the state. But uncritical praise of private activity is not sufficient either to avoid 'the road to serfdom.' Public infrastructure as well as the institutions of a free and democratic society are the result of work. Like other produced objects they have to be reproduced – maintained and renewed.²¹ The following notes are an amateur's attempt to outline an agenda of work for maintaining and renewing the achievements of the European enlightenment in a smart economy. If the new techniques and business models of the smart economy tend to support a new elite, what can we learn from the institutions created to get over aristocratic rulership?

6.1 Secularization

Secularization separated policy from religious matters. By analogy, the dystopia outlined above suggests fighting the high priests of the new brave world of smart economies and battling against the apologists of a market economy dominated by a few big players. There is a more general problem: Economics has become a new kind of religion intruding in all spheres of life and society. Secularization requires the protection of private spheres and the public space from economic forces. To give a specific example, the dogma of

21. In a passionate critic of the *laissez-faire* doctrine, Tony Judt (2010) reminds us of the virtues of collective actions and public goods for the development of modern societies. See also Mazzucato (2013) on the important role of public activity for innovations and technical progress.

informative advertising blinded economists. Apart from their role as ‘hidden persuaders,’ advertisements crowd out other types of information and communication. In my view, apart from fighting the capture of policy by religious movements, secularization also demands private spheres and public spaces to be free from advertising.

6.2 Constitution and rule of law

Constitutions determine legitimate authority and limit the power of their rulers. In an analogous way, we need a constitution for the smart economy: guaranteeing privacy, giving to users control over their data, and defining what is forbidden to robots and their commanders. Take for instance Google’s vision of ‘Lamarckian user data’ which tracks ‘who we are.’ Most of us know that ‘[w]hen we use contemporary technology a trail of information is created in the form of data.’ But do we want to shift towards a system which directs our behavior? I do not.

The production of a constitution for the smart economy is not only the job of the legal profession or of policy. Technicians, in particular computer scientists, are equally called to contribute by designing technologies that allow an effective assignment of data rights and protected spheres. Nor should economists forget their share: to come up with market designs and business models which are consistent with consumer sovereignty and fulfill the requirements of an efficient market economy.

6.3 Separation of powers

Arrow reminds his readers: ‘The multiplicity of control systems in the real world is probably no accident,’ and in particular: ‘The market is one system; the polity another’ (Arrow 1997: 765). For the political system, Montesquieu’s model of good governance tells us to assign lawmaking, execution, and jurisdiction to separate bodies. The principle of the separation of powers tends to get lost in the contemporary propagation of self-regulation of industries or private arbitration.

A specifically worrying feature of the smart economy is the asymmetry of information between powerful economic players on the one side and governmental bodies and the public on the other. In the financial sector this has led to a situation in which dominating companies act at the same time as the controllers of their industry – for instance as members or experts in regulatory boards or even as agents employed by the public authority.²² Not only in the financial industry but also in the Internet and data business the information advantage and expertise of the industries renders an effective wall between regulator and industry almost illusory. One reason for this advantage is that these industries absorb a large part of talent and manpower – including the manpower trained in public universities.

Reproduction of an effective separation of powers in the smart economy demands a reallocation of talent. Max Weber emphasized the important role of a professional bureaucracy for legitimate power. It is the backbone of modern organization – of companies as well as states. Against all fashion, for a free and democratic society the smart economy has to allocate more resources towards public expertise and public management capacity.

22. A salient example is the cooperation of the European Central Bank with Blackrock, revealed by the media.

6.4 Nation state

The transition from small principalities to a nation state allowed the former to satisfy the desire to belong to an autonomous entity by organizing constitution, rule of law, and separation of powers at a level which was effective in view of the economic and global developments of the time.

It was argued that towards the end of the twentieth century a new wave of economic globalization led to a renaissance of small states. The argument was that international economic integration allowed them to exploit the advantages of international labor division and to serve a tighter notion of national identity at the same time. The argument may have some plausibility as long as globalization refers to free trade in international goods markets. But globalization today is much more than that: foreign ownership by international investors; global market power fostered by economies of scale and network effects; dominance of big players in the finance and internet industries. In such circumstances the desire to belong to a self-determined entity requires effective political institutions beyond the national level – on a scale which matches the range of economic power.

There is a further lesson we can learn from the role of nation states for modern societies. Despite the global character of the Internet and modern media, it tends to create segregated communities. On the one side, targeting user profiles and registration of clients turns customers into club members. On the other side, economic or ideological motives lead to biased offers of information. Combined with mental laziness and a desire to belong to a group, they nourish isolated bubbles of perception and communication. In this situation, reproducing the nation state means: get out of the bubbles; look for tools to organize public debates.

6.5 Education

Economic liberals and libertarians of all sorts tend to take consumer sovereignty and responsible citizenship as givens which are innate to human nature or have emerged in some ‘marvelous’ evolutionary process. This has led to a situation in which we have on the one side a public education system teaching people cultural techniques from reading, writing, and mathematics to attitudes like being autonomous, creative, and critical, to reflect things, to be patient, to be involved in society, and to live healthily. On the other, we have a whole set of industries preaching the opposite and exposing people, from their childhood onwards, to gaming and the advertisement of instant joy and consumption of all sorts of things. To some degree this may serve as a vaccination against seduction and hidden persuasion. But to a large extent it remains wasteful and destructive.

Now, the smart economy has made advertising and dependence on support a cornerstone of its business model. Key elements of a model consistent with the idea of an economy of autonomous and responsible economic agents would be: (i) keeping business out of educating children; (ii) decoupling the provision of information and the trading of products from advertising; and (iii) guaranteeing offline functioning of devices, with online support on demand by the client. Clearly, goods may become more expensive and we may have to pay for information. But, isn’t it one of the most basic principles of a market economy that valuable things have their price – to be paid for individually or collectively? That a society gets autonomy for free can only be the promise of false prophets.

6.6 Market order

It is obvious that an effective market order requires to account for the anticompetitive energy inherent to a system based on the pursuit of self-interest. Adam Smith was clearly

aware of this fact. ‘To widen the market and to narrow competition, is always the interest of the dealers’ is one of the famous quotes of *The Wealth of Nations*.²³

Apart from market power, the smart economy produces a new source of market disorder. Its business models, which are based on the exchange of data vs goods or services, market invaluable things like personal preferences by tying them to the exchange of commodities. This hybrid type of exchange tends to destroy the information-processing function of the price mechanism. On the one side, it attaches to invaluable goods a pseudo-price in the form of cheaper or better service for conventional commodities. On the other, it distorts the price of these commodities by a kind of cross-subsidization through gains from data. A proper market order has to keep business out of invaluable goods and must separate, as far as data is non-private and can be priced, the business with data from the business with commodities.

How then should we process information about invaluable goods or value goods which have no market? By personal reflection, non-price communication with others, discussion, public debate, and democratic decision processes.

7 CONCLUSION

At the beginning of the twenty-first century certain developments loom up which turn the standard economic model around. From a theoretical point of view, the most basic tendencies could be summarized by the following three inversions of common reasoning:

1. From exogenous preferences, free choice, and price taking to produced preferences, individually tailored prices and products.
2. From asymmetry between informed agents and clients on the one hand and principals or companies on the other, to an asymmetry where principals (producers) and their agents are better informed than the clients.
3. From decentralized to centrally organized information-processing.

The inversions threaten the foundations of the market economy. This essay was an attempt to deal with this threat by refocusing economic analysis and policy debate in two ways:

1. From Walrasian equilibrium analysis back to the classical scheme of production and reproduction forward to Kaleckian/Laskian thinking about active and passive roles of different (groups of economic) agents.
2. From the evolutionary magic of certain *laissez-faire* prophets to the production and reproduction of virtues and institutions required for free individuals and democratic societies.

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23. Elliot (2000) reminds us of the quote and discusses the role of power, markets, and politics in Smith’s work.

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