What is evolutionary welfare?

Some steps towards an evolutionary theory of economic welfare

Jakob Kapeller and Manuel Wäckerle
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Preliminary Abstract
A necessary precondition for establishing an evolutionary welfare economics is the development of a concise concept of evolutionary welfare as such. Current approaches trying to build an evolutionary welfare economics inherently suffer from a vague or limited understanding of welfare, which restricts the scope and applicability of these approaches. This paper argues that a clarified conception of evolutionary welfare might aid in synthesizing existing contributions to evolutionary welfare economics under a common umbrella and allows for the derivation of specific policy implications as well as benchmarks for evaluating economic development.

1. Introduction

Evolutionary welfare economics is up to now still a largely unexplored field of intellectual endeavor. While evolutionary economists have neither been completely silent with regard to the policy implications of evolutionary economic analysis (Dopfer and Potts 2008, Metcalfe 1994, Pelikan and Wegner 2003, Witt 2003) nor refrained from invoking the possibility of an evolutionary welfare economics (Binder 2010, 2013, Schuberth 2012, Schuberth and Cordes 2013, Staveren 2007,2012), a concise concept of an evolutionary welfare economics is still to be developed.

Taken together past work on policy-oriented or welfare economic subjects in evolutionary economics mainly focuses on fostering education and innovation as a central means for individual welfare. Such a perspective is suitable for incorporating traditional arguments prevalent in evolutionary economics, like self-transformation and technological development or the emergence of individual or collective routines. However, we argue that this strong emphasis on innovation, education and creation only represents a fragment of an evolutionary welfare economics, which is to be complemented by additional arguments related to other dimensions of human welfare. In this context this paper basically argues, that *suggesting a concise concept of evolutionary welfare is a necessary condition for the development of an evolutionary welfare economics*.

The deepest as well as broadest attempt in such a direction is given by Binder (2010, 2013) currently, who focuses at least primarily on welfare by introducing preference learning from an evolutionary perspective. Binder (2010, p. 63) locates an evolutionary theory of welfare in an emerging field between subjective *"hedonism and desire theories"* and the objective *"capability approach by Sen and the theory of basic needs and wants"*. He scrutinizes that the capability approach is still representing a static framework that is far away from a dynamic theory of welfare (see also Binder and Witt 2012), which should build upon the *"learning theory of consumption"* (Witt 2001), where the historical development of consumption practices represents the empirical core for further arguments.

Recently, a special issue in a prominent economic journal tried to address this obvious gap in evolutionary welfare economics by postulating the inherent relevance of evolutionary theory and thought for general concerns with regards to the social sciences and public policy. In their introduction Wilson and Gowdy (2013) establish a tight and comprehensive introduction to basic concepts of evolutionary reasoning in the *Journal of Economic Behavior and Organization*. The authors confront basic critical concerns from economic peers, who are cautious of applying

evolutionary principles in their work. Moreover, they highlight the potential value-added of evolutionary theory for economic policy and welfare. While one would expect the other articles in this issue to emphasize the specific application of evolutionary concepts to public policy or welfare, these papers instead reproduce the 'standard' biocultural evolutionist scientific agenda (Boyd and Richerson 2005), i.e. explaining the origin, the constraints and the contingent evolution of cooperation within the human species. Although these contributions significantly improve the reception of evolutionary concepts in economic theory (see exemplary Gowdy et al. (2013), Manapat et al. (2013), Stoelhorst and Richerson (2013), Witt and Schwesinger (2013) or Wilson et al. (2013)), with the exception of Biglan and Cody (2013) they somehow miss to address the questions of welfare and public policy, which has been a central cornerstone in the agenda of the Wilson and Gowdy (2013) introductory text. The biocultural (co)evolutionist approach focuses almost exclusively on group behavior and (collective) learning, altruism and reciprocity as well as, eventually, cooperation as a transmission belt for organizational evolution. Other major contributions in this context include Gintis et al. (2005) and Bowles and Gintis (2011), who develop an analytical framework of reciprocal altruism to address the emergence and persistence of cooperation in large-scale societies, which is supported by a broad range of experimental and field evidence (cf. Henrich et al. 2004).

One possible reason for the observed silence of bio-cultural evolutionism with regard to policy issues or economic welfare is that by answering its most basic research question – *"Why do humans cooperate on a large-scale with non-kin?"* (Stoelhorst and Richerson 2013, S46) – it might render political action as well as any regulatory institutions obsolete. To see why this is indeed the case, assume we find out that interpersonal cooperation is completely sufficient for obtaining a maximum of economic welfare – an assumption often made when the concepts of reciprocal altruism and evolving cooperation are applied too optimistically. Such a finding would render any kind of social intervention obsolete, since the latter may only distract from a natural and harmonious order, if cooperation already serves as a sufficient condition for achieving societal optima of whatever form. Additionally, to the overdose of optimism injected in this argument, there exists the problem that cooperation among individuals is seldomly 'complete':

> [The non-cooperative solution of the prisoner's dilemma] has a devastating impact on societal evolution, it represents the case of a destructive rule of conduct that Hayek seems to have neglected – perhaps because he believed that societies unable to prevent the spreading of destructive rules of conduct are bound to decline and eventually disappear.
>
> Witt (2008, p.10)

Together these aspects might lead to what we call a *'Hayekian trap'* – a mixture of two pitfalls: Placing too much optimism in a theory as well as overlooking uncomfortable details, like possibly defecting individuals, Hobbesian wolves rampaging in the allegedly harmonious order, so to say.[1]

In this context a *concise concept of evolutionary welfare* provides a way to evade this trap by posing the more holistic question which dimensions of individual and social life determine economic welfare. At the same it gives the opportunity to complement and extent existing frameworks for evolutionary welfare (Binder 2010, Biglan and Cody 2013). While economic welfare is, eventually, always a normative conception this paper tries to anchor its conception of welfare in basic mechanisms of evolutionary theory. In order to take into account the embeddedness of individuals in

[1] However we understand the value-added of so-called Hayek heuristics projected on institutional economic evolution (Wäckerle 2014, chapter 6) in a different light, still representing an intellectual peek in the tradition of institutional economics. The Hayekian heritage in institutional economics allows us to think of institutions as affectively emerging and rationally accessible *knowledge repositories* in distributed systems. This aspect does not affect the realm of evolutionary welfare in the context of the present paper, because we highlight (as outlined in the following section) still missing but complementary components of welfare, such as *power* and *inequality* in contrast to a merely knowledge-centered view on the evolving economy.

society and nature we propose the following research question: Are we able to delineate dimensions of individual and social welfare from basic evolutionary mechanisms with respect to individual development *(self),* social relations *(others)* and the interaction between human and nature (*world)*?

Thereby, economic welfare is loosely defined as the overall quality of life, which is in accordance with typical metaphorical representations of economic welfare in various contexts – from conventional macro- and the new welfare economics to institutional, ecological or Marxist reasoning. The normative component in any concept of welfare implies that 'welfare' as an abstract concept is highly heterogeneous and always open for concrete amendments or even vague projections. It offers therefore no clear-cut substantive goal as it is generally alleged in utilitarian approaches. Hirata (2011, p. 70-78) makes this point very clear that the conception of a *'good life'*[2] becomes a label, a formal concept or even a *'terminological placeholder for an unfinished idea'* (Hirata 2011, 77). Eventually, this leads to a heuristic conception of welfare, where the attainment of welfare is to be understood as a contingent process. While the underlying dimensions of welfare are assumed to be time-invariant and relatively stable across cultures, they actualize themselves in ever-new forms depending on the specific socio-historic and cultural circumstances. Hence, evolutionary welfare allows for coexisting materializations in a variety of different or even contradictory lifestyles.

In turn we ask whether our results are indeed suitable for synthesizing different approaches to evolutionary welfare already suggested in the respective literature as well as whether the resulting conception really leads to a holistic idea of welfare, which is applicable to various contexts and fields in public policy.

The paper proceeds as follows: In section 2 we define basic *coordinates of evolutionary welfare* by pointing to important general properties of individual welfare and some traditional problems with respect to the social aggregation of these individual states. Based on these foundations we develop a set of nine *dimensions of evolutionary welfare* in section 3. While these dimensions conceptually relate to basic evolutionary mechanisms (selection, mutation, retention) they heuristically incorporate qualitatively different aspects of human existence, which are in turn understood as decisive for individual as well as aggregate welfare. In the following two sections we search for the practical and political implications of such a conception of evolutionary welfare. Specifically, we identify main normative propositions resulting from our conception of evolutionary welfare in section 4 and try to relate these ideas to the *'MaxiMin-decision rule'* in section 5. Section 6 offers some concluding thoughts.

2. Coordinates of Evolutionary Welfare

It is an accepted postulate, in neoclassical as well as in evolutionary welfare economics, that the determination of individual welfare is a central cornerstone for any welfare-related economic argument. This premise does not imply individual agents as well as their welfare to be autonomously determined. Quite on the contrary it represents a specific normative restriction, which demands that welfare is not only related to aggregate *social states*, but primarily related to *individual states of welfare*. This is most pronounced in the Rawlsian variant of aggregate social welfare functions, where aggregate social welfare is directly determined by the lowest individual utility within a given population (Rawls 1971, pp. 276 for the notion of *social minimum*).

[2] Elsewhere Novy (2013) highlights the real-utopian potential of the Andean American notion of *'buen vivir'* as a missing complement for the '*lost soul*' of the European welfare state. '*A good life for all*' represents a *"…collective strategy of becoming, to unfold the potential for an as long as possible, creative, healthy and felicitous life."* Novy (2013, p. 6 - translated by the authors).

However, this normative presumption also carries with it an important complication, namely how to measure individual welfare besides any ideal-type specifications. Utilitarian approaches traditionally suggest relying on individual utility as the sum of individual pleasures and pains. However, a *'hedonimetry'* approach to measure individual states of utility, as imagined by Edgeworth (1881, p. 7-9 on the quantity of pleasure, compare also Appendix II *'On Hedonimetry'*, p. 98-102) has never come to be and the more analytic utilitarian approaches in traditional welfare economics were often highly skeptic with regard to policy in general (Arrow 1951) or contested with respect to its internal validity. The other, more pragmatic, traditional economic approach to this problem – to conceptualize individual welfare in money terms and identify income with individual and GDP with social welfare – has also been heavily criticized in recent years on the aggregate (Stiglitz et al. 2010) as well as the individual level (Blanchflower et al. 1999). In this respect consider also Hirata's (2011) critique of a fundamentalist happiness approach and his conceptualization of *"the idea of good development and good life"*, where good development appears as a regulative idea rather than a substantive goal (Hirata 2011, pp. 101).

A third option to conceptualize states of welfare is represented by the creation of indices, based on a combination of specific indicators, in order to overcome the lop-sidedness of traditionally imposed money-metrics like income or GDP. In this context indices constructed by major international organizations – like the *Human Development Index* (WHO) – serve as prime examples (see Gadrey 2004 for a compilation of suggestions for similar indices). Common to all these indices is the vexing question of which indicators to include and which weight to assign to each indicator. Possible answers to this question are to a substantial extent arbitrary and often strongly influenced by considerations of data-availability. The very idea of constructing numerical welfare indices implies a prioriziation of measurable, 'hard' criteria over more vague and 'soft' components of individual and social welfare.

In sum, the situation presents itself as a dilemma: If we use traditional economic concepts of welfare on the one hand, we end up with a blurred (as in the case of GDP and income) or a wholly inapplicable concept of welfare (in the case of individual utility). On the other hand, if we try to integrate various important dimensions of welfare, we have to deal with a substantial amount of arbitrariness, when choosing relevant dimensions and suitable indicators.

Our philosophical vantage point for confronting this dilemma is an Aristotelian conception (see also Staveren 2007 and Safarzynska 2013) of individual welfare. In contrast to classical hedonism and epicureanism, who both propose a logic of individual maximization of happiness similar to the quantitative hedonism espoused in neoclassical utility theory. Aristotle argues that human needs relate to different dimensions of life and existence and are, thus, often non-linear and do not necessarily align harmoniously with each other but may instead be contradictory. In this sense the degree of satiation of different human needs can never to be aggregated across different dimensions, since different needs are qualitatively different from each other. However, at the same time different needs are not independent of each other, since deficits or gains in one sphere may spill over to other spheres of individual well-being. This kind of mutual dependence is, however, more complicated than the classic economic case of substitution, since affluence in one dimension (e.g. material wealth) may compensate but also intensify the poverty in another (e.g. solitude). This is why Aristotle advanced an argument for harmony or balance in one's own portfolio of needs and urged – in stark contrast to his hedonistic contemporaries – for self-reflection and diligence when making decisions related to the fulfillment of one's own needs and wants. The specific implication of this argument for a concise conception of evolutionary welfare is, in short, that the single dimensions constituting welfare all have the properties of *non-linearity, non-independency and non-substitutability*.

Such an approach to an evolutionary theory of welfare also allows for addressing the problem of aggregation in welfare economics, that is the question of 'aggregate' or 'social' welfare in contrast to individual welfare. Evolutionary philosophy (e.g. Ghiselin (1974) or Gould (2002, pp. 595)) explicitly speaks of groups, species or kingdoms as whole individuals, because they reach ontologically a different status than a mere set of organisms with respect to common phenotypic expression. Others such as Corning (2005) refer to super-organisms, just as Sober and Wilson (1999) as well as Hölldobler and Wilson (2008) suggest.[3] DeLanda (2006) instead suggests the term *'assemblage'* to describe a set of related and mutually dependent individuals in the spirit of post-structural Deleuzian social philosophy. The implications of this argument for transgressing a conception of evolutionary welfare to the realm of social aggregates or assemblages is thereby twofold: first, aggregate welfare is determined according to the same criteria as individual welfare. Second, the relevant dimensions have the same basic properties – *non-linearity, non-independency and non-substitutability* – on the aggregate as well as the individual level. Third, although these properties suggest that such dimensions of evolutionary welfare are not quantitatively measurable in any non-arbitrary way, they may generate policy-suggestions and goals by appealing to minimum standards, which in turn allow for an application of a *'maximin -strategy'* in game-theoretical terms for a given dimension of welfare. Then we select the minimal outcomes of possible policy choices for a particular welfare dimension and choose the maximum of them thereafter. This heuristic device can then get applied for every dimension.

Based on these insights the aim of this paper is thereby the integration of various dimensions into a concise concept of evolutionary welfare, while trying to reduce arbitrariness by delineating important determinants of welfare out of evolutionary concepts. By following only the basic idea of integrating different dimensions of welfare, we are not bound to only include clearly measurable dimensions, but may instead refer to human being in a rather general, supposedly holistic and qualitative way.

An important preliminary of this undertaking is to defend a very basic idea incorporated in this argument, namely to delineate dimensions of welfare with respect to main evolutionary mechanisms, namely *selection, mutation and retention*. To apply these conceptions to the realm of economic welfare, *selection* refers to the question whether this novelty adapts well and, thus, may survive and reproduce itself within a given environment.[4] Further we interpret *mutation* as the advent of a novel object (species) or property (trait), while retention, in turn, asks for the long-term maintenance of a certain object or property and its ability to stabilize and reproduce its own existence, providing a new basin of attraction for yet another novelty. While the general idea to found an economic theory of welfare on evolutionary principles might seem as arbitrary as any other approach or, even worse, be interpreted as a result of mere fandom proposed by some evolutionary groupies, in what follows we offer four main reasons for adopting an evolutionary perspective when it comes to evaluating human welfare.

[3] In this respect our proposed framework builds also upon an *extended synthesis of evolution,* in contrast to the *Neo-Darwinian* or sometimes also called *modern synthesis*. The essence of an *extended synthesis of evolution* gets expressed and articulated by Callebaut (2010) among several excellent articles collected in Pigliucci and Müller (2010). Its differentiation from the modern synthesis as well as its economic implications beyond Generalized Darwinism has been discussed recently by Callebaut (2011a, 2011b). In such a context it is basically argued that the notion of replication – the replicator-interactor framework within a gene-centric modern synthesis – gets tremendously overestimated in particular for the theoretical discussion of agency. Moreover environmental constraints, plasticity/modularity and aspects of epigenetics are conversely underestimated in theoretical explanations for the course of evolution in general. Concretizations of such an evo-devo perspective in sociological contexts are given by Wortmann (2010) and Müller (2010) for instance.

[4] In this respect we associate the concept of selection with the modern interpretation of *'multi-level selection'* in general evolutionary discourse (Wilson 2010) or *'nested selection'* in organizational contexts (Knudsen 2002).

First, criterions for the evaluation of human-welfare should be time-invariant insofar as they should be applicable to different historical periods and specific institutional settings. In a constantly changing world with successively evolving societies, dimensions of human welfare need to represent dynamic concepts applicable to different constellations. Since evolutionary mechanisms inherently provide such a dynamic perspective, they seem to be a promising candidate for identifying general treats of human welfare.

Second, an evolutionary perspective, and especially characteristic for the notion of mutation, allows for the incorporation of active agents (see Gerschlager 2012) introducing novelty, instead of being conceptualized as a mere (and notoriously passive) slave of one's preferences.

Third, and more specifically related to evolutionary economics, an evolutionary approach allows for an emphasis on the *relations* between individual entities and the world, compare Dopfer and Potts (2008, p. 3-4) for the empirical axiom of *'association' and 'bimodality'*. Thereby, it is possible to address also welfare aspects located on the *meso-level* (not just innovation/diffusion-specific components) – like workplace design, familial constellations or social networks.

The fourth argument relates to internal logic of human evolution. If we suppose evolution to have been at work for some time in human and pre-human history, it would seem safe to assume that those things, which are beneficial in evolutionary terms, also cause contentment within us. In other words we argue that the individual degree of contentment depends on how well we succeed in terms of reproductive survival. A simple example for this relationship is given by the cuteness of babies: Cuteness is a factor fostering parental care and at the same time cute babies make their parents happy.

The next section suggests such an evolutionary framework based on the three main mechanisms as already emphasized. The resulting conception is no theory in the classical epistemological sense, but rather a plausible heuristic aiming for partially normative decisions based on a sensible interpretation of central evolutionary concepts.

3. Dimensions of Evolutionary Welfare

As indicated in our research question we tried to delineate dimensions of economic welfare with respect to the development of individuals, social relations and the interaction of culture and nature. Following this proposal Figure 1 summarizes our suggestions for understanding evolutionary welfare.

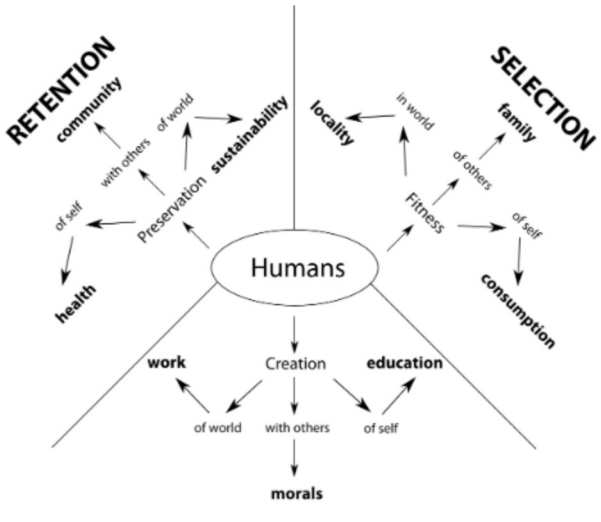

Figure 1: Dimensions of Evolutionary Welfare

We interpret these dimensions as semantic hubs for three welfare criteria, connecting *selection with fitness*, mutation with creation and *retention with preservation*. As already explained above, they operate on the individual level of welfare but are discussed within three categories: the self, others and the world. This non-isolating – i.e. anti-atomistic – conception of the individual associates welfare in dimension (1) with the fitness of the self (consumption), the fitness of others (family) and the fitness in the world (locality). The movement from fitness to selection focuses on the individual's closest environment, in which strong welfare selection takes place. Dimension (2) involves the movement from creation to mutation, where we find the establishment of a social network. Here the creation of the self refers to education, creation with others to the morals and creation of the world to work. On the one hand this evolutionary welfare dimension surrounds us with structuration processes shaping our daily life beyond the family and on the other hand it leads core economic mutation processes of the self, associated with education, labor and entrepreneurship for instance. Finally dimension (3) opens a stream from preservation to retention, where the long-term evolution of humans and human societies comes into play. With regards to the preservation of the self we discuss health as a main component; the preservation with others emphasizes how communities employ welfare criteria by the communication of social practices, dispositions or rules. The ninth component of evolutionary welfare highlights the issue of sustainability as a necessity for the preservation of the world where we are looking forward to live. Intuitively the retention dimension seems to be farthest apart from the inner family core of evolutionary welfare, but at a closer look it relates directly to locality and the fitness of our offspring. Indeed all nine dimensions associate to each other via different political, cultural and socioeconomic mechanisms, driving the ubiquitous transmission of human rules over space and time in an evolutionary way. Together we may refer to this holistic picture as an evolutionary welfare regime or program, representing a theoretical corridor of life-styles the policy-maker needs to consider (compare Dopfer 2005, p.15 for the concept of an evolutionary regime in general).

3.1. From Selection to Fitness in Evolutionary Welfare

The dimensions summarized under the mechanism of selection all relate to very basic evolutionary variables, namely satiation of oneself as well as reproduction and the ability to satiate one's offspring within a given geographical and social environment. They are essential for evolutionary theory insofar as they serve as main variables for identifying evolutionary fitness on individual, community, as well as societal level.

3.1.1. Fitness of the self: Consumption

In accordance with traditional economic theory we perceive *consumption* to be a main determinant of individual welfare directly related to the fitness of the self. However, we suggest basing our conception of consumption not in utility theory but in evolutionary consumption theory (Witt 2001, Nelson and Consoli 2010, Kapeller, Schütz and Steinerberger 2012). The latter exhibits the following welfare-relevant features (see especially Binder 2010). First, it considers individual preferences to be socially mediated and, thus, highly adaptive to social and cultural conventions as well as new consumption items, which induces aspiration levels to increase with technological developments as well as rising average income. Thereby, individual contentment through consumption is, secondly, given by the difference between aspiration levels and actual outcomes instead of simply the amount of consumption. Third, failing to reach one's aspiration levels can be considered as either absolute or relative deprivation depending on whether this failure to meet one's aspirations is related to basic needs (absolute) or acquired wants (relative; see Witt 2001 for this distinction). The welfare implications of these preference dynamics are currently analyzed from different perspectives. Due to this fact, consumption can be considered as an established component of an evolutionary theory of economic welfare, where many significant contributions have already been made (compare exemplary: Binder 2010, 2013, Binder and Witt 2011, Schuberth 2012).

When asking for consequences of these hypotheses for a conception of evolutionary welfare, we would suggest that the first two hypotheses can be interpreted in the following way: above a certain state of minimal material welfare, where absolute deprivation is eliminated in major parts of the population (the so-called Easterlin-Paradox) relative distribution of consumer goods is more important than the absolute amount of consumption (Johns and Ormerod 2008). This argument implies a postulate for *decreasing economic inequality* to evade or dampen the adverse effect of 'hedonic treadmills' or 'rat races' in terms of consumption aspirations and raise overall economic welfare. Additionally, if we accept the assumption that deprivation is to be considered as welfare-diminishing the third hypothesis implies to decrease poverty rates, which are defined in a way paralleling the above hypothesis. Again, we end up with a postulate for decreasing economic inequality to enhance economic welfare.

3.1.2. Fitness of others: Family

The notion of reproduction features prominently in evolutionary thought, where the rate of reproduction is a main determinant for a species' survival or growth. With relation to the *fitness of others* we consider the *family,* that is familial reproduction in its various forms and aspects, to be a key factor of individual welfare. *Familial reproduction,* here, is the ability to grow and sustain offspring, which is typically, but not exclusively, regarded to be a question of sustaining familial structures. In short we argue that the possibility (not the factual implementation) of founding and sustaining a quasi-familial structure is a main determinant for individual welfare. It is important to note that we do not argue that living within a close relationship to one's kind is constitutive for welfare. Rather we argue the other way round: If the possibility of creating such an arrangement is prohibited, this can be interpreted as a rather severe restriction on individual freedom. The lack of a certain familial capability is also at the heart of many personal dramas in human history as well as the contemporary world. It therefore comes as no surprise that the inability to definitely settle with those, with whom we believe to share our deepest love, has been perceived as a main cause for personal dissatisfaction throughout much of human history (Graeber 2012). Currently, the tendency for enforced interpersonal competition fosters ignorance with respect to family and gender issues might lead to a 'cultural reorientation' (Hanappi and Hanappi-Egger (2005)) with unclear consequences for economic welfare. Same could be said about mainstream economic theory and its limitation of familial action to rational economic calculus (Becker 1993). Eventually, what we are dealing here with is the question of *free choice on reproduction.* Consider in this respect Stock et al. (2012) for a comparison and introduction to historical, evolutionary anthropological, empirical and theoretical issues of fertility, demography and family (re)structuring, with a special focus on European German speaking countries. Familial reproduction is especially carried by a deep selection mechanism with regards to the accumulation of bonding social capital (compare Putnam (1993) for the differentiation of *bonding* and *bridging* social capital). In light of Bourdieu's (1982) conceptualization of the habitus as a modus operandi and generative social vehicle for the development of the social sense, the family assigns the most significant social practices to the self, shaping its fitness from the very beginning of life.

3.1.3. Fitness in the world: Locality

The notion of locality refers to the fact that humans live in certain geographical and social environment, which imposes standards with respect to the fitness in world. While in former times, e.g. the Medieval Times, standards set by a given locality (typically: one's place of birth) were seen as absolute, in modern times (and especially in western countries) a historical completely new level of personal and social mobility has changed this pattern dramatically. Here technological developments – especially those stemming from the last century – increased mobility dramatically. This allowed people to move to different environments – different localities so to say – were their relative fitness *or* contentment is expected to be greater than in possible alternative localities. This implies that greater geographical *mobility*, be it short- or long-termed, is indeed to be seen as enhancing welfare. In this sense it also figures as one of the major cleavages between industrialized western countries, catching-up economies and those staying behind: here individual capabilities related to mobility are

clearly divided unequally (compare Keil and Mahon (2009) for an introduction to the political economy of scale and geography).

3.2. From Mutation to Creation in Evolutionary Welfare

The dimensions spanning the realm of mutation lie at the core of economic welfare, since we deal with the creational activities of the human being. To this extent creation refers to mutation if we consider crafting and making of subjects and objects under the umbrella of differentiation and distinction. Actors create themselves by imitating the morals of their fellows over time (Tarde 1903, chapter V and for an introduction to Tarde's *'economics of passionate interests'*, Latour and Lépinay 2010). Moreover we need to differentiate these morals, to create with others in successful terms. It is the process of collective creation, which continuously reproduces socioeconomic structures in novel institutional forms, mostly gradual but sometimes also punctual. The outcomes of these two-fold processes lead to the final creation of the world corresponding to its artefacts and physical structures.

3.2.1. Creation of the self: Education

By radically interpreting Nussbaum (2010) we learn that the firm is not the main place for education: While profit-based collaboration attaches a strong teleological aspect to any kind of learning in the sense that agents learn the means (rules, habits, routines) to arrive at certain economic ends (monetary revenues minus costs) together, this instrumental perspective on education does not deliver a sufficient conception of the latter. By emphasizing a different view on education, where collaboration and interaction lead to new insights and experiences in a collaborative and non-instrumental way as opposed to a conception of learning which is directly related to firms and their competitive interaction. Following this line of argument we arrive at a conception of education, which stands for a general awareness for the structural mechanisms influencing our everyday live. This perspective implies that education is primarily about self-empowerment and emancipation and includes the ability to arrive at an autonomous opinion, the ability to reflect one's own actions and the ability to change one's mind or attitude when being confronted with convincing evidence or arguments. In our conception of welfare we consider this aspect of self-empowerment as a form of self-development, which is constitutive to individual well-being. Education here is conceived as a main tool for gaining control over one's own life. Therefore the place – and conclusively the mode – of education should not depend on pecuniary interests, because its main target is to establish an *equality of opportunity* and not the deliverance of a final set of opportunities to fulfil certain ends. Of course we keep on learning at our workplaces, but that's mostly within a period of life where our hunger for novelties is shadowed by striving for just more material things. Education is more than knowing and learning to consume and produce, it is about individual development and a structural creation of the self, which in turn might lead to economic innovations (Schumpeter 1997 [1911]). Identities grow with self-esteem and expression in its manifold ways. Humans basically learn the ways to create and express themselves in kindergartens, schools and universities. These are the welfare institutions of the knowledge economy capable to transport the idea of equal opportunities. In these institutions learning is considered as a transformation process where different islands of knowledge are interlinked and form a new set thereafter, where people can build upon. In this respect equality of opportunity means the educational aim to develop competences throughout the society, as scholars in pedagogy and didactics see as the goal of learning in educational institutions. Nussbaum (2010) focuses on this issue by highlighting the importance of the arts and humanities for education. This aspect gets mostly swapped under the carpet within a mere innovation-focused theory of institutional change, although the high arts of creativity – the ontological foundation of innovation – cannot get associated with teleological education practices. To summarize, an evolutionary theory of welfare suggests a non-profit organization of education institutions where entry is free, in order to vary the paths of social reproduction, avoid elite driven educational lock-ins (Bourdieu 1994) and support social mobility enhanced by education. These days the university

system carries the blueprint struggle for the just described institutional conflict and cutting this specific Gordian knot – in whatever way – will serve as the template for all educational institutions in our future society. Due to these circumstances it is also clear that the education dimension of evolutionary welfare represents one of the most central contested territories from a political economy perspective, where active policies in the right direction are at urgent stake. The modern economies need to provide equality of opportunity in educational terms, fostering and flourishing the creation of the self and the development of competencies, consistent with a basic idea of justice (Sen 2010).

3.2.2. Creation with others: Morals

By transgressing the traditional economic understanding of human beings as *"pleasure machines"*, to a characterization of humans as socially embedded, we understand the creation of individual or collective moral principles as strongly depending on the *"moral communities"* embedding a given individual (Hodgson 2013). Moral codes and principles give orientation and identity to single members of any social group and employ those members with a certain autonomy allowing for active agency (Gerschlager 2012). In this light *basic liberal rights and democratic regimes* (Crouch 2008, Held 2010, Knight and Johnson 2011) represent conditions strongly fostering self-expression and the creation of a functional and autonomous self (representing an active agent) in a moral sense. While conceding that altruism und reciprocity as fundamental values in non-impersonal human interaction may indeed have genetic foundations *"evolved through mechanisms of kin altruism and then reciprocal altruism"* (Hodgson 2013, p. 104), Hodgson also emphasizes the role of cultural transmission of moral principles.

> Moral sentiments evolved on a genetic foundation, but they required social interaction to become expressed and channelled. Culture enhanced and refined expressions of these sentiments into a transmitted moral code.
>
> Hodgson (2013, p. 105)

Hodgson (2013) follows further that *habits* – in the pragmatist tradition of William James, John Dewey and American institutionalist Thorstein Veblen – may play the significant role for the communication of morals to the self. To this extent, habits understood as *"socially transmitted dispositions"*, Hodgson (2013, p. 105) are highly crucial to the creation of the self. Since the autonomy of the individual to define its own goals and principles is not only a central element of evolutionary welfare, but also dependent on the reception of one's own action by others, achieving this kind of autonomy can only succeed in mutual adaption between an individual and its social environment. Intellectual or moral autonomy in complete solitude – the ideal of the hermite – is, therefore, most possibly an empty state. Autonomy in this sense can instead only be realized with and through others in equal discourse and interaction at eye level. A similar perspective is introduced by sociological arguments, especially Pierre Bourdieu's concepts of *habitus* and *social practices* (Bourdieu 1982, 1994). More radical authors allege that the moral development of western societies is strongly affected by what Foucault (1974, 1994) called *bio-politics* and *bio-power*, resulting into endogenous but intentional control of the population by the authoritarian neo-liberal state (compare also Lukes 2004). To this extent, the evolution of morals is strictly dependent on communication power (Castells 2009) between and within groups or communities. These days a tight web between corrupt/corporate politics and scandal/effect media limit and restrict the development of morality, but instead favours an ego-centric and materialistic lifestyle affecting social welfare in a thoroughly ambiguous way.

3.2.3. Creation of the world: Work

Perhaps the most distinctive feature of human capabilities in comparison to other species refers to the craftsmanship of artefacts and the adoption of such rules for other purposes. Humans are able to change the physical world by building material things. In the simplest way it refers to the creation of a tool to harvest food or build a shelter. From an evolutionary perspective Veblen (2009) [1914]

considered an *instinct of workmanship* inducing the want to 'produce' things as essential for the survival of our species. Consequentially, labour plays a significant role in the work of Veblen where he also locates his critique of capitalism. It is the pecuniary interest which he considers as unproductive leading to institutional lock-ins, inertia or even fallacies. Therefore we highlight the notion of *work* as a necessary evolutionary criterion for welfare in contrast to income, profit or wealth. We want to emphasize that the process of creating the world establishes welfare aside from its potential revenues. This aspect becomes most pronounced in the case of unemployment – when work is basically inaccessible. In such states self-perceived well-being deteriorates (compare especially Wilkinson and Pickett 2011, Part II), since the opportunity to productively contribute to a common or individual project has many effects of everyday life. It supplies temporal and spatial structure to the individual as well as in many cases a social environment important for acquiring self-esteem, a genuine identity and, more generally, meaning in life (Jahoda et al. 1975]1933]). In sum the *opportunity to contribute* and to be productive is by itself an important component of welfare and lack of it – be it due to structural unemployment or due to individual deficiencies – reduces individual well-being and collective welfare.

Following this line of argument the evolutionary welfare dimension of work incorporates main features of a Schumpeterian entrepreneur (Schumpeter 1997 [1911]), who is characterized as an energetic and dynamic economic agent, capable to change the world around him through either new products or new politics (Schumpeter 2005 [1942]). To this extent the Schumpeterian entrepreneur is a kind of ideal-typical representation, who exemplifies the emotional and social attributes associated with work *in extremis*. Therefore this concept fits perfectly into the dimension of mutation, understood as creative recombination or economic action on behalf of creative response. The introduction of novelties into the economy is crucial to individual welfare, since it makes the agent to a certain degree immortal, the most basic – ontological – driver of Schumpeterian thought (Shionoya 2008). However if these new qualities are exploited just under pecuniary interests the positive aspect may flip upside down. As Jackson (2010, p. 87-103) critically asserts an overemphasis of the push-dynamics of Schumpeterian innovation, shifting it from the exception to the rule, may easily lead to commodity fetishism, obsolescence and finally to an increase in the entropy level of the economy (Georgescu-Roegen 1971) with all its well-known consequences.

3.3. From Retention to Preservation in Evolutionary Welfare

The dimensions summarized under the mechanism of retention close our conception of evolutionary welfare. In evolutionary theory retention broadly spoken asks whether a feature of some fit variant is retained in future generations, i.e. passed on to the offspring. When introducing this concept to the realm of welfare – past contributions to a theory of evolutionary welfare mainly focus on mutation and selection – we ask the simple question whether those components, which improve our fitness (and, thereby, make life worthwhile) can be sustained in the future. In short, we focus on the question of preservation.

3.3.1. Preservation of the self: Health

Health in general attributes to the perception of subjective well-being and happiness (Hirata 2011, p. 60), thereby signalizing the synthetic character of health between physiological and psychological preservation of the self. Hence, health, understood as a combination *of bodily and mental well-being*, has a tremendous effect on individual welfare on several scales. The most modern conception of health applicable to questions of economic welfare is medical health. This kind of health is strictly dependent on the availability of health services and infrastructure, from the family's medical doctor, the local pharmacy to an intensive care unit in a hospital. Medical aspects of health also co-evolve with an economy's technological level and innovation (see Grebel 2011), since reliability and soundness from diagnosis, medication to surgery increase with technological progress. Today this aspect reveals even a more complicated aspect of health, since the provision of medicaments is not only an issue of laboratory technology, but also of a highly contested pharmaceutical industry

(Gilsing and Noteboom 2002). Aside from this more sophisticated view on health the preservation of the self is commonly associated with the concept of 'exercise'. In the Western world these exercises mostly represent physiological aspects and, hence, deal with athletics, sports or team games, where rule-based competition often plays a dominant role. In stark contrast in the far East, India, China, Japan and in some Indochinese countries such exercises are deeply institutionalized in religion as well as integrated in the daily life from the lowest to the highest social class. Yoga, Tai Chi, Kung-Fu or meditation are all very old and archaic techniques integrating the physiological and the psychological aspect of health. Such synthesis doesn't have any tradition in Europe, the US or more generally in Christian and Islamic countries of the world, to our knowledge. Health care is, therefore, to be understood as a combination of professional (medical) care and individual exercise in evolutionary welfare.

3.3.2. Preservation with others: Community

Humans are cultural animals implying that they transmit and adopt cultural rules (Pagano 2012) along harmony and conflict. It is well known today that the phenotypic novelty of language led to the accelerating development of cognition in human species. This is a central phylogenetic argument elaborated by many evolutionary biologists or anthropologists. These new cognitive abilities allowed for techniques of learning beyond an individual, reflexive level. Social learning opened a cultural niche (Boyd et al. 2011), which let early humans to gather in small communities of their own 'cultural' kind, meaning an elaborated expressive and distinctive code of a group. When we create ideas or things together with others we reproduce ourselves in socioeconomic structures, i.e. institutions. These institutions carry the knowledge (Hodgson 2008, Wäckerle 2014 - chapter 10) retained via *routines* (Lazaric 2011, Vromen 2011), *habits* (Hodgson 2004) or more generally in *generic rules* (Dopfer and Potts 2008). To be part of such a process, to share imagination (Dopfer 2004) or beliefs (Aoki 2001) and to contribute to this novel knowledge community represents obviously a highly significant criterion of individual welfare, i.e. in particular *socio-cultural participation and embeddedness.* The interesting notion of this welfare criterion relates to a very basic anticipation of altruism and cooperation, where welfare gains are also driven even if the own activity is not visible within a greater group or beyond it. Moreover creation with others allows the development of a social network, it allows for the accumulation of what Putnam (1993) called *bridging social capital*, i.e. business linkages beyond the familial structure. Creation of and participation within a community along shared imagination combines not only the qualities of loyalty and solidarity, but also of rhetoric and didactics as significant affective and emotional sources for welfare in daily life.

3.3.3. Preservation of the world: Sustainability

At first sight evolution and sustainability, two big topics of the 21st century, are not immediately related. However, in a long-run perspective on human civilization the issue of sustainability becomes at one day of utmost evolutionary importance – since it describes a strategy allowing for an extension of our species' existence. In this context the preservation of the world proves to be a complicated issue since the economy demands an intensification and expansion of harvesting and refining activities of given resources for the provision of energy (electricity, heat, mobility) as well as for commodification in a global division of *labor* within international production chains. The status quo alarms us with respect to global *anthropogenic* climate change, as the outlook of the Intergovernmental Panel for Climate Change (IPCC) articulates.[5] From an evolutionary perspective we need to consider that *'Global total annual anthropogenic GHG emissions, weighted by their 100-year GWPs, have grown by 70% between 1970 and 2004. As a result of anthropogenic emissions, atmospheric concentrations of N_2O now far exceed pre-industrial values spanning many thousands of*

[5] Its fourth assessment report indicates that given standard uncertainties that even with *'current climate change mitigation policies and related sustainable development practices, global GHG emissions will continue to grow over the next few decades.'* IPCC (2007, p. 72) It is conservatively projected that the global temperature will increase per decade with *0.2°C in the next two decades* IPCC (2007, p. 72).

years, and those of CH_4 and CO_2 now far exceed the natural range over the last 650,000 years.' IPCC (2007, p. 72). This dimension of evolutionary welfare is crucial for *the perspectives for offspring* in the medium and long run.
However, the failing of the Kyoto protocol indicates that this perspective is dominant in economic policy-making. A policy towards a sustainable energy transition in socio-technical systems needs to get regarded under the header of a multi-level perspective (Geels 2010) including environmental innovation and societal transition (van den Bergh et al. 2011). Otherwise we are deeply lacking a common institutional framework for legal and political alternatives of environmental valuation (Getzner et al. 2005), especially with regards to international law. It turns out that the standard economic approach does not deliver satisficing strategies and techniques to compete with this array of problems. A prominent example is given by the epic fail of the 'emission trading system', also called the carbon market (Spash 2010). Sustainability demands deliberative and pluralist reasoning in a participatory way, integrating not just dominant stakeholders and vested interest groups but also the general public. The planetary system evolves in symbiotic ways (Margulis 1998), representing the idea of evolution in synergetic terms, contrary to a mere competitive outline. Of course technological transition may contribute substantively to a sustainable future, but the big inter- and intragenerational conflicts of interest demand a new synergetic valuation of our economic activities in production and consumption (Safarzynska and van den Bergh 2010, Safarzynska 2013). This aspect becomes critical if we discuss the differences between a transformation or transition approach to sustainable development (Brand 2011). Finally, if ecological restriction amount, then economic growth in terms of a nominal increase in GDP can no longer be regarded as a stable indicator for an increase in economic welfare, since it does not take the implications of such an increase for the *welfare perspectives for offspring* into account.

4. Implications of Evolutionary Welfare

While describing the main dimensions of our conception of evolutionary welfare we developed an implicit and rough, first operationalization of these dimensions by pointing to central criterions determining the impact of a specific dimension on economic welfare. These central welfare economic postulates presented in Table 1 are based on our previous analysis and, therefore, serve as a guide for evaluating economic welfare on an individual as well as an aggregate level.

In our discussion of these dimensions we find that power and inequality serve as major sorting devices for this assessment. The dimensions allow to modularize, i.e. hierarchically organize (Simon 1996, p. 169-217) complex patterns of contemporary global policy challenges for the welfare properties of single dimensions. Thereby evolutionary welfare theory considers continuous defection of economic agents and rejects the idea of an endogenous crowding out of defection. We incorporate a focus on power and inequality, two of the most innate drivers of evolution, and go beyond a theory of welfare just simulating altruism and cooperation as evolutionary stable strategies within the Darwinian trajectory.

In what follows we provide a series of short and illustrative examples for the possible application of the principles contained in Table 1. From an educational perspective, for example, one should strive to implement equality of opportunity by using organizational forms of schooling, which provide most equal chances for educational success to pupils of different social and economic backgrounds, like reform-pedagogic concepts such as an integrated comprehensive school with multi-stage (majorly age-independent) classrooms. At the scale of the university system much harm was done by separating research from teaching (in the European Union via the Bologna process) and thereby sharpening the traditional hierarchies even more. To this extent more democratic organization of universities is demanded to promote the interaction between students, lecturers and researchers. Additionally, the concept of 'openness' of educational material (as well as academic research) seems detrimental for developing equal opportunities, which is why technological capabilities as well as

(international) property rights play a central role for determining the welfare-implications of a given educational system.

	Mutation/Creation	Selection/Fitness	Retention/Preservation
of self	**Education:** equality of opportunity	**Consumption:** reduction of economic inequality	**Health:** reception of bodily and mental well-being
of others	**Morals:** free speech and open discourse	**Family:** free choice on reproduction	**Community:** socio-cultural participation and embeddedness
of world	**Work:** opportunity to contribute	**Locality:** mobility	**Sustainability:** perspectives for offspring

Table 1: Dimension and Principles of Evolutionary Welfare

The dimension of morals in contrast refers less to categories of hierarchical reproduction but more to the basic political system and the style of governance. An understanding of morality in the specific sense of socially embedded self-development asks for a maximum of formal freedom for everybody. This notion implies specifically democracy and division of power (with respect to the political system), right of free speech, free assembly and personal, i.e. unmonitored, communication (with respect to basic civil rights) and transparency of public institutions (with respect to the style of governance).

The role of work as a component of welfare is quite different from its traditional welfare economic notions, where it is mostly conceptualized as nothing but plight. If we interpret the possibility to participate successfully on the labor market as a modern form of generating productive, goal-oriented cooperation, work is inherently different from plight since it offers the opportunity to contribute. From this perspective some classic aims in economic policy like full employment or the right of free entrepreneurship may be deduced from an evolutionary conception of economic welfare. Additionally, this perspective enriches our understanding of the capitalist dichotomy between capital and labor and indicates that the often involved equivalency of this relationship to that of employers and employees is misleading. From an evolutionary perspective the ordinary worker has much more in common with the Schumpeterian entrepreneur than the latter with the transnational corporation or the global investment bank, since both try to actually produce something as a means of fulfilling, materializing oneself. The logic of profit allegedly underlying capital formations thereby stands in contrast to both of these types no matter whether they produce novel or common results. This perspective on labor is politically timely since it perfectly fits with the power relations in financial capitalism as underlined in the seminal article by Rothschild (2005). In essence Rothschild argues that in the world of the ’old‘ European welfare states of the 1960s and early 1970s capital was constrained in a way that put entrepreneurs and capitalists on one side of the table. With the rise of neoliberalism these relations changed and capital, in the form of transnational industrial or financial corporations, significantly gained in societal influence, i.e. power.

Figure 1

ST = State; BS = Business Sector; LF = Labor Force

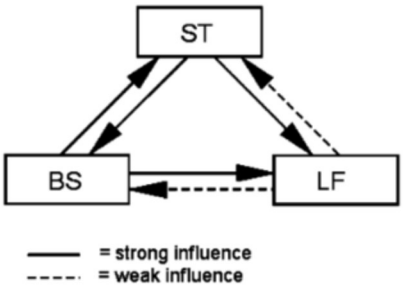

Figure 2

ST = State; TC = Transnational Companies; SB = Small Businesses; LF = Labor Force

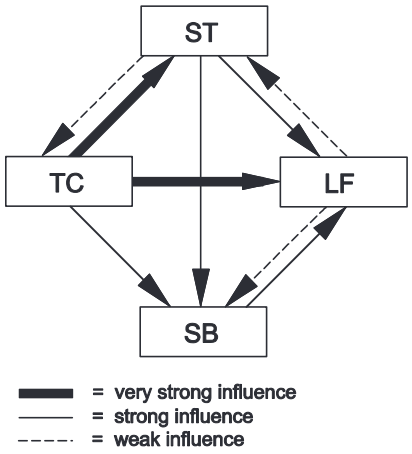

Figure 2: Power Relations in in European capitalism after World War II (taken from Rothschild 2005)

In sum we arrive at a conception of economic conflict, which resembles arguments from the 19th century more strongly than current ones. However, the changes in the global political economy in the last thirty years gives credibility to Rothschild's argument (compare also Hilferding 1910) which in turn allows for emphasizing the timelines of an evolutionary understanding of work (Hanappi 2013) in welfare economics as well as, more generally, in economic policy.

On the level of fitness we address mainly material properties: consumption, materially supporting one's own family, affording mobility. This pattern is no coincidence since a focus on selection conceptually implies a focus on material needs. However, first these needs are socially and culturally contextualized and, thus, do not only address issues of economic equality but also some specific personal rights, such as the right for birth prevention (as well as the corresponding right to have children, and so on). In this respect these dimensions of welfare raise attention with respect to lower and upper limits of material comfort: The lower bound is thereby constituted by a state of deprivation in this very foundational sphere of material needs, while the upper bound is constituted by the fact that social discrepancies do often decrease effectively perceived welfare. This last point does not only follow from evolutionary consumption theory, but is also in line with empirical results acquired in social and medical sciences (Wilkinson and Pickett 2011).

With regard to individual health we understand the possibility of illnesses or injuries as a kind of social risk, where a certain proportion of the population is affected by a specific illness, injury or handicap. Of course, the distribution of these risks is not completely random: smokers have a higher risk of getting cancer, blue-collar workers have a higher risk of getting injured and so on. However, even among these sub-populations distribution of illnesses and injuries are far from deterministic – they remain social risks in the above sense, even if the exact proportion of affected people may differ across the population. From this perspective a kind of social insurance indeed seems to be an adequate tool to deal with these kind of social risks – since the conception of insurance basically relies on the pooling of (mostly small) risks in order to distribute the costs associated with these risks evenly across the population. From a more analytical perspective the strategy of insuring transforms individually highly destructive uncertainties into socially digestible risks. Thereby it generally increases well-being not only by minimizing those cases, where the absence of bodily or mental health leads to significant deprivation of single agents, but also by providing a psychological safe-belt against the existential fear of becoming of those cases.

While in the case of individual health society plays an important role by providing a population with whom to pool one's individual uncertainties and transform them into manageable risks, a perspective of *social embeddedness* of individuals puts 'society' at center stage. In this context the

opportunity to participate is a central element. It implies democracy in the sense of political inclusion, full employment and income equality in the sense of economic inclusion and the opportunity to take part at social events and practices of whatever form in the sense of social inclusion. The latter element suggests taking a close look on the processes, routines and institutions related to social exclusion and discrimination of individual agents. Exclusion thereby may be triggered via political means (e.g. citizenship law), economic means (e.g. working poor, i.e. people are employed but still cannot afford to take part in social activities due to lack of monetary resources) or social means, but eventually always relates to the question of whether individuals may or may not take part in societal activities.

Finally, the concept of preserving the world, that is creating a sustainable environment, further complicates these implicit and explicit demands for intragenerational equality by an additional postulate for promoting intergenerational equality. While a consumerist and self-centered lifestyle in combination with the absence of own children might supply justifications for ignoring the complications arising from this postulate, it is the question whether these criteria really apply to a broad range of people. However, the human capabilities of empathy and reflection necessarily lead us to the question whether our way of life sustains our environment in the long-run. These abilities also improve our evolutionary fitness, since detecting sources of familial, social or economic instability in advance allows for resolving the underlying conflicts or problems in time. In sum our conception of evolutionary welfare suggests to take these abilities for serious – although they often do not immediately concern the people living in economically advanced countries. In economically less fortunate regions, however, social and economic conflicts immediately affect ecological dimensions, which are of direct importance to the daily life of average people (i.e. the role of natural habitats for fulfilling basic biological needs, the role of land-distribution and –acquisition, the role of soil-policy etc. Wissen 2009). Therefore, in these regions conceptualizing ecological sustainability as a pillar of welfare would seem much less abstract and theoretical as it might seem to some of our WEIRD[6] contemporaries.

5. The Power of MaxiMin

In this chapter we ask the question whether our conception of evolutionary welfare has any implications in terms of decision rules and heuristics applicable to problems of economic or social policy. Given the basic properties of the suggested dimensions of evolutionary welfare, namely *non-linearity, non-independence and non-substituability*, we found that the traditional economic rationale of optimization is simply inapplicable. In this context it seems sensible to replace the inadequate concept of optimization with the concept of satisficing choices, which basically claims that (stable) choices are not necessarily optimal, but rather a combination of 'satisfying' and 'sufficing' (Simon 1987, March 1991, Winter 2000). Projecting this idea on the realm of economic welfare we again obtain the idea of minimum standards in the sense of minimal, individual or collective aspiration levels with regard to different dimensions of a certain product or social state. While Kapeller et al. (2013) apply this basic idea that a mindful choice tries to satisfy qualitatively different needs or wants up to certain minimal degree to consumption goods, this article suggest to apply the very same idea to different social states and their properties in terms of economic welfare.

One possible operationalization of the idea of a minimum level of collective aspiration with regard to every dimension of economic welfare has already been suggested implicitly, namely the postulate to counter deprivation within these dimensions. The absence of deprivation within a certain dimension could serve as a possible minimum aspiration level. While this suggestions still leaves ample room for debates with regard to adequately measuring and theorizing such kind of deprivation the relative

[6] The acronym WEIRD stands for „Western, Educated, Industrialized, Rich and Democratic" and the relevant population is, quantitatively speaking, to be considered as „a truly unusual group" (Henrich et al. 2010, 3).

degree of arbitrariness is much smaller than in the more general quest to find an all-encompassing indicator for economic or, more generally, social welfare.

Already Herbert Simon noticed that there is inherent parallel between his idea of satisficing preferences in the sense outlined above and the 'MaxiMin'-decision-rule. In short, this simple game-theoretical rule suggests that in a state of uncertainty one should compare the relevant options and the possible outcomes related to a given situation and choose the option where the worst of all possible outcomes ranks best. The MaxiMin rule also implies that given intergenerational welfare questions we may follow a *pre-cautionary principle* for policy conduction (Gollier et al. 2000). Such a decision rule is indeed quite consistent with the idea of satisficing in general and the more specific concept of minimal aspiration levels in particular, since this rule technically minimizes the probability of a violation of these minimum requirements. Thus, from a perspective of evolutionary welfare as suggested in this article the concept of MaxiMin serves as an appropriate procedural rule for conducting economic policy. In this context we envisage two primary roles for the MaxiMin-rule in evolutionary welfare economics. First, this rule serves as a means for hierarchizing political demands, second the MaxiMin-rule serves as a guide for more fundamental political decision under uncertainty with far-reaching consequences.

With regard to the first point it is tempting to note that, any kind of non-omniscient social planner is always potentially affected by the unanticipated consequences generally associated with social intervention and implied by the assumption of non-independent dimensions of welfare[7]. The MaxiMin-rule provides a procedural rule for timing and balancing of policies with respect to these unanticipated consequences. Specifically, the MaxiMin-rule implies to ask which dimension exhibits the greatest degree of deprivation, i.e. the strongest violation of some minimal criterion. While this question points at a valid starting point for political action in terms of relative importance, 'unanticipated consequences' are addressed by a second question, which is to ask for the possible consequences of such an action for other dimensions of welfare. This question serves as a *'check and balance'* instrument ensuring that we anticipate possible adverse consequences of a given political action at least. In sum this results in a procedural rule for economic and social policy consistent within our evolutionary welfare framework; taking the following form:

1. Choose and address the relatively most important dimension through transparent criteria (e.g. the degree of absolute or relative deprivation).
2. Design an institution with the capability to address the underlying problems.
3. Check the implications of these institutions for the other dimensions of evolutionary welfare.
4. If the decisions in (3) are uncertain, employ the MaxiMin-rule for evaluating competing proposals.
5. Implement according to (4) and restart procedure at (1).

With regard to the second point – answering fundamental questions with far-reaching, long-term consequences under uncertainty – we suggest to employ the MaxiMin-rule as a decision heuristics, since this approach features results which are compatible to an understanding of economic welfare as the ability to satisfy minimal aspiration levels within a variety of non-substitutable dimensions of individual and social welfare.

An illustrative example is given by the ecological economist Robert Costanza in an early programmatic article (Costanza 1989) on the field of ecological economics. Costanza (1989) basically argues that, while the future development of the relation between nature, society and technology is

[7] In other words: Because of non-independency a social planner cannot isolate a *single* welfare dimension, but has to expect interactions with other dimensions of economic welfare. From a perspective of political economy this constellation is the main reason why political action can never exclude the possibility of unanticipated consequences.

rather uncertain, the relevant decisions for a process-oriented institutional design are made today. Thus, he posits that the question of an active environmental policy is decided in the face of uncertainty and advances following scheme (compare Table 2), to compare competing theoretical propositions and political scenarios, which lead to quite different societal outcomes.

		real state of the world	
		optimists right	pessimists right
current policy	technological optimist policy	*high*	*disaster*
	technological pessimist policy	*moderate*	*tolerable*

Table 2: Decisions under Uncertainty I: The case of environmental policy
Source: Costanza (1989, p. 4) – *"Payoff matrix for technological optimism vs. pessimism"*

Based on this rough analysis Costanza suggests applying a MaxiMin-rule by opting for a technologically pessimistic policy by arguing that a catastrophic state has to be avoided in any case:

> Within the framework of game theory, this simplified game has a fairly simple "optimal" strategy. If we *really* do not know the state of the world then we should choose the policy that is the maximum of the minimum outcomes (i.e. the MaxiMin strategy in game theory jargon). In other words, we analyze each policy in turn, look for the worst thing (minimum) that could happen if we pursue that policy, and pick the policy with the largest (maximum) minimum. In the case stated above we should pursue the pessimist policy because the worst possible result under that policy ("Tolerable") is a preferable outcome to the worst outcome under the optimist policy ("Disaster").
>
> Costanza (1989, p. 4)

Costanza (1989) highlights explicitly the significance of *'uncertainty about limits'* with regards to the issue of sustainability, but we may take the principle of MaxiMin to a broader scope of evolutionary welfare, where all dimensions are bounded by uncertain limits. Another simple payoff matrix can get drawn on behalf of inequality as Table 3 illustrates for instance.

		real state of the world	
		optimists right	pessimists right
current policy	political actors do not confront inequality	*efficient labor markets – high economic growth*	*Economic crises and social destabilization*
	political actors confront inequality	*Inefficient labor markets*	*greater "effective demand" – economic growth*

Table 3: Decisions under Uncertainty II: The case of inequality

Again, we may argue within a very simple heuristic frame that the upper right case leads us to the worst payoff, in the case of environmental change (Table 2) as well as in the relationship between active labor market policies and social inequality (Table 3). Optimism or pessimism is here related to the confidence whether (in)stability of society is driven by socioeconomic inequality (income, wealth, education,…) or not. Similar heuristic arguments can be composed with regard to other central economic questions of our time. For example, two main, but contested, explanations for The two tables give illustrative arguments for a heuristics-based policy design. First, we assume some kind of unquantifiable uncertainty with regard to the real empirical relationships – that is, uncertainty relating to the underlying economic mechanisms. Second, we compare the expected policy results as dependent on the political strategy (vertically) as well as the actual working of the economy (horizontally). Third, we apply a strategy of MaxiMin to avoid the worst possible results in an uncertain context. We have shown in this paper that the several dimensions of evolutionary welfare may well be incommensurable in terms of Pareto-improvements, but we may confidently argue that

the dimensions are interdependent in non-linear and multi-causal terms. That is why we are in need of complementary policies in search for a safisficing concept of evolving welfare. If we bring in the notion of the great recession, it is totally clear that deregulation of financial markets led to rising social inequality at the end of the day. Table 4 shall briefly illustrate the prospects and pitfalls of policies on the financial markets.

		real state of the world	
		optimists right	pessimists right
current policy	laissez-faire regulation of financial markets	*efficient allocation of capital*	*successive financial and economic crises*
	strong regulation of financial markets	*inefficient allocation of capital*	*efficient allocation of capital*

Table 4: Decisions under Uncertainty III: The case of financial markets

We are confronted with a multitude of interconnected crises today stacking up in unpredictable cumulative effects. This circumstance demands a variety of big decisions under uncertainty and in this case the evolutionary policy maker may follow our basic heuristic concept emphasizing the pay-offs in the lower rows. A few scholars have recently anticipated this 'Matryoshka organization' of crises (Antal and van den Bergh 2013, Foxon 2013, Geels 2013, Witt 2013) and refer also explicitly to heuristic mutli-level policy concepts as stimuli for welfare, as we suggest. The principle of MaxiMin delivers a very promising heuristic tool to program our future in meaningful and collaborative terms.

6. Conclusions

In this research paper we have developed a concise concept of evolutionary welfare that integrates recent trends and goes beyond them with a clear synthetic evolutionary vision. Central to this concern is the lack of integration among several non-linear, non-independent and non-substitutable dimensions of welfare. A simple hedonistic, utility-focused approach to welfare does not account for the multitude of contemporary global political challenges, which currently seem to undermine welfare on several scales. In this respect we refer to two main drivers of evolution, i.e. power and inequality, and build a concept of evolutionary welfare around them. The welfare environment is shaped by nine significant welfare dimensions, categorized by their associations to the self, the collective action with others and the interaction with the world, themselves integrated via the three evolutionary mechanisms of selection, mutation and retention. Our approach highlights the necessity of evolutionary welfare conceptualization beyond the thematic frames of cooperation, altruism and reciprocity, to avoid the 'Hayekian trap'. We highlight the spatial and temporal characteristics of welfare and address them in a process-oriented point of view. In terms of policy implications we give actual examples in all dimensions and argue for a complex modularization. Finally we suggest integrating the knowledge of organizational studies in the realm of decision heuristics and learning in complex evolving environments to arrive at simple decision rules and heuristics for the evolutionary policy maker. This point is made explicit with an elaboration of the MaxiMin principle in some basic contemporary policy challenges.

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