INFORMATION SYSTEMS, WEB AND PERVASIVE COMPUTING SERIES

The Digital Era 2

Political Economy Revisited

Edited by
Jean-Pierre Chamoux

ISTE
WILEY

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Series Editor
Fabrice Papy

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First published 2019 in Great Britain and the United States by ISTE Ltd and John Wiley & Sons, Inc.

ISTE Ltd
27-37 St George's Road
London SW19 4EU
UK

www.iste.co.uk

John Wiley & Sons, Inc.
111 River Street
Hoboken, NJ 07030
USA

www.wiley.com

Library of Congress Control Number: 2018960340

British Library Cataloguing-in-Publication Data
A CIP record for this book is available from the British Library
ISBN 978-1-78630-191-8

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Note to Reader

Data telecommunications and digital processing are omnipresent in today's society. Administrations, businesses and even leisure activities produce, disseminate and exploit data related to human activity and trade. These data, the raw material of information industries, are vital for our society. This is why our era can rightly be called the "digital era".

Many experts were consulted prior to producing this series. The main idea took three years to prepare. The overall content, which was finished at the beginning of 2016, includes three successive volumes. This collective work is a trilogy that aims to describe and understand the technical, economic and social phenomena that result from widespread use of the Internet, a digital network that has been present everywhere since the end of the 20th Century.

The first volume summarizes the state of play and issues raised by the enormous amount of data that accompany human activities: demographic, biological, physical, geographical, political, industrial, economic and environmental data. These data feeds into records, inspires people, guides their businesses and even their countries. The first volume sheds light on the practical, technical and methodological advances that are associated with the Internet and big data.

This second volume explores how and why the digital era is transforming commercial trade and interpersonal relations, as well as our living conditions. How are the media, commerce and trade evolving? How is wealth formed and transmitted? What causes the digital wave in economic and social life described in the first volume? According to Adam Smith, *the* "wealth of nations"[1] has been the

1 SMITH A., *An Inquiry into the Nature and Causes of the Wealth of Nations*, in CAMPBELL R.H. and SKINNER A.S. (eds), Oxford University Press, 1976.

core of political economy; is it shattered or transformed? This second volume emphasizes that the *new economy* is not stable. Its social dimension is still unclear. But thinking is progressing: didn't it take a good century for the political economy to adapt to industrial society? Why wouldn't it be the same for a knowledge-based society to be delivered, one that even futurists in the 1970s[2] had already announced?

The third volume attempts to summarize the questions that the digital age suggests to our contemporaries: questions about society, interests and politics, which are partly mentioned in the first two volumes, are reformulated and developed in the last volume in order to encourage the reader to reflect and contribute to the debate on the "issues of the century", as Ellul said in 1954[3]. A debate that will hopefully help us understand the digital society that is being built before our very eyes; perhaps it will help us to get the best and not the worst out of it...

This series is based on the work competent, attentive and precise specialists. The authors wrote freely, as they should; they inserted their texts within the proposed outline. We owe them a great debt of gratitude. May they be sincerely thanked here for their scholarly assistance. As for any shortcomings, as is customary, only the project coordinator will be accountable[4].

2 Kahn H., Wiener A., *The Year 2000*, McMillan, New York, 1967 (introduction by Daniel Bell).
3 Ellul J., *La technique ou l'enjeu du siècle*, Armand Colin, Paris, 1954 (reissued by Economica, Paris, 1970) [English translation: *The Technological Society*, Knopf, New York, 1964].
4 Editor's notes in the book correspond to comments by the coordinator.

Preface

Assessing Digital Society

"*By mixing up the principles that make up a good government and on which the increase in wealth is based, it is not surprising that many ideas have been confused instead of cleared up*".

Jean-Baptiste Say[1], Preliminary address,
Traité d'économie politique, Paris, 1803

Whether I am in the office, at home or abroad, in Germany, Holland or Canada, the objects that surround me demonstrate the consistency and intensity of the multilateral exchanges that are available: fuels, household products, fruits and vegetables, fabrics, clothing, shoes, carpets, furniture, lighting, etc. All of them have crossed the seas in order to fill my home; none of the brands that occupy the shopping centers, these "agoras" of modern times located on the outskirts of cities of any size, escape this observation: their logistics platforms are supplied with the contents of thousands of containers from China, India, Brazil and the Philippines, which the supermarkets make available to us at unbeatable prices!

Can this empirical observation be reconciled with the idea that the *Wealth of Nations* can still be measured by the yardstick of a territory and that this wealth can be measured at the borders of a country, even if it is continental like the United States? Germany, Italy, the Netherlands, Poland, the United Kingdom, France and Spain, all of these *nation-states*, which are constitutive of a European Union which now covers most of the European continent, owe a good half of their consumption to international trade. Agricultural products, manufactured goods, software and even

1 Founder of the *Société d'économie politique* in 1842, one of the oldest French scholarly societies still active today (p. 165).

electricity delivered to households and businesses cross borders before crossing our thresholds. As for daily news or entertainment (radio or television broadcasts, video games, *telenovelas*, novels, magazines, comic strips), they too come from across the border – even movies, which are nevertheless counted as a "national production", although sometimes shot in foreign studios: Moroccan, Bulgarian and even Brazilian or Indian!

Hence the question expressed by all the contributions to this volume: in light of the facts, should we reasonably consider, as economists have done for more than two centuries, that national wealth is mainly measured as a listed *production* in this territory alone? It is true that Germany, which has been unified since 1989, modern Italy, Sweden, Switzerland or Poland are relatively homogeneous states for political science; but their living wealth, that of their companies, their people and that of these nations themselves no longer really correspond only to the goods and services attached to their territories, because the world economy is very largely cross-border! For such countries, whose external exchanges are often more important than internal trade, it is undoubtedly appropriate to open and argue a consideration in order to adapt to the realities of today, a science that we have called *political economy* for more than three centuries: a discipline whose founding hypotheses, which were put forward at the time of Adam Smith and Turgot, confirmed in the 19th Century by the *classics*, are clearly out of step with the realities that are specific to the digital era, the Internet and the "seamlessly" rapid transport of the 21st Century!

Digital expertise: the impact of technical progress

Combined with telecommunications, digital methods facilitate the *intelligent* management of huge data stocks that seem too dense to be meaningful, but from which clever algorithms make it possible to *extract meaning*, and consequently, value a field that previously seemed inorganic! *Data miners* apply themselves, as we have shown in the first volume of this series, to exploiting these voluminous but shapeless stocks; they act as geologists and metallurgists have done since ancient times, extracting minerals of no apparent value from the ground before transforming them into valuable metals such as silver, bronze or iron. Taking advantage of mathematical knowledge, statistics and advanced calculations at the same time, the *information miners*[2] of our time are revolutionizing fields where computing, up until now, had only been an automatic calculation and comparison tool that barely questioned established knowledge.

2 Term borrowed from the language of the blockchain (see Chapters 5 and 6, Volume 1).

The contributions collected in the first volume of this book confirm this important evolution; they also explain that information and communication technologies, *massive data mining* and the *algorithms* that support them influence the institutions and the economic or social behaviors that industrial society has left us. This is not the first time that significant *technical progress* has disrupted the organization of the city and relations between people. Quite the contrary: industrial history shows, in particular, that important inventions such as the steam engine, the *miracle of electricity* or the automobile had already disrupted people's lives and transformed their jobs, the organization of their work and the businesses that existed at the time of these essential discoveries. Machinery, energy control and the development of new materials are brilliant illustrations of the technical progress since the end of the 18th Century[3]. Present scholars also insist on technology as a major factor of development: "historical records of economic growth (…) indicate that European technology and institutions moved from Europe elsewhere and that this spreading constitutes (…) the central dynamic force of modern times"[4].

The influence of digital technologies and electronics in our time is therefore, in many ways, similar to that of steam, rotating machines and electricity at the turn of the 19th and 20th Centuries; however, what could differentiate the current transformation from previous ones, especially in the West[5], is the fact, on the one hand, that the manufacturing activity on which our industrial growth has been based on for more than half a century has been strongly disrupted by digital technology today and, on the other hand, commercial or service activities, transport, distribution or medicine, for example, are also disrupted by new forms of intermediation that have little connection with past practice or with the physical or human geography that has regulated our lives for more than 20 centuries.

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3 Many historical works have given a particular gloss to this form of history: Bertrand Gille, *Histoire des techniques*, Gallimard-Pléiade, Paris, 1978; Maurice Daumas, *Histoire générale des techniques*, PUF-Quadrige, Paris, 1996 (5 vols). Lucien Febvre, the founder of *Annales* with Marc Bloch, gave two definitions to the sweeping statements that deserve a quote: "*Technique*: one of those many words whose history is not finished; *history of techniques*: one of those many disciplines that are to be created as a whole!" See: *Annales d'histoire Er. Et Soc*., 1935 (11–743).

4 Quote from Joel Mokyr's review essay of David Landes book *The Wealth and Poverty of Nations*, W.W. Norton, New York,1999 : "Eurocentricity triumphant", *Am. Hist. Ass*, vol. 104, no. 4, October 1999, available at: www.historycooperative.org/journal/ahr/104.4, 1999.

5 See mainly in Volume 1: methods for processing massive data and the various means of expressing its meaning (Chapter 2); as well as Chapters 3 to 8, which particularly deal with statistics, surveys, marketing, e-currency and the health sector as a whole.

From creative destruction to digital disruption

The secular *transformation* is thus deeper than ever; it affects not only professional qualifications and employment, but also competition, knowledge and expertise, which are largely redistributed. The result is opportunities and discoveries for some, and existential anxieties for many others. In other words: the constant renewal of the economy that Joseph Schumpeter explained just before the Second World War, attached to his famous aphorism, "creative destruction", is yet again manifesting itself today and becoming stronger. Curious and enterprising minds understand this; they try to adapt and seize opportunities; while those who are less nimble or prepared for novelty may feel discouraged and tempted to give up!

Drawing up an extensive catalog of digital breakthroughs would be very ambitious, since the very existence of many companies has always been called into question by unforeseen innovation. This process is therefore not unique to digital times because, for at least three centuries, science and technology have been the hidden driving force behind it: "a mutation process [...] which is constantly revolutionizing the economic structure *from within*, continuously destroying its aged elements and continually creating new ones [...]. It is important to recognize its role in the perpetual hurricane of *creative destruction* – otherwise it would become incomprehensible, as if the hypothesis of perpetual calm were accepted"[6].

In contrast, what seems specific to digital technology is both its relative novelty and the extent of its footprint on contemporary economy: real estate intermediaries, car distributors, air carriers and tour operators are just a few examples of this new type of *transformation*; it is therefore a known phenomenon, but is accelerated by the immediacy that communication technologies allow. The chapters in this volume highlight this with illustrative examples; the authors identify and describe what has changed, what can change and even what is being prepared behind the scenes for the near future, in fields as diverse as image, production of special objects, training, apprenticeship, etc.

6 Joseph Schumpeter, *Capitalism, Socialism and Democracy*, G. Allen & Unwin, London (p. 1942). We refer here to the French translation revised by the author, introduction by Gaël Fain, pp. 164–165, Payot, Paris, 1954. The French translator explains in his introduction (p. 14, note 1) that this major work (composed in 1941) was "conceived and partially written during the last few years before the war, in the backdrop of the Great Depression".

Coincidence with historical events

Digital disruption would probably not have reversed the world's economic equilibrium so radically if it had not also coincided with major events that provoked a vast questioning of political equilibria during the last 10 years of the 20th Century. The implosion of the Soviet empire in 1989 profoundly changed the organization of the world. In addition, the clever mercantilist policy initiated shortly afterwards by the Chinese communists took advantage of the expansion of international trade, which was desired by American diplomacy since the constitution of the GATT (General Agreement on Tariffs and Trade) in 1947 [MES 95]. Combining their effects with the *digital disruption*, these events of very great historical scale particularly facilitated the displacement of part of the industrial manufactures of Western Europe and North America towards Asia and Central Europe, by a windfall effect which not only affected labor activities such as furniture, clothing, footwear and toys, but also household appliances, computers and telephones, to mention but a few examples.

Maritime trade, already largely containerized before, accompanied neo-Mercantilism (mainly Chinese) which reinforced the intercontinental division of labor: design, engineering, financing and manufacturing processes often initially remained in the West, whereas manufacturing, assembly and packaging were delegated to Asian subcontractors. Certain activities quickly took advantage of it: clothing, household electrical appliances and, of course, leisure electronics, which were already largely entrusted to Asian manufacturers in Hong Kong, Korea, Malaysia or Taiwan for example (radio and television receivers, game consoles, etc.); subcontracting was extended to computers, measuring instruments, tractors and construction machines, to mention just a few other cases. Retail and mass distribution, whose western consumers appreciate the low prices and very wide ranges, benefited from this bargain.

In electronics, Asian production benefited from technical progress that rapidly lowered production costs, all while improving the technical performance of objects[7]. The counterpart of this industrial relocation to the Far East (sometimes also to India, Central Europe or Mexico, but on a less spectacular scale) is well known: no significant manufacture of electronics, screens or cameras now exists in Europe.

7 This is the effect of the so-called empirical "laws" of Moore and Metcalfe: Gordon Moore, a member of Intel's founding team, noted, as early as the 1960s, that the power of semiconductors doubled every two to three years; this "law" explains the constant improvement in the price/performance ratio of computers, tablets, telephones, etc. The rule, also empirical, attributed to Robert Metcalfe, founder of the American company 3COM, described the *network effect* that was also mentioned in Chapter 2 of Volume 1 (Figure 2.2). See also Chapter 6 of this volume.

Asian specialization and concentration have taken their toll on many producers, including in areas such as furniture, lingerie and footwear!

Expansion of cross-border networks

It should be pointed out that long before the political events mentioned above, the international context was already supportive of an international division of productions. The abandonment of the dollar standard in 1971 ushered in a new era in this regard: that of global *free trade* that gradually affected industrious nations less developed than Western Europe and North America[8]. These active partners of the West made double efforts and conquered important positions in international trade, long before Greater China became what it is today: the *factory of the world*. Thus, after the *German miracle*, we discovered the miracle of Korea, the Philippines, Thailand, etc.[9]. Accompanied during the 1970s by a *mighty dollar* that was no longer attached to gold, these new manufacturers lived their own "Thirty Glorious Years" while information industries and telecommunications networks multiplied under the joint influence of large American companies and other European or Japanese ([BAL 16] pp. 8–10, p. 85 *ff*.) multinationals. Three factors have contributed to the rapid growth in trade since the 1970s:

– the expansion of commercial air traffic, supported by the cooperative network of major airlines, SITA, which is still active today and has continued to modernize itself over time;

– the currency flows that accompanied the growth of international trade and that of multinationals on the five continents, in particular through the SWIFT interbank network, a technological infrastructure that always facilitates settlements on a global scale;

– lastly, cross-border computer networks, which enabled industrial groups and multinational banking, insurance or freight services to coordinate their production and trade in many fields such as: automobiles, aeronautics, trade, electronics, computers, press news, raw materials and oil [CHA 80].

Assisted by a technological and diplomatic context that was eminently supportive to the opening of borders and the lowering of customs tariffs,

8 ASEAN members, Asian countries that were not bound by post-war monetary agreements, took advantage of the trade opportunities the Western world offered them. See also for details: *Comprendre l'ASEAN*, special issue, *Le Communicateur*, no. 22, Paris, 1993.

9 The Asian financial market crisis of 1997 temporarily halted the expansion of these countries, which have since recovered.

cross-border networks have facilitated the task of international trade operators for some 40 years, such as in Asia, for example[10]. Combining a meshed network of infrastructures and automated procedures has simplified and facilitated border crossings since then! Internet business services benefit from this legacy that allows electronic commerce and dematerialized payments for distance purchasing. Since 1980, in other words, long before the spread of the Internet, international digital procedures had already accustomed trading houses to assessing and comparing the price and quality of services available throughout the world; these companies naturally joined forces in order to restrict the privileges still enjoyed by telephone companies, financial intermediaries and airlines; the liberalization of infrastructure and the deregulation of public transport and communication services was one of the first disruptive effects of international digital communication, a particularly effective lever for reducing the price of data transmission during the 1980s; for trade agents, it was a way of easing cross-border trade in the first place, and then liberalizing infrastructure and services within nation-states and free trade areas, for which the European Union is a perfect example.

The proper role of the Internet

Thus, around 1995, the Internet was not established on new ground yet: for a quarter of a century, demand – as much for households as for professionals – was already part of a global economic geography, without the users even having really become aware of it. The intermediaries knew how to juggle an array of currencies, manage financial flows and limit monetary risks; they had also learned how to steer suppliers and subcontractors around the four corners of the horizon. The *trade disruption* that we are highlighting today is therefore nothing more than *the generalization of cross-border trade flows*, to which industrial and distribution managers from the 1970s to the 1990s devoted a large part of their careers, since the internationalization of companies was no longer the prerogative of American businessmen alone, as was still the case in 1960!

Admittedly, the playing field of international trade has expanded thanks to the Internet: since world trade became part of our habits, we have taken advantage of the Internet in order to expand our transactions beyond the specialized intermediaries who allowed us to benefit from international exchange. An increasing proportion of

10 The eight rounds of GATT negotiations (which followed the Bretton Woods Monetary Conventions) stimulated the integration of world trade and led to the recognition of a “free trade arithmetic” which is embodied in the WTO (World Trade Organization), the successor to GATT since 1995 [MES 95].

the solvent needs of Western Europe and North America have thus been covered by world trade, the effects of which have also been felt in other parts of the world, particularly in Africa and Latin America.

As a result: factories have deserted our provinces, and distant factories manufacture almost everything. In addition, imports, which are managed and organized by transnational merchant-distributors like IKEA, Decathlon, Walmart, etc. meet a very large shore of our needs. Meanwhile, the spectacular success of "web-based" services has, in just a few years, surpassed the wildest expectations thanks to the combination of cell phones and digital data transmission, which to date serves half (or almost half) of the humans living on earth. This has two extremely important consequences:

– any offer on the Internet (with the obvious support of automatic translators operating online) is potentially related to a global market; this offer can serve a potential market of immeasurable size and variety with those of the past;

– the obstacles which traditionally restricted the crossing of borders by people, objects and currencies are circumvented, whether it be of commercial, financial, political, scientific or cultural purpose.

Examples from all over the world prove that it is still possible to establish software or physical barriers on the borders of a territory, whose inhabitants their government wishes to isolate. However, experience shows that these barriers are rarely impervious: despite severe and inquisitorial censorship and a blockade that makes the borders of North Korea practically hermetic to men and things, it enters this totalitarian stronghold, closed on itself for generations, with messages that are often issued in the Korean language of the south of the peninsula, making the situation progressively worsen[11]. For the most part, Western social networks maintain access to China despite local protectionism; we do remember that social networks also played a role at the time of the "Arab Spring", particularly in Tunisia and Egypt. As for contemporary Russia, which has much to be said about it, it allows denser exchanges than is mentioned: although the gigantic size of this country allows it to almost live in autarky, the Russian population, trained to practice foreign languages, is in connection with the rest of the world despite the reduced diversity of local media which remain under surveillance; moreover, despite

11 The North Korean situation is very well followed in France by Pierre Rigoulot, a moderator of the Institute of Social History: see his conference from November 20, 2013, given within the framework of this institute. This question is also raised in: https://www.franceculture.fr/personne-pierre-rigoulot.html.

the constraints imposed by its political administration, the Russian population enjoys the opportunities which are offered to it to travel the globe fairly freely: the population maintains within it the love of the sea and the dream of escape which has been appreciated for a long time by the Russian soul. This temptation is also winning over the Chinese who now travel (mainly in groups!) and whose standard of living is improving while the remote countryside still seems to be seldom in direct contact with modernity.

Back to political economy

Montchrestien, who imagined the concept of *political economy*, was a precursor: the expression he invented has passed into the use of all major languages[12]. Nowadays, its meaning is linked to *macro-economics*, which studies the major balances, aggregated on a territorial scale and, more particularly, on a national scale. The macro-economic parameters are essentially: *production*, *consumption*, *employment* and *money*. These are the main variables on which economic policies are used to observe and, if possible, conduct public investment and spending, credit, taxes and money. However, this science of economic action that begun at the time of the French Bourbons, which was both *descriptive* and *prospective*, and which was gradually confirmed in the 19th Century, only exerted a real influence since the success of *Keynesianism*, which still serves as a reference today. Monetary considerations and employment have played a significant role since the *Great Depression* of 1929[13].

After having collected and dissected long retrospective series, established nomenclatures and refined observations, the macroeconomic doctrine – rarely unanimous, it is true – develops *models* by which it tries to examine the economic future (in light of the past) and imagine the consequences of possible political action. It is an ambitious discipline, centered on public action; it pursues the objective stated as early as 1776 by the great Scot Adam Smith, whose founding treatise had the following evocative title: "An investigation into the nature and causes of the *Wealth of Nations*". This exceptional work indeed fixed the main part

12 Antoine de Montchrestien, *Traité d'Œconomie politique* (1615), cited by Gide (1930), vol. I, p. 6 (10th ed.).

13 A recent Franco-American textbook summarizes the emergence of this discipline in its epilogue (Chapter 26, p. 607): "The history of modern macroeconomics begins in 1936, with the publication of Keynes' *General Theory of Employment, Interest & Money*", Macmillan, London (1936, numerous reprints). See [BLA 06].

of the program that the great majority of macro-economists had been pursuing for 240 years[14]!

Since 1945, the main concern of macro-economics has essentially been to determine the areas in which public action can act, in order to direct agents and guide them, *volens*, *nolens*, towards political objectives. The French period of the "Thirty Glorious Years"[15] combined a modern form of *political economy* with the short-term preoccupation of Western governments who wanted to rapidly rebuild Europe and Japan, through a coordinated approach by the former warring parties and their American ally. In their minds, economic progress would erase the damage of war and improve *well-being* through strong growth. This approach was based on a scientific vision that has been gradually developed since the 19th Century under the influence of Ricardo, Walras, Pareto, Keynes, etc. Study and understanding of economic phenomena thus became inseparable from public policies which aimed, as a priority, to *develop wealth within the nation*, a project in conformity with Adam Smith's inspiration.

Modern economists have therefore never ceased to develop *theories* and imagine economic policies for their countries. Since the term *political economy* has become somewhat out of fashion over the last half-century, macro-economic analysis has emerged as the useful discipline to support a political project. Economy, as in the 18th Century, thus became *political* again as it became more and more necessary for governments to control the economy, in order to expand national wealth and to support employment. This required a recent (since the mid-1930s) analytical, creation and implementation apparatus in order to measure, in particular, *production*, *trade*, *employment*, *income*, *investment* and *cash flows*; all measures that are established on a macro-economic level of the nation[16].

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14 The most committed of them took the reins of power as did (and still do) eminent economists: Raymond Barre in France, Prime Minister from 1976 to 1981; Ludwig Erhard, Federal Chancellor from 1963 to 1966 and Minister of Finance from 1957 to 1963. Erhard, promoter of the social market economy, stimulated the post-war "economic miracle" and continues to inspire German economic policy. The names of Mr. Laurence Summers, U.S. Treasury Secretary under the Clinton Presidency (1999–2001); Mr. Mario Monti, President of the Italian Council (2011–2013) then President of the European Commission (1999–2004) and Mr. Romano Prodi, twice President of the Italian Council and President of the European Council (1999–2004) deserve to be mentioned as precedents.

15 *Les Trente Glorieuses*, expression coined by Jean Fourastié, the title of his eponymous work [FOU 79].

16 This observation and measuring apparatus are based on the national accounts, the organization of which only really took shape in the 1930s to 1940s: "In Europe, well before the *Théorie générale* (of Keynes), something happened in Germany: the policy of the Schacht

Measurement and assessment problems

Over the decades, the best econometers in Germany, France, Italy, the United Kingdom and the United States have tried to remove the ambiguities raised by the establishment of *national accounting* expressed in value and currency of account. In his major work Alfred Sauvy raised a question that is still relevant today: that of the possible artifices underlying the statistical nomenclatures that became widespread after 1944. Better yet, he suggested a bad nomenclature rather than no nomenclature at all[17]! This subject did not actually call for an urgent response at the time, since the immediate concern was to primarily rebuild infrastructures and modernize the industrial production apparatus, two challenges that were effectively met during the "Thirty Glorious Years". At the end of the present volume (Chapter 7), we explain why and how these same questions are being asked today, under the pressure of techniques and expertise that are transforming the contemporary economy.

However, the measure of economic parameters does not only come up against nomenclatures that have been partly adapted to the changing realities of the economy over the decades. The image of concrete trade, reflected by discordant measures, is far from being precise and clear[18]. Moreover, entire segments of the wealthy companies established on our territory (or on its dependencies) are no longer industrial and have been deported to many foreign locations: hundreds of hotels, operated by chains of which we have several remarkable examples for in Europe such as Accor, NH Hotels or Rezidor, are established throughout the whole world. The same applies to expertise, advertising royalties and many other intangible property rights. As for services, they are, by nature, not very sensitive to borders since they essentially offer to satisfy the mind rather than the body, and they are often based on concepts rather than on things located in geographical space; consequently, contemporary economy is very diverse. All of this imposes significant

economic circuit [...]. And in the United States: The New Deal [...] in addition to some important authors [...], notably Simon Kuznets and Wassili Leontief" ([FOU 80], p. 22).

17 "It was only after the Second World War that an international nomenclature of questionable character was established, which would be adopted by all countries" in: A. Sauvy, *Histoire économique de la France entre les deux guerres*, vol. 2, 1984, 2nd ed., p. 295, our translation.

18 The estimation of accounting bias has been the subject of numerous studies to assess. For example, the impact of the *quality* of an object on its price; see F. Lequiller, "Does the consumer price index overestimate inflation?", *Economie & Statistiques-INSEE*, no. 303, 1997 (pp. 3–32). Moreover, in order to assess the impact of these factors, an expert in productivity and statistics like Jean Fourastié insisted a great deal, as early as the 1950s, on the difficulty of assessing production, work, etc. He was already referring to the complex – and even ambiguous – relationships between the notions of *value* and *volume* that national accountants are constantly trying to associate by various means (see [FOU 52], pp. 15–17).

constraints on econometrics: constraints that contribute to the imprecision of national accounts[19].

Today, finally, a European customs post is less concerned with identifying a service between Germany or Ireland and another European Union country than with tracking and tracing international networks that take advantage of the *free movement of goods,* in order to flood our domestic markets with contraband cigarettes and, *a fortiori*, with cannabis resin or heroin[20]. In short, trade in cross-border services, which is more fluid than ever, is all the more difficult to assess with precision because it is more numerous, invisible, useful and even necessary for international trade!

We will no doubt be told that the issues raised by the geographical and conceptual expansion of economic trade over the last 40 years have found (or can find) a solution that is compatible with the enumeration or assessment methods developed since 1950, so as to calculate the *wealth* and *added value* attached to a territory. Continued with determination for many years despite the constant change in consumption, distribution and production habits, this type of thinking has been carried out with consistency; but it has a limited effect on the identification of facts because discrepancies between real trade and its measurement have been confirmed over the years, accentuating the gap between what is noted in the national accounts and what other methods of assessing the wealth of corporations reveal[21].

Questions to follow

Is this not a rhetorical trick – or a selfish fiscal interest – that implies, by way of an example, taxing a *benefit* in a particular nation when its trading is global or continental? Where and how should the revenues and net profits of this type of service be disclosed, if any are generated[22]? In our current era, the platforms of a

19 Other difficulties concern benefits in kind and those of social services; care and health; "invisible" exchanges and literary rights.

20 French customs officers even found poor souls from Africa in maritime containers in search of a hypothetical job in London. This is an incident recalled by the Finnish director Ari Kaurismäki's film *Le Havre* (Louis Delluc Prize 2011); it echoes the irony of the French singer Pierre Perret evoking the emigrants who came from Somalia in order to "empty the dustbins in Paris" (see his song "Lily", 1977).

21 For example: the listing of their shares on the stock exchange, which makes it possible to estimate the respective value of large companies.

22 We return to the taxation of income and profits from Internet platforms in Chapter 7; it is a crucial issue within the European Union.

dating site like Meetic or a social network like LinkedIn are *a-territorial*: they address a distributed international target, as do Twitter or Facebook. This explains why communications agencies and their advertisers entrust them with international advertising budgets. The *club effect* that the followers of such *communities* seek is not territorial but *social*, a very judicious qualifier that is skillfully popularized by the term *social network*. In an urban society such as ours, geographic mobility is a constant in life; travel is frequent and often unpredictable; the social network therefore provides its followers with a beacon and an opportunity for human contact that replaces the family or village ties of previous times; is this not the contemporary version of the mothers to whom the companions of duty were bound[23]?

The very wide diffusion of information technologies thus contributes to destabilizing well-established uses and reversing the competitive advantage of a traditional profession or a secular tradition such as that of an architect or doctor. It also derogates from traditional tax and statistical conventions. The disruptions concern both the activity of taxi drivers and the rental of holiday apartments. They affect national accounting in its very principles and the territorial allocation of goods, added value and turnover that serve as tax bases. They thus refer back to a question raised by a classical author whose sentence is emphasized in this preface: "How can we know the causes that give nations opulence, when we do not have clear ideas about the nature of their wealth?" ([SAY 03], p. 21). This question could be paraphrased nowadays as follows: "Why and how does one allocate a good, service, or income which can neither be its own nor specific to a particular nation?" In his time, what intrigued Jean-Baptiste Say was how the domestic product was born within the territory where he lived; this question, judicious in his time, is no longer topical today since the wealth and values that keep us alive and alert no longer mainly come from a national industry that is fixed to our territory: do the Yahoo! search engine and the bitcoin peer-to-peer network connect to our territory? Certainly not, although these activities are very useful to us and we take advantage of them, often without paying anything! Countries that seek to tax these activities do so, at least for the time being, on uncertain and easily debatable bases; unilateral actions could lead to perverse effects, for example by excluding certain sections of the population from the outside world, which is what Chinese leaders do by denying their population access to Western social networks! Before acting as policemen, would it not be preferable to think carefully about what this reasoning suggests, that is, to avoid a unilateral levy on an economic flow that no one can reasonably

23 The companions of duty (*compagnons du devoir*) are always welcomed, at the stages of their *Tour de France*, by hostesses whom usage qualifies as "mothers"; these women offer a susbtitute family home to the travelling companions, which helps them to bear the distance from their biological family. See François Ischer: *Les Compagnons ou l'amour de la belle ouvrage*, no. 255, pp. 34–35, Découvertes Gallimard, Paris, 1995.