

DISEI - Università degli Studi di Firenze

Working Papers - Economics

**Toward a Diachronic Conception
of well-being:
Thoughts from Georgescu-Roegen**

N. Bellanca and B. Rocchi

Working Paper N. 08/2016

DISEI, Università degli Studi di Firenze
Via delle Pandette 9, 50127 Firenze, Italia
www.disei.unifi.it

The findings, interpretations, and conclusions expressed in the working paper series are those of the authors alone. They do not represent the view of Dipartimento di Scienze per l'Economia e l'Impresa, Università degli Studi di Firenze

Toward a diachronic conception of well-being: Thoughts from Georgescu-Roegen

Nicolò Bellanca & Benedetto Rocchi*

Department of Economics and Management
University of Florence (IT)

Abstract

In the first part of this paper, we revisit some concepts proposed by Nicholas Georgescu-Roegen. Without attempting an overall interpretation of Georgescu's reflection, and without any intent of philological completeness, we want to show the strength and the suggestiveness of some of his insights, with the aim of setting a conception of human well-being that is intrinsically permeated by subjective time. We argue that an important part of human well-being simply depends on our being able to live-in-time. The Georgescu-Roegen's conception of personal time as an irrevocable flow of living suggests that the right perspective in analysing the use of time made by persons in their never-ending search of well-being is a *diachronic* one. In the second we discuss the consequences of adopting a diachronic perspective in the study of relationships between time use and well-being and try to suggest a coherent empirical approach.

Keywords. Georgescu-Roegen, time, well-being

* Department of Economics and Management, University of Florence, via Pandette 9, 50127, Firenze, Italy. E-mail: bellanca@unifi.it; corresponding author: benedetto.rocchi@unifi.it

PART ONE: SOME THEORETICAL POINTS

*Economics is at bottom the study of how humans spend their
lifetimes.*

Nicholas Georgescu-Roegen

Time cannot be accumulated, it cannot be stocked or stored.

Ian Steedman

1.1 In the first part of this paper, we revisit some concepts proposed by Nicholas Georgescu-Roegen. Without attempting an overall interpretation of Georgescu's reflection, and without any intent of philological completeness, we want to show the strength and the suggestiveness of some of his insights, with the aim of setting a conception of human well-being that is intrinsically permeated by subjective time. We argue that an important part of human well-being simply depends on our being able to live-in-time. We will try to conceptualize our argument in a proper way and - in the second part of the paper - to outline connected measurement issues.

1.2 We must distinguish between two categories of means useful to humans. On the one hand, there are the ordinary means (economic, as goods and money, but also social and cultural); on the other hand, there are the second order means, which are pre-conditions for carrying out any human activity of production and use of ordinary means. These second order means are, essentially, time and space

because outside of them no action is possible nor conceivable. In our approach time and space are not categories that some Kantian philosopher discusses in his books.¹ Rather, they are phenomena affecting the well-being of people that are determined by and lived within human communities. A landscape of quality is, for example, a social and environmental context in which work or consumption usually offer a greater well-being to individuals.² Similarly, if the subject commands on his agenda and controls on his calendar - whatever he does - he usually lives better, compared to a situation where his timing is controlled by external circumstances or by other people: in the first case, he can carry out any activity, at any time of the day, for the duration he prefers (Hamermesh and Pfann, 2004; Kasser and Sheldon, 2009).

1.3 In this paper the focus is on time. It is difficult to mention time without incurring in tautologies. Sentences according to which time is becoming, stream of events, diachronic frame of the experiences, and the like, are equivalent in essence to define the time by means of the time itself.³ Georgescu-Roegen suggests that, to avoid circular definitions, we must capture what phenomena are transformed along a "one-way arrow", which allows us to determine how they were "before" and how they became

¹ For a recent summary of these debates, see (Baiausu et al., 2012).

² In the debate that led to the formulation of the *Benessere Equo e Sostenibile* (Fair and Sustainable Well-being), the landscape has been introduced, for Italy, as one of the twelve dimensions of well-being. See <http://www.misuredelbenessere.it/>

³ It is worth remembering, in this regard, the famous Augustine' phrase: «What, then, is time? If no one asks me, I know what it is. If I wish to explain it to him who asks me, I do not know». (Aurelius Augustine, 1955, 354).

“after” (Georgescu-Roegen, 1961, 69-72 and 127-136).⁴ A phenomenon is “irreversible” if it can cross several times a particular status: for example, the tree loses its leaves in autumn, but leafs again every spring. A phenomenon is instead “irrevocable” if it cannot cross more than once a given state: for example, when a piece of wood is burned, it cannot become again a strain (Georgescu-Roegen, 1961, 196-200). Obviously, the same phenomenon can appear irrevocable or irreversible, depending on how we draw the boundaries: for example, the same tree which is a irreversible phenomenon across the seasons, becomes irrevocable if we consider it with reference to a certain height, or a certain diameter of the trunk, being these evolutionary stages the tree passes through only once. Therefore, using the categories of irreversibility and irrevocability, we can state that something changes along sequentially different states. But the “one-way arrow” specifically does not embrace human communities, covering such physical phenomena as biological ones (Römer, 2015). Thus, it is inappropriate to ground a humanistic analysis of time.

1.4 When we consider human beings in their relationship with ordinary means, what do distinguish them from all other animals? The activity to accumulate and de-cumulate ordinary means associate human beings and animals.

⁴ «Historical time refers to the usual calendar or clock time within which decision processes are irreversible. In logical time decisions are reversible. For example, the life-cycle hypothesis is in historical time since it is assumed that the firm always gets older; it cannot get younger. [...] Logical time is concerned with conceivably possible alternative worlds (regardless of actual events) at any given point in time, whereas historical time may be concerned with the (necessarily) singular event occurring at that time and the accumulation of learning which has transpired up to that point» (Boland, 1992, 35-36).

However, *hominines sapiens* are the only that can compress or extend the time, and sometimes they are even able to undo it, by varying instantly ordinary means. We illustrate the point with a few examples among many: at the individual level, a dream may in a few moments tell a life; the logical-mathematical knowledge, as pointed out by Georgescu-Roegen, can reconstruct a complex network of cognitive relations with few passages (Georgescu-Roegen, 1961, 24-30); a sum of money can be collected or paid with a signature; animals kill each other, but only humans have acquired a systematic and instantaneous power of destruction, for which a whole territory can be annihilated with a bomb of high potential; a repository of information can be expressed and forwarded with a "click". Humans are the only animals that deform and sometimes even cancel time. Precisely for this reason, they are the only ones with a knowledge of the flow of events, and in particular with the awareness of the inevitable fate of their death⁵. In other words, humans understand what time is - a dimension in which they are always immersed - *just because they can sometimes suspend the flow*, in the social realm, and by force of their ability to use abstract thinking.

1.5 Based on the previous point, and still on the basis of the reflection of Georgescu-Roegen, we distinguish between stock and fund sizes. The first ones are those that can be accumulated or decumulated without flowing of time, concerning cases in which humans made time a deformable

⁵ According to Spaemann the anticipation of death is what makes possible to a person to assign a sense to her life as a whole (Spaemann, 2006: chapter 10).

and compressible magnitude. Conversely, the second ones vary diachronically, regarding cases in which, even for humans, time takes time (Georgescu-Roegen, 1961, 224-228; 1972, 285-286; 1994, 241-245)⁶ What human activities involve stocks, and what funds? A first answer may be based on technical aspects: some ordinary means, such as money or information, are subject to the contraction of the time, some do not. Another answer, more interesting, has a subjective nature: humans tend to give time to time, because this usually allows them to access to greater levels of well-being. In fact, when I ask to myself "when can I do this action?", this happens because for me not every moment are the same to realize it, nor is indifferent to me choosing one or another moment: usually, I choose do not sleep at noon, or read Shakespeare without having lunch, or meet friends when they are working.⁷ In turn, the

⁶ The point remains rather implicit in Georgescu-Roegen; one of his pupils draws it to light: «There is a fundamental difference between the flow of inputs and the services of the funds: knowing that a given amount of a certain flow-element has been employed in a process during a certain interval, there is no logical difficulty to suppose a whatever temporal distribution of this use, including the case in which the entire amount employed is concentrated at a single instant (it is the case of the enamel, in the process of production of a glazed dish). On the other hand, knowing the total quantity of service of a certain fund employed in a process (for example, a certain number of working hours), the temporal distribution of this use is closely linked to the amount of the fund present at each instant: therefore, in no case is possible that the total amount of the service had been used in an instant. Five hours of work can be provided by a worker in five hours, or by two workers in two hours and a half, or by five workers in an hour, or by ten workers in half an hour, and so on; but only an infinitely large number of workers could pay five hours of work in a single instant. [...] We may use the term stock to indicate that the use [of an economic resource] involves the decumulation of the initial amount through a stream whose intensity can be the most varied, depending on the needs of the process. As a limit case, the decumulation might even be all in an instant» (Tani, 1986, 206-207, our translation).

⁷ «All economists have realized the importance of scarcity in the economic process. But while all have identified scarcity with some material shortage of some sort or another, Gossen alone saw that what is ultimately scarce is time alone. It was on that scarcity as a foundation that he erected the first pillars of his system...in Gossen's vision even in the land of Cockaigne, where all pleasures can be satisfied absolutely freely, there will still be an economizing problem...Only if the inhabitants of Cockaigne were immortal would they have no economic problem». Nicholas Georgescu-Roegen, "Hermann Heinrich Gossen:

importance of the moment in which I act depends on whether that action is linked to other actions, mine or by others, presenting an interdependence with them: if each action could be carried out in strict isolation, the sequence would not count. It follows that the timing of the activities is a manifestation of the autonomy of the subject. «When we say that someone “has more time” than someone else, we do not mean that she has literally a twenty-fifth hour in her day. Rather, we mean to say that she has fewer constraints and more choices in how she can choose to spend her time. She has more “autonomous control” over her own time. “Temporal autonomy” is a matter of having “discretionary control” over your time» (Goodin et al, 2008, 4). If the timing is determined and applied by the subject, it usually increases the well-being; if it is formed, or even determined, by others, it can reduce the satisfaction. This point emerges clearly about a foundational category of economics, scarcity. «In economics, scarcity is ubiquitous. All of us have a limited amount of money; even the richest people cannot buy everything. But we suggest that *while physical scarcity is ubiquitous, the feeling of scarcity is not*. Imagine a day at work where your calendar is sprinkled with a few meetings and your to-do list is manageable. You spend the unscheduled time by lingering at lunch or at a meeting or calling a colleague to catch up. Now, imagine another day at work where your calendar is chock-full of meetings. What

His Life and Work in Historical Perspective”, in H. H. Gossen. *The Laws of Human Relations*, MIT Press, Cambridge, MA, pp. lxx-lxxvi. «“I erred in my 1983 essay on Gossen by saying that if they were immortal there would be no economic problem” (p. 1137, n. 27). The point involved here is that even immortals would face the problem of *sequencing* their enjoyments to maximum advantage» (Steedman, 2001, 23). Steedman commented a quote from (Georgescu-Roegen, 1985).

little free time you have must be sunk into a project that is overdue. In both cases time was physically scarce. You had the same number of hours at work and you had more than enough activities to fill them. Yet in one case you were acutely aware of scarcity, of the finiteness of time; in the other it was a distant reality, if you felt it at all. The feeling of scarcity is distinct from its physical reality» (Mullainathan and Shafir, 2013). The feeling of scarcity depends, given the level of objective scarcity, on the degree of control of individuals over the use of time. And also the opposite is true: the time is deformed and compressed in situations in which some subjects govern the time of others. The field where the command of the time takes place in a more systematic and pervasive way is that of economic growth and is caught by the paradox of Lauderdale.

1.6 In 1804, the Earl of Lauderdale argued that under capitalism the public wealth declines with the increasing of the private one (Maitlan, 1819).⁸ Private wealth can increase only artificially (politically) creating the scarcity. This is what capitalism tends to with property rights, monopolistic practices, patents, the exploitation of exhaustible resources or the implementation of strategies to limit the reproduction of renewable ones. Economies can grow faster if the resources are consumed so that their price will grow, but this comes at the cost of a decline in public wealth. The paradox of Lauderdale is taken up, with varying terminology and often not remembering the author, by Karl Polanyi, Fred Hirsch, Herman Daly, John Bellamy Foster and

⁸ See (Daly and Cobb, 1989).

by contemporary scholars opponents of economic growth.⁹ The original case was when the common wealth was artificially lowered because open fields and common lands were fenced according with the Enclosure Acts in England, between the seventeenth and the nineteenth century. This created a mass of unemployed workers, forced to migrate to cities to work in factories. The fundamental point, on which insists the paradox, is that economic growth does not arise spontaneously. It stems from a deliberate process of construction of scarcity, in response to which people must engage in economic activities, earn money, purchase an increasing quantity of private goods. We better focus this process using a "parable". Imagine a community of individuals living and carrying out their production activities in the island A; to defend himself against the degradation of the island, each individual has the opportunity to purchase a boat and sail to an untouched island, named B. To purchase boats, individuals must work and produce more. The increase in production and the use of the boats used to move from the island A to island B generate a further degradation of the first island. Therefore, as the number of individuals who decide to self-protect from the degradation of A going to B increases, the degradation of A increases and so the incentive to move from A to B. When a sufficiently high share of individuals have chosen to move to B, A will be a deteriorated environment (and, although to a lesser extent, so will the environment B) and no one will find convenient to stay in A. All individuals will find themselves moving to B to enjoy an environment quality

⁹ We just mention (Antoci and Bartolini, 2004). The "parable" of the two islands, exposed a little later, is due to Angelo Antoci.

which they could previously access simply living in A. In the model of the two islands, the members of the community finds themselves in an undesirable situation because they no longer have environmental goods to freely access but only environmental goods they can access at a cost . To defend themselves from environmental degradation, economic agents implement self-protective choices consistent in consumption of certain private goods; the production and consumption of such goods cause a further increase in environmental degradation, encouraging a further increase in the production and consumption of goods used as a tool for self-protection. The result is a vicious circle leading to a self-reinforcing undesirable economic growth, i.e. economic growth associated, paradoxically, to a reduction in the welfare of individuals. In the model of the two islands, individuals derive well-being, not only from goods and services they produce, but also by the use of free time and of a free resource named environmental good (or free consumption).

Obviously, the logic of the model is maintained if, instead of an environmental good, we consider a social good: for example, the massive use of home entertainment is in part caused by the degradation of the urban social environment. To mobilize the resources of labor and the capital accumulation, leads to a society in which economic well-being can only be purchased. Economic growth is a process of substitution between public wealth and private wealth, based on the destruction of goods that do not pass through the market: the growth is fuelled by the reduction of free resources (environmental, but also social) and their replacement with expensive, private goods . This process of

replacement *has the implicit purpose to control subjective time*. In fact, as Shafir and Mullainathan detected in the quote reported before, scarcity is the subjective feeling of having more needs than resources. A reduction of free resources pushes persons to look for expensive goods *only if* it causes forms of subjective scarcity. In turn, the control of subjective time (and subjective space, here not examined) is the essential tool to increase the feeling of scarcity: *even* with the same ordinary means, when the subject becomes convinced of not having enough means of second order, he implements economic strategies to obtain them feeding economic growth.

1.7 Let's focus on the importance of timing for the personal well-being, using three thought experiments. First scenario: imagine a machine that could produce any experience you want. Suppose also to stick to the machine, to get the experience of doing all those things that give meaning and purpose to your life. The only problem is that you do not actually do these things. Would it be enough to you floating in a tub in which your body and brain are connected by electrodes to the machine? Would you accept to stick to the machine? Like Neo asks in Matrix: do you take the blue pill or the red one? In this experiment is isolated the characteristic of *irrevocability of time*: when you swallow a pill, your relationship with the world changes forever. Second scenario: in the Huxley's novel *Brave New World*, «Whenever anyone felt depressed or below par, he would swallow a tablet or two of a chemical compound called soma. [...] In small doses it brought a sense of bliss, in larger doses it made you see visions and, if you took three

tablets, you would sink in a few minutes into refreshing sleep. And all at no physiological or mental cost. [...] In the Brave New World the soma habit was not a private vice; it was a political institution, it was the very essence of the Life, Liberty and Pursuit of Happiness guaranteed by the Bill of Rights. [...] Religion, Karl Marx declared, is the opium of the people. In the Brave New World this situation was reversed. Opium, or rather soma, was the people's religion» (Huxley, 2000). In this thought experiment it is isolated the characteristic of *irreversibility of time*: you experience pleasure every time you swallow drugs. Third and last thought experiment: you have the option - swallowing a magic pill - to remain forever young and rich. However, the magic works under a specific condition: you can only act as "pure hedonist", i.e. you can *only* carry out actions bringing *immediate pleasure only to yourself*. Examples in the positive: you can earn or win money, buy clothes, move to a new house, drink, travel, drug yourself, to have sex without limits; you can even (if it happens!) read a book or listen to music. Examples on the negative side of the magic: you cannot make love giving pleasure to your partner; you cannot have a child; you cannot donate; you cannot establish relations of love or friendship; you cannot plan something that will take effect tomorrow. Would you accept to assume the identity of a pure hedonist, who lives devoid of reciprocity and hopes? In this experiment we have isolated the characteristic, uniquely human, of the compressibility of time: Faust or Dorian Gray can enjoy instant-to-instant, how many times they want, but they cannot do things that accumulate or decumulate (for themselves and for others) ordinary means along time.

1.8 The three thought experiments share the lack of freedom for the subject. In the Matrix scenario you do not do what you feel: you live a non-life. If you refuse to take the blue pill, it is because you are not willing to be a mega-machine appendix. In the Brave New World scenario, you hear and see what the soma allows you to feel and experience. If you rebel, it is because you are not willing to barter pleasure with freedom. In the "à la Faust" scenario, when becoming a pure hedonist, you act and make actual experiences: you are what you are, with no time limit. However, as a hedonist, you enjoy the benefits only accepting an identity you didn't choose. If you do not take the pill, it is because you are not willing to become "someone" who do not admire, do not esteem, in which you do not recognize yourself. However, the lack of freedom is not enough to clarify the stakes running through all the three experiments. Your possible rejection of the pill that binds you to the electrodes, of that one you drugs and of that one makes you Faust, is done not according with an abstract principle of freedom, but, above all, in name of a concrete observation: if you have many ordinary means but not *the possibility of living-in-time*, you can get many pleasures (whether irrevocable, irreversible or instantaneous), but you cannot obtain the well-being. Every human action that matters - creativity, work, human relationships or whatever you like - takes place in a time-that-requires-time. This is the time of human history, which is not always irrevocable, nor always irreversible, nor instantly confers (or detracts) pleasures. Rather, it is the time of uncertainty and possibility, of destruction and

innovation, planning and improvisation. The crucial dimension of well-being that can be reached only in historical time is the *joie de vivre*.

1.9 The *joie de vivre* (or with a not perfectly equivalent English expression, life enjoyment) is the last concept we draw from the reflection of Georgescu-Roegen (1971, 282).¹⁰ Many economic approaches proceed from the premise, only apparently obvious, that well-being coincides with the utility or satisfaction or pleasure experienced by the individual. In turn, according to these approaches, utility can be accumulated and transferred from today to tomorrow, or vice versa. Consider a typical problem of optimal allocation of consumption over two periods. We assume that consumers must decide how to allocate between period 1 and period 2 the income earned in each of the two periods. We assume the existence of a capital market on which is possible borrow or lend money at a constant interest rate. A consumer planning to consume more than earned income allows him to do, can borrow money and pay back the borrowed amount (plus interest) in period 2; and vice versa. The intertemporal preferences of consumer can be represented by a utility function, associating a single value in each pair of present and future consumption. In short, according with this conception, well-being is based (also) on the possibility to accumulate or decumulate the subjective utility in a -stock-size that moves

¹⁰ On the importance and the specificity of the concept of *joie de vivre* in Georgescu-Roegen, Giacomo Becattini has many times insisted; for example in (Becattini, 2004, 27). However, Becattini has developed the connection between *joie de vivre* and the space of human communities, while we discuss here the connection between that concept and the other means of second order, the subjective historical time.

over time. According to Georgescu-Roegen, the *joie de vivre* is, as the utility, now more and now less intense; but, unlike utility, *it is a flow that can never become a stock* (Georgescu Roegen, 1971, 284). A person who saves, can set money aside to take utility in a period of his life different than those in which he has gained it; but he cannot transfer the *joie de vivre* from a historic moment in time to another, because it is embedded in his experience of life, and it comes out only in remembrance or in anticipation. The *joie de vivre* is a disposition of the person: as the wood always has the ability to burn, but it will get only under strict conditions, such *joie de vivre* is an attitude that is always with us, although it's evident only when we live-being-able-to-act. This leads to a second peculiarity. According to the just mentioned economic approaches, the well-being, , increases when utility increases in response to concrete and actual events, as well as imaginary and future events¹¹; . Rather, the *joie de vivre* is independent from the utility of the single events, although the events make it more or less intense: as a basic disposition, it arises from the finiteness of time (and space), feeding the sense of limits, perceives the irretrievable tragedy of existence, can occur despite all personal and other people's evils. Artistic expressions blending laughter and tears, playing down the misfortunes or leaving to emerge the seriousness of ridiculous situations, represent this ambivalent feature, which belongs only to the *joie de vivre*, but remains alien to mainstream visions of well-being.

¹¹ Except the case, usually on the fringe of society, when someone is happy or satisfied by his or others pain and misfortune.

SECOND PART: WELL-BEING IN A DIACHRONIC PERSPECTIVE

*Time is the coin of your life. You spend it. Do not allow others to
spend it for you.*

Carl Sandburg

Your time is limited, so don't waste it living someone else's life.

Steve Jobs

*How people spend their time is as good a measure of civilization
and social progress as any.*

Henry Neuberger

2.1 With the concepts of non-compressible subjective historical time, irrevocability, irreversibility, importance of timing and *joie de vivre*, Nicholas Georgescu-Roegen provides some elements essential to the development of a theoretical framework of human well-being centred on the second order means and among them, in particular, on time. In the second part we aim to move towards an operationalization of these concepts for empirical research. The Georgescu-Roegen's conception of personal time as an irrevocable flow of living suggests that the right perspective in analysing the use of time made by persons in their never-ending search of well-being is a *diachronic* one. In the following we discuss the consequences of adopting a diachronic perspective in the study of relationships between time use and well-being and try to suggest a coherent empirical approach.

2.2 In one of the most influential paper in economics, Becker outlined a theory of the allocation of time that deeply shapes the way economic thinking looks at time and still

inspires a fruitful stream of empirical research (Becker, 1969)¹². Essentially time is a scarce resource to be allocated between two fundamental activities: producing income and producing utility. The use of time is always costly, even when we can waste it lazing around in a medieval town, being its opportunity cost equal to the earnings foregone due to vacation time. Paradoxically, the value of time emerges only at work, when “firms are given control over working time in exchange for market goods” (Becker, 1969, 496): the true value of time emerges when people accept to negotiate a sort of temporary slavery, the only difference with actual slavery being that in the latter non-working time (with its «discretionary» activity) lasts only the minimum necessary to maintain working capacity and is “determined solely by the effect on income and not by any effect on utility” (*ibid*, 498). Conversely, free persons retain “discretionary control over market goods and consumption time” (*ibid*, 496). The implicit wage accepted to submit herself to this time transaction is the actual price of person’s time, and “time can be converted into goods through monetary income”.

In the Becker’s model time is in some way *separated* from the persons allocating it. People use it together with material goods in producing the “more basic commodities that directly enter in their utility function” (*ibid.*: 495), such as “seeing a play”, “sleeping”, “cleaning”, “feeding” and “procreating”; or earning income to be used later. This separateness is evident in the ability the Becker’s agent has

¹² For the empirical literature inspired by the Becker’s seminal paper see (Heckman, 2014).

to suspend “utility-producing” during working time¹³: as if the worthiness of living could be postponed to “free” time without any consequence on personal well-being. Not surprisingly, given the static nature of the model, duration seems absent both in producing income and in producing utility. The goal of the optimization process is the maximization of “utility”, regardless the share of time devoted to living the things are worth to live. The share of time allocated to each “more basic consumption” activity is not relevant in itself. The “right” quantity of time to devote to each activity is simply the quantity compatible with the maximum amount of produced utility given preferences, prices of market goods and earning per time units.

A first step in adopting a diachronic perspective in analyzing the relation between time and well-being is to recognize that the duration of activities is not completely under the control of agents. Doing things “takes time” regardless our willing to control the use of time. All the more in case of social activities. In affluent societies the subjective feeling of “time pressure” affects an increasing share of people. This is the reason why Goodin and colleagues (2009) propose to replace the “measuring rod of money” with the “measuring rod of time” as a metric of welfare: “...everyone has exactly 24 hours in a day. If our aim is to render things commensurable in welfare terms, then looking at how much

¹³ Becker states that additional utility could be achieved during working time exchanging “money income with a greater amount of psychic income” (*ibid*: 498): but the examples he provides (preferring a less paid more pleasant job to a better paid less pleasant one, employing an unproductive nephew in the family firm, eating too much despite the resulting losses in productivity) are more a matter of reducing the psychic burden (disutility) of income-producing time than producing “true” utility. Strictly speaking, the Becker’s family maximizes the net utility (utility produced during non-working time less disutility accepted during working time) of the use of time.

time they cost people (or how much time people are willing to devote to them) might be one very good way to do so.” (Goodin et al., 2009, 8). More than the discretionary activities carried out during non-working time in the Becker’s world, is «discretionary time» allocated among different activities throughout the whole day, both during working and non-working time, the measure to be used in welfare comparisons. Well-being increases with temporal autonomy “it’s simply a matter of having control over how one choses to use one’s own time” (*ibid.*: 30). The *minimum* amount of time to be devoted to basic activities such as paid labour, non-paid home labour and personal care is determined by economic, social and biological factors that are out of the control of persons. The rest of 24 hours is what can be called the true “discretionary time”. Quantifying the differentiation of discretionary time across social groups provides a basis for a comparative analysis of well-being. Persons actually use time “autonomy” to get their goals and to follow their aspirations spending more time than necessary in working, taking care of their children, preparing food and so on. What is relevant here is use of “temporal autonomy” showing people searching for desired *durations* of their actions; personal well-being not only depends on consuming the Becker’s «more basic commodities» but also on taking the right time in doing it. According with Goodin and colleagues in affluent societies the minimum time necessary for each realm of basic activity is typically less than the time *actually* devoted by people. “Because people spend more time than strictly necessary in each of these realms, «spare time » is generally less (typically much less; often very much less) than

«discretionary time»” (Goodin et al., 2009, 36). This empirical evidence makes the authors to hypothesize that a part of “time pressure” recorded by surveys may be only an “illusion”, being potential spare time very often larger than the actual spare time resulting from the free use of temporal autonomy. Even though this can be at least partially true, a diachronic perspective suggest a further source of potential “time pressure” due to problems of coordination. A person may be actually entitled with an above average discretionary time but still face actual time pressure problems due to difficulties in harmonizing her activities with those of persons in relation with her. Indeed, personal activities are subject to constraints not only on duration but also in the sequence of them. Furthermore, the optimal sequence of activities defined at the individual level may not match with those of other persons to be involved. The impact of “scheduling” on social interaction has been discussed by Winship: “The fact that individuals can only be in one location at any one time is the a critical constraint on social interaction” (Winship, 2011, 503). Mismatching in individual scheduling may lead to unrealized and/or abandoned relations, deeply affecting well-being: consider, for example, the problems arising from scheduling conflicts between working and childcare time within families; or the difficulties to maintain friendship relations when friends live different working and family conditions.

The "scheduling" problem in time use arises not only by physical constraints of the time-space geography but also by the relational nature of social activities. The "optimal" duration of a joint activity cannot be determined autonomously by a person according with her preferences

and needs, depending also on needs and preferences of the referent person. This is probably true also during working time, at least for those activity left to discretionary arrangements of participants: the "optimal" duration of a business meeting can be different for each participant, according to their (presumably) different needs to develop both technical and social aspects. All the more so in case of time dedicated to joint activities involving loved ones, during non-working time, as in the case of the mother's dilemma between spending more time in playing with children and starting with cooking dinner. The problem cannot be solved on an individual basis, being a matter of joint and procedural (*in itinere*) optimization. But sometimes external constraints (such as a forthcoming appointment in the case of a business lunch, or the imminent homecoming of the husband in the case of mother's afternoon) prevent a complete harmonization of scheduling with the needs of all participants.

Time pressure and relational misalignment of scheduling suggest also that, regardless the *quantity* of time devoted to each activity, an ex-post evaluation of the time use may be influenced by the *quality* of it. The principle of time neutrality in «objective» measures of well-being proposed by Kahneman according which "all moments are weighted alike in total utility" (Kahneman, 2000) seems correct for *individual* evaluations of total utility, for example when measuring patients well-being during hospitalization. But the relational nature of activities can affect the experienced quality of time spent with others. Few good relational moments with the right duration for all involved participants (even in case of sad moments like the commemoration of a

died friend), may weight more than a lot of hours in rush in evaluating a day.

Finally, a diachronic perspective suggests the relevance of the long-term sequence of events during the whole life to affect the present subjective evaluation of well-being. People are able to look to their lives as a whole and to evaluate the coherence of their present condition with an expected/desired path to be followed. Both individual and relational components affect such an evaluation: we individually desire but we also socially compare our lives with those of our neighbours and we would like to harmonize our condition with theirs.

2.3 In this last section we develop the example of motherhood to show the time-embeddedness of well-being and draft some elements of the empirical strategies that may be followed in studying well-being in a diachronic perspective.

An increasing stream of empirical studies address the relation between subjective well-being (or “happiness”) and parenthood, with the aim of explaining fertility behaviours (Myrskylä and Margolis, 2014). Becoming parents is a “personally transformative event ... [that] ... radically changes what it is like to be you, perhaps by replacing your core preferences with very different ones” (Paul, 2015, 8). Motherhood in particular deeply affects women’s well-being throughout their lives, from the very beginning of the experience: “The intensity and the uniqueness of the extended act of carrying a child, the physicality of giving birth, the recognition of the new fact of the existence of one’s very own child, and the exertion involved in caring for

a newborn results in a dramatic change in one's physical, emotional and mental states" (*ibid.*, 8). According with our approach, motherhood is an event in the women's life that is deeply "time-embedded": it can occur only in a given period of life, it generates long-lasting consequences in the relations with others, it imposes new rhythms and temporal constraints in the daily life; and so on¹⁴.

Consider for example the possible impact of motherhood on "time pressure" experienced by women. In their comparative study on different welfare systems, Goodin and colleagues record an increase of "objective" time pressure on mothers across all the considered systems. The "discretionary time" available (net of minimum time necessary to earn income, carry out non-paid labour at home and for personal care) on average is lower for mother than for fathers.

Even though "objective" measures of time pressure help to recognize areas of welfare systems that should be improved by proper policies, they cannot address the subjective perception of "time pressure" potentially generated by motherhood. The presence of children makes more complex the within-household organization first of all because the presence of one more person to take care of poses a higher order problem of coordination among the scheduling of family members¹⁵. Further, childcare is likely to increase the uncertainty about the time necessary to carry out activities in a satisfying way: typically children have less control over

¹⁴ Our choice of motherhood as an example doesn't imply any gender -biased statements in favour of female-based childcare. Simply we recognize that, due to cultural, social and also biological reasons, the experience of parenthood is more deeply "time embedded" for women than for men.

¹⁵ (Whinship, 2011) provides a formal analysis of scheduling harmonization.

their demand for others' time. The within-family scheduling problems associated with motherhood may be empirically studied by "moment based" time use surveys, where respondents compile a daily diary. The variance in timing and duration of different activities within homogeneous social groups, especially in the tails of distributions, may evidence situations with peculiar problems of coordination that may be associated with the presence of children. The last "use-of-time" survey carried out by the Italian National Institute of Statistics in 2013¹⁶ may in principle support such an analysis: the daily questionnaire asks respondent to describe not only the activities they are carrying out but also the persons with which they are doing them.

Motherhood also changes the whole system of personal relations due to a re-ranking of needs to be satisfied. Even in presence of social support (such as free or supported nursery services) the mother is pressed to re-order the priority of personal relations according to the referents' needs. Consider for example the case of an unexpected shortening of labour time leaving the mother to allocate an additional hour of "discretionary" time in late afternoon. A dilemma between the choice of an early picking of the baby at the nursery and that of joining the happy hour with colleagues to improve social linkages is a likely scenario. In this case the unexpected hour is formally part of discretionary time but time pressure is probably not an illusion, even though the woman is actually free to choose. Also in this case "moment-based" measures of well-being may be used to assess the presence of this sort of adverse

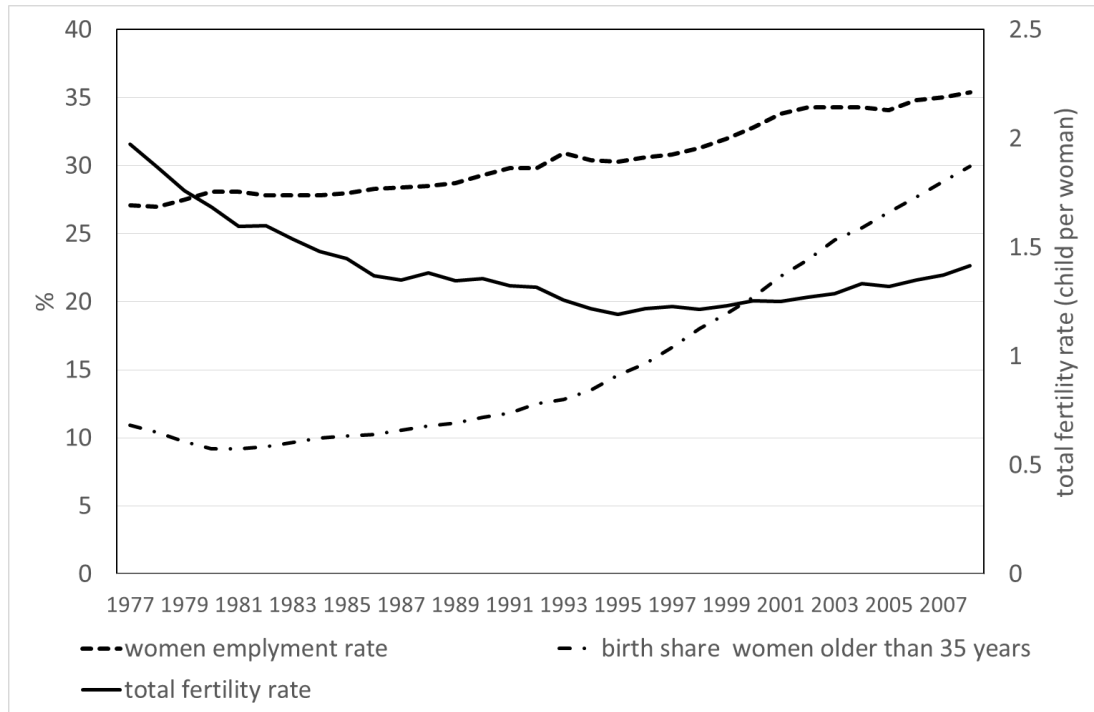
¹⁶ Details on the survey can be found at URL <http://www.istat.it/it/archivio/5723>.

effect of discretionary time due to re-ranking of priority implied by motherhood. For example, data from the Istat survey cited above may be used to compare “objective” happiness¹⁷ of women allocating discretionary time to extra-family social events before and after the beginning of motherhood (controlling for other possible influencing factors such as education level and religious belonging).

A diachronic analysis of relationship between motherhood and well-being should also address life-cycle considerations. It is a matter of fact that with economic development the participation of women to labour market tends to increase together with the difficulty of women to reconcile motherhood and job. In figure 1 the long term evolution of average fertility rate in Italy (measured on the secondary vertical axes) is contrasted with the women employment rate and the share of children born from women older than 35 years.

¹⁷ Such as the U index proposed by (Kahneman and Krueger, 2006). The daily questionnaire of the Istat survey asks respondents to associate a hedonic “score” to each recorded moment.

Figure 1
 Long term evolution of fertility and women participation to
 labour market in Italy



Own elaborations on Istat data¹⁸

Despite a slow recovery during after 2000, the total fertility rate remains largely under the replacement level (about 2.1) across the whole period. In the meanwhile the participation of women follows a constant increasing trend and data show also an increasing trend in the age of motherhood.

Taken together data suggest the existence of barriers negatively affecting the harmonization of life cycle preferences with economic and social constraints. A problem of “finding the right moment to become mother” seems at work and is likely to matter in determining personal well-being of people and, namely, of women. Indeed, becoming

¹⁸ Data are extracted from (Istat 2010).

mother is not a time-indifferent event within women life-cycle, not only for biological reasons but also from a social point of view. Consider first the impact on well-being of an unexpected early motherhood. On one side the woman could feel the burden of responsibility towards another person while feeling still depending (for economic and/or psychological reasons) on others. Furthermore, motherhood adds unwanted (even though accepted) additional constraints to freedom in shaping own life cycle, forcing to adjust expectations for the future. An opposite situation of unwilling waiting for motherhood (for social, economic or personal condition) may produce frustration and the search for compensative activities, for example "choosing" time pressure in the allocation for discretionary time. Furthermore, such a situation may affect well-being for the loosing of relationships when the life cycle of relative and friends follows a different path towards parenthood. Finally also "late"¹⁹ motherhood is likely to affect well-being, asking for the rearrangement of longstanding daily routines and generating conflicts with career developments, with increasing costs of downgrading working activities to comply with motherhood duties.

The existence of barriers in the harmonization of life-cycle with personal expectations may be studied using demographic data, for example analyzing the distribution of ages at which persons experience "transformative events" such as the birth of the first child. A skewed distribution of ages within a homogeneous social group may be a cue of objective limits in the freedom of choosing "the right

¹⁹ Relative to the reference social group.

moment". Also surveys providing subjective "memory based" assessment of well-being²⁰ may be used in the analysis, for example studying their distribution across age classes of women having their first children.

REFERENCES

- Antoci A. Bartolini S. 2004. Negative externalities and labor input in an evolutionary game. *Journal of Environment and Development Economics*. 9: 591-612.
- Aurelius Augustine. 1955. *Confessions and Enchiridion*. (about 400 a.C.), translated and edited by Albert C. Outler, Philadelphia Westminster Press.
- Baiasu R., Bird G. & Moore A.W. (Eds.). 2012. *Contemporary Kantian Metaphysics. New Essays on Space and Time*, London, Palgrave-Macmillan.
- Becattini G. 2004. *Per un capitalismo dal volto umano*, Torino: Bollati Boringhieri.
- Becker G.S, *A theory of the allocation of time*. The Economic Journal, 75 (299): 493-517.
- Daly H.E., Cobb J.B. 1989. *For the Common Good*. Boston: Beacon Press.
- Georgescu-Roegen N. "Hermann Heinrich Gossen: His Life and Work in Historical Perspective". In Gossen H. H. *The Laws of Human Relationsi*. Cambridge, MA: MIT Press: ixv-ixvi
- Georgescu-Roegen N. 1971. *The Entropy Law and the Economic Process*, Cambridge (Mass.): Harvard University Press.
- Georgescu-Roegen N. 1972. Process Analysis and Economics of Production. *American Journal of Agricultural Economics*, 54:285-286.

²⁰ Asking people to provide an overall assessment of their life (Kahneman, 2006)

- Georgescu-Roegen N. 1985. Time and Value in Economics and in Gossen's System. *Rivista Internazionale di Scienze Economiche e Commerciali*, 32: 1121-40
- Georgescu-Roegen T. 1994. Time in Economics. In Hagemann H., Hamouda O. F. (Eds.). *The Legacy of Hicks*. London: Routledge:241-245.
- Goodin R.E, Rice J.M., Parpo A., Erikson L. 2008. *Discretionary Time. A New Measure of Freedom*. Cambridge: Cambridge University Press.
- Hamermesh D.S., Pfann G.A. 2004. Time-Use Data in Economics, in Hamermesh D.S . Pfann G.A. (Eds.). 2004. *The Economics of Time Use*, New York: Elseiver.
- Heckman J. 2014. *An introduction to "A theory of the allocation of time" by Gary Becker*. IZA DP n.8424, August 2014. <http://ftp.iza.org/dp8424.pdf>. Accessed on January 2016
- Huxley A. 2000. *Brave New World revisited (1954)*, New York: Rosetta Books.
- Istat 2010. *L'italia in 150 anni. Sommario di statistiche storiche 1861-2010*. Roma: Istat.
- Kahneman D. 2000. Experienced Utility and objective happiness: a moment-based approach. In Kahneman D. and Tversky A. (Eds.). *Choices, Values and Frames*, New York: Cambridge University Press and the Russel Sage Foundation: 673-692.
- Kahneman D., Krueger B.A. 2006. Developments in the measurement of subjective well-being. *Journal of Economic Perspectives*, 20(1): 3-24.
- Kasser T., SheldonK.M. 2009. Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence from Four Studies. *Journal of Business Ethics*, 84: 243-255
- Maitland J., 8th Earl of Lauderdale. 1819 *An Inquiry into the Nature and Origin of Public Wealth and into the Means and Causes of its Increase*. Edinburgh: Constable, 2nd edition.

- Mullainathan S., Shafir E. 2013. *Scarcity. Why Having Too Little Means So Much*. New York: Holt & C.
- Myrskylä M., Margolis R. 2014. Happiness before and after the kids. *Demography*, 51: 843-1866
- Paul L.A., 2015. What you can't expect when you are expecting. *Res Philosophica*, 92(2): 8. https://www.pdcnet.org/wp/wp-content/uploads/2015/06/ResPhil_92-2_1.pdf. Accessed on January 2016.
- Römer H. 2015. Now, Factuality, and Conditio Humana. In von Müller A., Filk T. (Eds.) *Re-Thinking Time at the Interface of Physics and Philosophy*. New York: Springer: 249-268.
- Spaemann R. 2006. *Persons. The Difference between 'Someone' and 'Something'*. Oxford (UK): Oxford University Press.
- Steedman I. 2001. *Consumption Takes Time*, London: Routledge
- Tani P. 1986. *Analisi microeconomica della produzione* Roma: La Nuova Italia Scientifica.
- Whinship C. 2011. Time and scheduling. In Hedstrom P and Bearman P. (Eds.) *The Harvard Handbook of Analytical Sociology*, Oxford (UK): Oxford University Press: 498-520.