



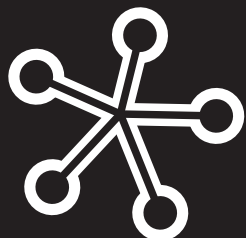
UNIVERSITY OF AMSTERDAM



# **“Gone Fishing”**

## **Modeling Diversity in Work Ethics**

*Annette Freyberg-Inan and Rüya Gökhan Koçer*



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# **“Gone Fishing”:**

## **Modeling Diversity in Work Ethics**

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# Abstract

In his “Anecdote Concerning the Lowering of Productivity”, written in 1963, the West-German writer Heinrich Böll humorously contrasts the mindset of an enterprising capitalist, bent on the maximization of profit, with that of a person we might call a profit “satisficer,” a maximizer of leisure or happiness, or, less politely, a bum. The anecdote is suggestive, as it leaves the reader wondering whose behavior is in fact rational, or whether we observe here a clash of two rationalities supported by different economic cultures and (un)explained by different theories of economic behavior. Motivated by the question whose behavior makes which sort of sense, we present in this paper a system of utility functions that captures both logics of action simultaneously using purely rational choice based reasoning. The three formulas are integrated into a single and simple dynamic equations system which allows us to identify key factors in the generation of utilities explaining the real-life diversity of work-leisure decisionmaking, in particular the impact of occupational dynamics, personality characteristics, and government intervention. The model sheds considerable light on the familiar yet under-investigated phenomenon of widely varying levels of what Böll calls “Arbeitsmoral,” is interestingly rendered in the English translation as “productivity,”<sup>1</sup> and what has rarely been acknowledged for what it is: differences in choices on work-leisure trade-offs and economic lifestyles that pose an important challenge to mainstream microeconomic, welfare state, and development theory.

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1 Arbeitsmoral literally means “work ethic.”





“From men the source of life is hidden well.

Else you would lightly work enough today

To keep you a year while you lounged at play.”

Hesiod in *Works and Days*, quoted in George P. Brockway (1995:88)

# 1. The Story

Böll’s story is set on the south-west coast of Europe, in an area which, in 1963, was perhaps comparable to today’s rural Greece or Turkey, market economies, to be sure, but neither highly competitive nor productive, more akin to developing nations in many respects than to the by then highly industrialized economies of the United States, UK, or Germany.

A German tourist has traveled to this place and is admiring the picturesque scenery on the seaside when he discovers a fisherman, shabbily dressed, dozing in his boat. Having been told that the weather on this day is ideal for fishing, the tourist politely inquires why the fisherman is not taking advantage of the opportunity. “Because I was already out this morning” is the answer.<sup>2</sup> The fisherman further confirms that it is indeed a great day for fishing: “It was so good that I don’t need to go out again [...]. I even have enough for tomorrow and the day after.”

The tourist is struck by the apparent naïveté of the fisherman’s reasoning and sets out to advise the man on a more productive course of action: “Imagine,’ [he begins], ‘if you were to go out a second, a third, maybe even a fourth time today, [...] go out not only today but tomorrow, the day after tomorrow, indeed on every favorable day, two, three, maybe four times” and proceeds to explain how the fisherman could build up a thriving fishing empire rather than sitting as they are now and watching the “uncaught fish happily leaping around.” Enthusiastically, the tourist comes to the conclusion of his flight of fancy: “Then, without a care in the world, you could sit here in the harbor, doze in the sun - and look at the glorious sea.” The fisherman’s answer is clear: “But I am already doing that,” he compellingly disarms the tourist’s logic. “And so the thus enlightened tourist walked pensively away, for at one time he had believed that he too was working so as someday not to have to work any more, and no trace of pity for the shabbily dressed fisherman remained in him, only a little envy.”

<sup>2</sup> Direct quotations are taken from Böll 1986.



## 2. The Puzzle

This story can be meaningfully interpreted on at least three levels: as a clash between personality types; as a clash between economic cultures; and as a challenge for microeconomic theory. The last two levels are of immediate relevance for the fields of economic sociology and political economy, with which we are here engaged. From the perspective of these disciplines the oddity in this story, at first glance, would seem to be that the fisherman breaches basic assumptions of rational behavior used in mainstream economics: "During any specified period of time, the individual behaves so as to maximize the sum of all future utilities" (Samuelson 1937:156), and "more income with certainty should be preferred to less income with certainty" (Quirk&Saposnik 1962:140). The fisherman refrains from catching more fish under most suitable circumstances and thus appears to act irrationally by failing to maximize his money utility function (in fact this attitude is not very rare<sup>3</sup>).

At this point we may rashly decide that there is in fact no real puzzle here: The fisherman simply acts irrationally (and will likely have to pay the price in the near future). The tourist, who appears to have embraced the basic assumptions of mainstream economics, of course also warns the fisherman of the irrationality of forgoing income that is almost certain. However, at this point we encounter the true puzzle in our story: The tourist is apparently satisfied with the explanation provided by the fisherman for his behavior. In this manner, Böll's story cleverly suggests that the industrious German tourist and the lazy fisherman have ultimately more in common than one might think: At a fundamental level, they seem to share a rationality, a frame of reference by which to judge how well their own decisions contribute to their own goals.<sup>4</sup>

Our first aim in this article is to show that this common frame of reference can be formally expressed by the same utility function (more accurately, a trio of functions that capture the dynamic relationship between two different types of utility evaluations) and to reveal that both actors maximize this same function and are thus equally rational. For this purpose, we introduce one key assumption: We argue that Böll's logic differs from the practice common in mainstream economics of treating leisure like any kind of good (Osberg&Jenkins 2003, Fernandez et al. 2001, Seçkin 2001, Boadway 2000, Koskievic 1999, Hek 1998,

3 Camerer et al (1997, 2000) show that cab drivers in New York do have a similar attitude: "[cab]drivers tend to quit earlier on high wage days drive longer on low wage days". We think that the conceptualization of utility and the corresponding formal model that we develop in this paper can account for this 'real world' attitude of New York city cab drivers as well as that of the fisherman in Böll's story. However, our conceptualization and model can also answer a deeper question which may have real life implications : why does the tourist in Böll's story agree with the fisherman?

4 We employ a comprehensive notion of rationality not because we want to dispute the usefulness of bounded rationality perspectives (Simon 1947; Kahneman 2003; Jones 1999), but because we can get away with the simpler comprehensive notion in making our argument here.

Phlips 1978, Train&McFadden 1977, Musgrave 1973). That is because his story is not concerned with standard topics in mainstream economics, such as making money by investing assets, or spending money to purchase an optimal combination of goods. Rather, it is concerned with the ultimate purpose of economic activity, that is, with the utility of money, assets, and goods *beyond* the functions of investment, purchase, and consumption. The fact that the tourist is convinced by the fisherman's argument suggests that both protagonists subscribe to the idea that the ultimate challenge of economic activity is "choosing the course of action that promises the greatest balance of pleasure" (Jevons 1866:282). For both actors "goods and services - and the income that purchases them - are only intermediate goods, whereas satisfaction or happiness [is a] final good" (Lane 1992:3). The key that unlocks this final good, "the true goal of all other activities", for both actors appears to be "carefree leisure", whose nature as an ultimate value was already acknowledged by Aristotle (Arendt 1971:93).

For this reason, our model is based on the assumption, which will be further explicated in the next section, that carefree leisure is the ultimate purpose of economic activity. We argue that despite their cultural and occupational differences, the fisherman and the tourist both want to spend as many hours as possible in carefree leisure, thus making and spending money are means to (or useful for) accomplish(ing) this basic goal. However, they also have something else in common: They both need some kind of assurance, a degree of security, to be able to spend their leisure hours carefree rather than with anxiety about the future. They differ dramatically, however, with regards to *how much* of this security they need: The tourist needs the equivalent of a fishing empire before he can feel safe enough to allow himself long stretches of leisure, while the fisherman is comfortable with a few days of catch. This difference leads to two different modes of involvement in the economy: The tourist is a profit maximizer, the fisherman a profit satisficer. Our second aim in this article is to scrutinize the reasons for this difference in the magnitude of security desired by equally rational actors in order to illuminate the parameters which affect rational decisionmaking on the work-leisure trade-off.

We proceed as follows: Just below we elaborate and defend the basic assumptions of our model, which is designed to re-create and extrapolate the morale of Böll's story, we develop our theoretical arguments, and we embed them in the relevant literatures. We then build up our model in three stages: The first introduces a use utility component which models the logic of work-leisure trade-off decisionmaking in isolation from market forces. The second, introducing an exchange utility component, embeds this logic in the social context of a market. The third stage adds a temporal dynamic which sheds light on the difficulty of moving

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from profit maximizing to satisficing (and the risk of entering a third mode of “dissatisficing”). In this way we learn something about why many of us (just like the German tourist) envy the lives of those who don’t go out to fish when that is what they do for a living (or those who do go fishing when it’s not).

We then move on to discuss the implications of the model, with an emphasis on the question how government intervention can affect the parameters of work-leisure trade-off decisionmaking. This also helps us identify the factors which can allow our fisherman to subsist, in spite of the concerted efforts of development, labor market stimulation, and other policies supported by theories for which he is to be reformed or made extinct. Our discussion of political implications comes late in the paper, but the reader should bear with us: Our model provides the analytical context on whose specification the persuasiveness of our practical conclusions depends.

In sum, this article makes three main contributions: 1.) We use the tools of mainstream economics to show that a large variation in work-leisure trade-off decisionmaking, including behavior which seems irrational from the mainstream point of view, is formally expressible in the same rational choice terms; 2.) we establish a model with diagnostic value for showing where and how political intervention can impact on the choices individual actors make regarding their time division between work and leisure; and 3.) we show how the modes of profit maximizing and satisficing evolve over time within the parameters of our model, how dissatisficing can easily emerge, and how the hopes that motivate profit maximizing may never be realized.



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## 3. Theoretical Framework

The basic tension in Böll’s story results from two twists. Initially, two individuals evaluate the best course of action under identical external conditions and make contradictory choices about the merits and timing of leisure, but then, without any change in the external conditions, they agree on the same best course of action, that is, leisure should be prioritized as much as possible. The implicit moral of the story can be derived by explaining these twists in the choices of the protagonists.

### 3.1. Conceptualization of Utility in Mainstream Economics

The main instrument that is used in economics for analyzing and making sense of choices, regardless of whether they concern trade-offs between work and leisure or any other values, is the idea of utility. Decisions are considered to be made on the basis of subjectively measurable entities called utilities, which are attributed to different choices in various magnitudes in accordance with the degree to which they supposedly satisfy individual decisionmakers. In this way any choice can be conceived as an ultimate outcome of a simple operation of sorting in accordance with magnitudes, and so long as the relative valuations of preferences are revealed it is not necessary to know the absolute magnitude of the utilities attributed to these preferences (Robbins 1932:87-8). This conceptualization of utility as a real value function “measuring an individual’s preference ratings” can be traced back to Bernoulli’s moral expectation idea (Herstein&Milnor 1953).

The underlying assumption is that each individual is permanently occupied with maximizing a latent function, and all decisions ideally can be interpreted in terms of this act of maximizing. Obviously, the basic challenge regarding such latent functions is that the way in which they attribute utilities to different courses of action is subjective (Hicks 1934:54), and in order to arrive at the measurement of utility from revealed preferences one should place the individual under ideal circumstances when his behavior “would render open to unambiguous inference the form of the function which is he is conceived of maximizing” (Samuelson 1937:155). However, to make interpersonal comparisons between these individualized functions which assign subjective utilities to a given set of preferences is an elusive task (Harsanyi 1955:317-8).

Two additional mental constructions were necessary in mainstream economics to overcome this challenge.

The first of these moves is to make assumptions about individuals' preferences, that is, to construct some ideal-typical features of preferences and then "derive the functional forms of the utility functions satisfying these assumptions" (Keeney 1974:22). This move is based on the idea that "without knowing the form of the utility function itself we can state some of the relationships that must be captured by the utility function" (Samuelson 1937:157), which implicitly assumes that the utility concept makes sense as long as there is a universally valid core which applies to all individuals despite the subjectivity of their utility evaluations.

Besides assuming the completeness and independence of the preference set, several crucial assumptions in the literature hint at a universal core of utility evaluation. For example, defining a common goal for all individuals proved to be facilitating the handling of the utility concept, and this step was explicitly articulated in Neumann and Morgenstein's (1944:8) seminal work on utility: The aim of all participants in the economic system is defined "as money or equivalently a single monetary commodity" (see also Robbins 1932:82-3). After the idea of utility was linked to money, some classical assumptions were fitted into the general theory of utility: From the perspective of wage earners or entrepreneurs "more income with certainty should be preferred to less income with certainty" (Quirk&Saposnik 1962:140), and from the perspective of customers "any purchase" is to be made in such a way as to deliver "a maximum utility for the money spent," implying the maximization of the quantity and/or quality of purchased goods (Afriat 1967:67). Once such a universalist core is assumed for all utility functions, then one can also argue that prior to any particular choice all individuals are at an equilibrium point where their utility function is at its maximum under the given constraints of earnings and available purchasing opportunities. Thus any choice should be made on the basis of whether its marginal effect on utility maintains this equilibrium.

This step brings us to the second mental construction which was devised in order to overcome the difficulty of identifying the latent nature of utility evaluations: the marginal utility function as formulated by Pareto and Edgeworth (Lange 1934:218-9). This function marks the rate of change in utility as a result of a unit change in a given factor or, more accurately, it informs us about the "marginal rate of substitution between any two goods" (Hicks 1934:55-6). It is claimed that with the invention of the marginal utility idea Pareto "rendered numerical utility inessential" and "brought relief to the discomfort of having to assume a measurable utility, the measurability of which was held in doubt" (Afriat 1967:68). In fact it is commonly argued that "the [only] utility which is uniquely measurable is the marginal utility" (Samuelson 1937:155).



Marginal utility analysis is based on the idea that instead of using numerical expressions of utility, we should make inferences to the soundness of various choices on the basis of indifference curves generated by decision points which are identical in terms of their marginal effect on utility. In fact the convenience of this conceptualization leads to the assumption that “utilities are of non-numerical character,” and indifference curve analysis is a way to describe this non-numerical but variable entity in mathematical terms (Neumann&Morgenstein 1964:16).

In short, the utility analysis prevailing in mainstream economics is based on the assumption that there is a latent and money-based function that is always maximized, which in turn leads to the convention that this function should at any given moment be in a state of equilibrium (at the maximum value under given circumstances) and individuals would “not move, for, in the circumstances postulated, any other point would be less preferred” (Robbins 1932:128). Then we can formulate another function, which is the derivative of the latent one, that acts as its “watch dog which precludes all utility under it and sustains all utility above it” and ensures “the relevance of the economic use at a margin for a whole” (Leen 1992:4). Different dimensions of this construction have been extensively examined and improved (Quirk&Saposnik 1962, Pratt 1964, Afriat 1967, Keeney 1972, Dale&Lau 1975, Markowitz 1979, Apelbaum 1979, Cave&Christensen 1980, Machina 1982, Guilkey et al. 1983, Frank 1987), but its core remains a basic tool of mainstream economics (Klein 1998).

## 3.2. Work and Leisure in Mainstream Economics

Within this conceptualization of utility, which as will become clear we do not share, the trade-off between work and leisure is translated into a trade-off between consumption and leisure in which work is necessary for earning money, which in turn makes consumption possible. Individuals have various needs which can be satisfied with goods that can only be bought by money, and leisure is considered just one of these goods. But there is always a budget constraint which prevents individuals from purchasing all the goods (or quantities/qualities of goods), including leisure, they want (Osberg&Jenkins 2003, Fernandez et al. 2001, Seçkin 2001,Boadway 2000, Koskievic 1999, Hek 1998, Philips 1978, Train&McFadden 1977, Musgrave 1973). Thus, so long as an individual operates under a given budget constraint an increase in her consumption of one good (possibly leisure) is to be substituted by a decrease in consumption of another without any change in the overall utility. Thus one may envisage the individual to live on an indifference curve which is constructed by various goods combinations, each of which is of equal overall utility (Johnson 1913, Lange

1934:218, Georgescu-Roegen 1936:550-1). In order to enjoy combinations that are composed by more (in terms of quantity and/or quality) desired goods, thus to attain higher overall utility, it is necessary to shift from one indifference curve to another, and for this to happen individuals must lift their budget constraint upwards by earning more (Allen 1934:61). Consequently they must work harder.

This process of moving from one indifference curve to another by earning more money is expected to be kept in check, in classical economics, by the famous “law of diminishing marginal utility” (Robbins 1932:76). That is, utility generated by income would decline for each additional unit, and thus more income would gradually lose its appeal; upward shifts across indifference curves would generate less and less additional utility and become less attractive. However, recent research suggests that, if we take individuals’ subjective well-being as the measure of utility, then the law of diminishing marginal utility does not hold in practice (Di Tella&MacCulloch 2006). This is due to the fact that individuals usually feel at any point in time that they are better-off than in the past in terms of their well-being and think that they will be even better off in future. However, their level of subjective well-being always remains approximately at the same level (Easterlin 2004, 1974). The reason for this apparent incongruence are the upward shifts in aspiration which closely follow increases in income. This leads individuals to evaluate their past well-being (when they actually had lower aspirations) in terms of their current (and higher) aspirations but on the basis of their actual past income which would not have allowed them to attain the (higher) aspirations they can currently afford. This leads to the illusion that they are better-off now than in the past. They evaluate the future, on the other hand, in terms of their current aspirations but on the basis of the higher income which they expect to earn in future, and consequently they expect to attain more of their aspirations as they earn more and to feel better in future than now. Instead, what happens is that they shift their aspirations upwards together with their income and their well-being remains the same, but the illusion is re-enacted because they will again think that they always had their new current aspirations (Easterlin 2001:473, Frey&Stutzer 2002:415). This suggests that individuals’ utility functions may be permanently changing yet the current function always feels like a constant. Consequently the classical theory in practice is not constrained by diminishing marginal returns. It always promises higher utility for more income, thus allocating more time for work appears rational. In the process, less time for leisure will be felt to be substituted by more of some other good that additional money can buy. In this way not only is utility maximization based on maximization of money, but also the notion of leisure is smoothly incorporated into the utility framework.

Now we have come to the point where we can easily comprehend the puzzlement of the German tourist when he encounters the fisherman. The tourist initially sees leisure like any other good. In order to purchase more of it, or more of any combination of goods one of which is leisure, he thinks he must shift his indifference curve upwards by making more purchasing power available. This of course is only possible if he works more. Thus he is puzzled by the attitude of the fisherman, who contradicts the assumption that more income with certainty (which would definitely enable him to shift his indifference curve) is preferable to less income with certainty. This suggests that the latent utility function of the fisherman is no longer at equilibrium but instead falls to a suboptimal point. This probably alarms the German tourist about the health of the fisherman’s marginal utility function, which is supposed to act as a watchdog of utility maximization. This line of reasoning is essentially based on the assumption of the tourist – clearly a mainstream economist at this point - about the nature of leisure.

In fact, as mentioned above, if one treats leisure as a good, then as more time is devoted to work and more purchasing power is attained one feels like compensating the reduced ‘consumption’ of leisure with more ‘consumption’ of something else, say an expensive gadget. In this way the trade-off between leisure and work is obscured by a pseudo trade-off between leisure-as-good and a gadget, and the decline in leisure is portrayed as a utility-neutral move on an indifference curve. However, a crucial point we want to advance here is that considering leisure as just another good which, like all goods, can be purchased by money, misses the distinctive characteristic of the leisure-and-money relationship. That is, different from all other goods, ‘purchasing leisure’ does not require spending an amount of money that is earned, but instead leisure is purchased by forgoing income. This peculiarity reveals that leisure is something other than just another good. We will come back to this point below.

For now, we see that the puzzlement of the German tourist is based on a simplification which fails to make sense given the fisherman’s relation with leisure. We should observe that within the classical conceptualization of utility and its practice which, we now know, is not tamed by declining marginal returns, the act of moving from one indifference curve to another so as to lift budget constraints appears as the ultimate goal of all economic activity; this seems possible only through maximization of money income, which in turn requires working more. As this happens the loss in leisure is justified as a rational act which does not affect the utility equilibrium since it is compensated by the rise in the consumption of some other good. However an important question is overlooked in this logic: What is the essential purpose of work? Do we really work for maximization of income?<sup>5</sup>

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5 Put most pointedly, do we live to work, or do we work to live?  
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### 3.3. Why Do We Work?

We can begin to seek an answer by examining the nature of the employment relationship. The basic tension in employment results from the interaction between two types of bargaining. The first is the bargaining for money that workers receive from employers in exchange for the time spent at work, wage bargaining. However, as soon as work commences employers control, and if possible increase, the amount and quality of work that is to be accomplished in a given time. This generates the second type of bargaining between workers and employers, effort bargaining (Hyman 1975:19-20, Bethoux et al. 2007:78). From the employers' perspective the second bargaining type should compensate concessions made in the first. However, for workers the first one counts, and any concessions in the second would essentially require them to devote more time to recovery at home, that is, their "replacement cost for labor" would increase and de facto more of their time would be taken up by work (Prasch 2005:443). In fact excessive invasion of the time outside work by work in this way is likely to terminate the employment relationship or trigger industrial action, suggesting that individuals strongly desire to retain some time truly free from work.

The reason for this desire can be found in the nature of basic human motivation. We know that some activities are supported by intrinsic motivation; that is, regardless of compensation individuals feel satisfaction from the activity, considering it an end in itself. On the other hand, some other activities require extrinsic motivation; that is, they are carried out because of a reward or in expectation of something other than the activity itself (Deci&Ryan 2000:237). An interesting observation about intrinsic motivation is that as those activities which are carried out for their own sake are materially compensated, individuals' intrinsic motivation for them declines (Deci 1971). This robust finding is still difficult for work theorists to accept (Gagne&Deci 2005:333), probably because it implies that, given that work is essentially carried out for rewards, it is (sooner or later) primarily driven by extrinsic motivation.

Thus people work so long as the interaction between wage and effort bargaining generates some extrinsic motivation in the form of rewards that allow them to live some truly work-free time, presumably for doing things for which they are intrinsically motivated.<sup>6</sup> Against this background, we may reformulate our question about the purpose of work: What is the source of this extrinsic motivation that makes us work, and how are we motivated to do some things intrinsically without expecting reward?

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6 Here it is useful to shortly reflect on the other important empirical finding of happiness research: Unemployed people report declining subjective well-being even if their income does not change (Frey&Slutzer 2002). This, as we show in the following pages, can be interpreted as people's permanent occupation with security which prevents them from acting out leisure in the present time. We expect this syndrome to be common in those individuals with low levels of courage (see below).

### 3.4. Labor, Work and Leisure in Ancient and Modern Worlds

Hanna Arendt offers an interesting perspective in *The Human Condition* (1958). She reminds us that what the modern world understands as ‘work’ was considered ‘labor’ in the ancient world. Labor had been defined as comprising all mandatory activities which make the continuity of life possible. These activities included feeding, reproduction, self-defense, and all related endeavors which allow us to meet these basic needs. In this sense, for example, selling manual or mental power in the market would be included in the large category of labor.

Arendt argues that the continuity of life is a default condition of existence, thus meeting this condition only brings individuals to the point of existence. Consequently, being involved in labor does not deserve an adjective; it is a neutral state of being alive, which must be maintained with as little investment of effort and time as possible. The ancient Greeks did not see anything to be proud of in simply being alive, and thus they did not see anything worthy of praise in actions that make this possible. Consequently labor was not glorified. In fact Arendt argues that this was the reason behind the slavery practiced in the ancient world: “The opinion that labor and work were despised in antiquity because only slaves were engaged in them is a prejudice of modern historians. The ancients reasoned the other way around and felt it necessary to possess slaves because of the slavish nature of all occupations that served the needs for the maintenance of life” (Arendt 1958:83).

Once *labor* is defined as the totality of all activities that help us to maintain our lives, then the definition of *work* becomes: all other things that people do voluntarily which are not vital for the continuity of life. It is the actions that are undertaken in this realm which were considered worthy of praise among the ancient Greeks. They were regarded necessary for the *good* life “which is no longer bound to the biological life process” (Arendt 1958:36). This understanding of ‘work’ then would not be the precondition for but rather the purpose of all other activities.

Obviously, the modern notion of ‘work’ is essentially the ancient notion of ‘labor’ and the modern notion of ‘leisure’ would optimistically approximate the ancient concept of ‘work’.<sup>7</sup> It should, however, be noted that the match is not perfect between these two pairs of modern and ancient concepts. This is because “the recreational activities that are necessary for restoration of the human labor force,” which are considered part of the realm of leisure in the modern world, “belonged, in the ancient mind, still to the state of being deprived of leisure” (Arendt 1971:93). However, as mentioned above, a residue of this

<sup>7</sup> For the sake of clarity of exposition we continue to use the word “work” in this text to refer to “labor” in the ancient Greek sense; we do not use the word “labor” in our model.

perception still persists in modern life in the form of resentment against excessive effort demands in employment relationships that increase the replacement cost of labor and thus require more recovery time at home, consequently reducing the time that is truly free from work. With this caveat in mind one can cite an observation by Aristotle to comprehend the meaning of labor in ancient Greece, and the purpose of work in the modern world, at least for our fisherman: “act out leisure which is the true goal of all other activities” (Arendt 1971:92).

Thus, one may argue that individuals work by extrinsic motivation, driven by rewards which would enable them to “sustain their biological life process,” but they live in order to “act out leisure” that remains truly free-from-work, thus allowing them to do things for which they are intrinsically motivated and which make them distinctive from animals. How can we re-establish the notion of utility on this basis?

### 3.5. Crusoe Economics and Social Exchange

We take our clue from the once hot debate of the ‘ideal - *ideal type*’ actor that should be used in economic models. The Austrian school of economics contended that “economists have to build a system like a house out of blocks” in order to comprehend the dynamics of the economy (Kauder 1934:413) and that the Robinson Crusoe Economy captured all features which are necessary as the building blocks of formal models: It presents “an economy of an isolated single person or otherwise organized under a single will. This economy is confronted with certain quantities and a number of wants which they may satisfy.” (Neumann&Morgenstein 1964:10, Kalder 1934: 123-9) Robinson, to meet his wants, had to observe and act in response to natural conditions, and this, like anything else, he had to do in solitude. In fact he did not work in the modern sense but he labored in the ancient sense, for the sole purpose of his initial activities was survival, that is, to ensure the continuity of his life. As he understood the patterns of natural events on his island and began controlling some of the resources, he started to feel safe and reserved more time for work in the ancient sense and leisure in the modern sense, and he began to study theology,<sup>8</sup> as “to exploit his land beyond what he personally needs would be futile” (Novak 1963:483).

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8 There is a little known precursor to Daniel Defoe’s (1791) novel Robinson Crusoe: The story The Improvement of Human Reason Exhibited in the Life of Hai Ebn Yokdhan, written by Ibn Tufail probably in the 12th century, parallels the story of Robinson Crusoe and makes the point even more strongly that spirituality (“improvement”) emerges naturally in human beings when struggle for survival against either nature or in social context is not salient.

From the perspective of modern economists, these shifts in Robinson’s life did not count for much,<sup>9</sup> because their argument was that Robinson’s “maximization problem” was not dependent on the actions of a rational opponent (Tsebelis 1989:79, see also Nozick 1977:354-6). They argued that the existence of rational opponents who are also willing to use the same resources makes all the difference, and this social element in the real economy cannot be captured by Crusoe approximation regardless of its level of sophistication. Thus, it was held, this ideal actor could not be used for building economic models or establishing utility functions (Neumann&Morgenstein 1964: 10-11).

We suggest that both the proponents and the opponents of Crusoe Economics were missing the point, as they were both uncovering a partial truth. Proponents were missing the inevitable social component in any economic activity which entails social exchange and strategy, but Social Exchange Economists were missing something deeper that has been captured by the ancient notion of labor, that is: Humans have something in common with animals resulting from being alive and this constitutes the very basic drive for their economic activity. The urge to ensure the continuity of life is essentially experienced in the solitary mode, and only after this urge is satisfied individuals can “act out leisure”. Thus, any evaluation of human activity must account for this drive as well as for social interaction.

### 3.6. A New Conceptualization of Utility

Against this background, we argue that to formalize Böll’s story we must build a utility model in which the way in which individuals divide the day into work and leisure time is determined by the interaction between two distinct utility components, use utility and exchange utility, that is, an evaluation which is made in solitude (as Robinson Crusoe would to meet his life needs and reserve as much time as possible for his study of theology) and an evaluation which is made in relation with other actors, which requires us to adopt strategies in order to take some part of contested resources. Böll’s story introduces these two components by the (proposed) actions of two heroes, each of whom symbolizes one component. The fisherman symbolizes the use utility function (although he also has an exchange utility function), and the German tourist symbolizes the exchange utility function (although he also has a use utility function). We suggest that in fact

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9 Maximilian Novak, too, in his seminal work “Robinson Crusoe and Economic Utopia” downplays Robinson’s contemplations on religion as “loss of time in reading the Bible” (Novak 1963:479). Although Novak is aware of the danger of confusing work and labor, he commits the mistake himself by failing to realize that for Robinson reading the Bible, that is, studying theology in his own fashion, makes his life more than the persistence of biological life processes; thus reading the Bible is “Robinson’s work” in the ancient sense, while his other activities whose value depends on their utility for long-term sustenance of his life constitute “Robinson’s labor”. By reading the Bible and contemplating God, Robinson actually “acts out leisure” and distinguishes himself from other living creatures on his island.

the utility evaluations of both persons result from the interaction between use utility and exchange utility components within one and the same decisionmaking framework.

On the one hand, every creature is aware of the fact that it must work (hunt or graze) as a condition for remaining alive. The amount of work necessary for life is ideally determined in the solitary mode by every individual creature. Admittedly, in this determination the social intrudes in the forms of the degree of fear for life generated by other creatures and of perceived responsibility for others' lives besides one's own. Yet we argue that we should first account for the individualized "use value" of work for each individual, which becomes the first component of our system of utility functions. In making this argument we dismiss a regrettably large literature in economics which deals with leisure only as one of the possible goods that one may purchase and instead propose an understanding of leisure inspired by the ancient Greeks as that part of life that goes beyond merely the needs of staying alive, the part of life that makes us human.

Use utility is purely individualized, it cannot be exchanged with others; it has the sole purpose of keeping us alive and allowing us time to "act out leisure". Obviously, individuals do not always live on the edge; there are varying amounts of use utility that would ensure life. It is clear that seeking the necessities of life all day long is much less satisfying than using only a small part of the day for this purpose, but spending the entire day on leisure would endanger life as well. Thus every creature must optimize its use utility function in some individual way. The underlying principle for this function would be to reserve as much time as possible for "acting out" leisure. However, as will be explained further below, perceived needs and fear constrain the maximization of leisure in the solitary mode, creating large variety in individual utility calculations.

On the other hand, real human beings live and work in a social realm. Typically, in obtaining what we need to live we depend on others (a job, a paycheck), and we compete with others. Hence comes a tension: We decide how much we want to work in the "solitary" mode in accordance with our urge to live, our perceived needs, and our level of fear, but we perform this work in the "social" mode, which creates additional constraints and opportunities. For the sake of simplicity, we model the interactions and strategies of the social as contained by occupations; that is, occupations are channels through which one exchanges time with necessities of life. These occupations must produce utilities that are exchangeable – and these will become the second component of our utility system.

The rate of exchange of an occupation is not determined in the solitary realm, thus there is a potential basic contradiction in the relationship between the social and the solitary. The desired time for work is de-



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terminated in the latter, but this time allocation may be incompatible with the dynamics of the former. This generates three possible positions. *Dissatisfaction* occurs when time allocation between work and leisure is dictated by the social due to a low exchange value generating capacity of the occupation and contradicts the desired allocation generated in the solitary. Consequently one is dissatisfied because one works more than one wants and reserves less time for acting out leisure. *Profit maximization* takes place if one works more than the minimum amount dictated by the social, that is the amount implied by the occupation’s exchange utility rate. This leads to accumulation of some exchange utility, hence the maximization of profit rather than leisure. Notable here is that profit maximization makes sense only as a temporary state, i.e. only if it is accompanied by a dynamic element, that is a time dimension which incorporates a promise of eventually attaining the position of satisficing. Finally *satisficing* occurs when what is dictated by the social and what is derived from the solitary coincide. In this case one works and acts out leisure in the social in the way in which Robinson Crusoe does so on his island.

As we have suggested above, the existence of and the tension and interaction between use utility and exchange utility functions as two inevitable components of work-leisure utility evaluations can be derived elegantly and compellingly from five different dualities in the literature: the distinction between wage and effort bargaining in industrial relations; the distinction between intrinsic and extrinsic motivation as discussed in the work ethics literature; the distinction between work and labor as elaborated by Hanna Arendt; the distinction between Crusoe Economics and Social Exchange Economics as debated by 1950s economists; and the difference between use and exchange value as discussed by Marx. We have also presented a critique of the utility function literature in mainstream economics for ignoring basic questions of the purpose and ‘conditions’ of work and thus missing a crucial point about the meaning and operationalization of utility. Our contribution also connects with the literature on time allocation, as we agree with Juster and Stafford (1991: 480) that an important research challenge is to see whether the observed substantial “differences [in time allocation] across countries and over time can be explained by a common model of economic behavior [...]” We take from this literature the insight that “large qualitative changes in the lifetime pattern of time allocation” can result from “relatively small changes in some of the parameters” (Juster and Stafford 1991: 490), which suggests that those parameters are worth investigating. However, we are here *not* constructing a general model of time allocation but only allowing for time to be spent in either *market* work or leisure time (which does not include household production time).<sup>10</sup>

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10 The model can be adjusted to approximate a realistic time allocation model, but that is not our purpose here. We are not interested in empirically establishing how people divide their time, or how they should. See also Gronau 1977 and footnote 9.

We now move on to showing how our dual conceptualization of utility allows us to make sense of Böll's story in formal terms and reveals that both the German tourist and the fisherman can be shown to be not only equally rational but also to share the same latent (system of) utility functions as the basis for their choices on the work-leisure trade-off. Ultimately, this is why the tourist walks away from our story wistfully. The cognitive distance between him and the fisherman, which had to be bridged by their short dialogue, is much narrower than we might have first assumed.

## 4. The Model

### 4.1. Calculation in the “Solitary”: The Use Utility Component

It is clear from the story that our heroes need to work to be able to ‘enjoy’ their leisure, that is, accomplish their basic goal, without anxieties. This means that they do not experience leisure as a preparation for work (as employers would prefer) but as the ultimate purpose of working. Thus, having permanent leisure (due to anxieties that may result from lack of security) or permanent work (due to its very meaning) would have no “use value” for them. Formally this observation implies that both leisure and work must be part of the use utility function, but in such a way that complete absence of either of these elements should also nullify the entire expression. This suggests a multiplicative form rather than an additive one. For the sake of simplicity we may define this multiplicative form on the basis of hours of a day. If one has, for example,  $L$  hours reserved for leisure, then one would have  $24 - L$  hours devoted to work.<sup>11</sup>

Thus, the very basic structure of the use utility component should be  $U_{use} = L(24 - L)$ . However, this basic form is not sufficient because it should also be possible to attribute various degrees of weight to each of these elements (i.e. work and leisure) and this weighing should be conducted in such a way that it should be possible to make the entire expression completely leisure- or work-dominated by accommodating a zero-weight as a possibility for both elements, but this should not contradict the logic of multiplicative form, that is, it should not nullify the totality. This requires us to place the weights of leisure and work as powers. The problem, of course, is to find a rule to attach these ‘power’ weights appropriately. We know that weights of leisure and work must be linked because the more leisure is weighted the less should be the weight of work, and vice versa. This can be done, for the sake of simplicity, by an assumption of unity. Let the total importance equal unity and introduce the rule that leisure and work must share this unity. Then if  $\Omega$  is the importance of leisure, then  $1 - \Omega$  becomes that of work. This reasoning leads us to a Cobb-Douglas type of functional form:  $U_{use} = L^\Omega (24 - L)^{1-\Omega}$  which is relatively simple and tractable (see Bao-Hong 2008, Guilkey et al. 1983, Train&McFadden 1977:350).

11 As mentioned in the previous section, work actually takes more time of the day than the hours of working, due to the replacement cost of labor. Moreover, an adult person medically needs on average 7-8 hours of sleep each day (USDHHS 2005). Added to this must be household duties that can consume considerable time, especially of women. Thus in reality the day is of course not made up of 24 hours that can be distributed entirely between leisure and work. For theoretical purposes, however, our choice is justifiable. Given that what we understand by work is all those activities that make biological life possible, i.e. labor in ancient sense, sleep and household duties would all be “work” activities. From this perspective the day is really 24 hours divided only between “work” in the modern sense / “labor” in the ancient sense and “leisure that can be acted out”.

Now we need to incorporate another element from the story into this expression: security. It is clear from the story that our heroes do not enjoy 24 hours of carefree leisure because they want some level of security, though the magnitude of this desired security differs enormously between a fishing empire and a couple of kilograms of fish. Security must come from the accumulation of exchangeable utility generated by work in the “social” mode, thus it requires reserving time for working. Thus, the more one desires security the less should be the weight attached to leisure and thus the higher should be the weight of work, and this should generate an allocation which gives more hours of the day to work. Consequently our story implies that the total importance that equals unity must be distributed between work and leisure in accordance with the level of security one desires.

If  $S$  is the desired security, then the expression  $\Omega = \frac{\ln(1+S)}{S}$  generates the link that we seek. In this expression as security gets closer to zero (as in the case of our fisherman), the importance attached to leisure gets closer to unity and that of work gets closer to zero. More formally, as  $S$  approaches zero,  $\Omega$  approaches one, that is,  $\lim_{S \rightarrow 0} \Omega = 1$ , thus, naturally  $\lim_{S \rightarrow 0} (1 - \Omega) = 0$ . This ensures that the use utility function is dominated by leisure. Conversely, as security gets closer to infinity (as in the case of our German tourist), the importance attached to leisure gets closer to zero and that of work gets closer to one. In formal terms this means that as  $S$  approaches infinity,  $\Omega$  approaches zero, that is,  $\lim_{S \rightarrow \infty} \Omega = 0$  and consequently  $\lim_{S \rightarrow \infty} (1 - \Omega) = 1$ . This makes the use utility function work dominated.

Now if we incorporate this logic into our expression we obtain a more elaborate structure for the use utility, that is, we replace  $\Omega$  with  $\frac{\ln(1+S)}{S}$  and obtain  $U_{use} = L^{\left(\frac{\ln(1+S)}{S}\right)} (24 - L)^{\left(1 - \frac{\ln(1+S)}{S}\right)}$ . This expression gives more weight to work or leisure in accordance with the level of desired security. However, we still need to explore the concept of desired security.

We define this concept (in the sense we observe in the story) as the wish for protection from adversity that may result from lack of means to cover one’s needs. We argue that, from this perspective, one’s desired level of security is very much related to one’s level of fear. Consequently, a reasonable formal definition might be this: The desired level of security is the exchange value of one’s daily needs multiplied by one’s fear. Thus, those who fear more would desire more security. Then if fear is depicted as  $\xi$  and daily needs as  $d$ , then the desired level of security would be  $S = d\xi$ . With a small adjustment this formulation may be rendered more conducive to intuitive insights. If we acknowledge that courage is the inverse of fear we may define it formally as  $c = \frac{1}{\xi}$ . Then we obtain another expression for desired level of security:  $S = \frac{d}{c}$ ,

that is, one's desire for security declines as one's courage increases.<sup>12</sup> This expression allows us to present some convenient parameterizations.

Let us assume that the lowest level of courage is zero and the highest level is one. Then, by examining the extreme cases, we can dig deeper into the meaning of desired security. When one is very courageous one's courage gets closer to one, and consequently one's desired level of security gets closer to the exchange value of one's daily needs, that is,  $\lim_{c \rightarrow 1} S = \lim_{c \rightarrow 1} \frac{d}{c} = d$ . This would mean the extreme fisherman case, that is, working only to cover the expenses of a day. On the other hand, if one has a very low level of courage, this means that one's courage is quite close to zero; then the desired level of security would be very high, that is,  $\lim_{c \rightarrow 0} S = \lim_{c \rightarrow 0} \frac{d}{c} = \infty$ . This is the extreme German tourist case.

Obviously, if one has very high daily expenses, then the desired security may still be very high despite a high level of courage (the situation of a knight with a lavish lifestyle); and naturally the opposite situation, that is, having a very low level of courage and very low expenses (the situation of a petty state official), might generate the same outcome in terms of desired security. Moreover, the basic construction ensures that the minimum level of desired security for anyone is the amount of exchangeable utility required for covering the needs necessary for one day. Finally, if we allow daily expenses, that is  $d$ , to increase, then we can also incorporate the finding that people quite often increase their aspirations as their circumstances change for the better (Easterlin 2004). Thus, we argue that the parametric space  $(d, c)$  accommodates many possibilities that can match the variety of real life situations.

Now, if we insert this parametric space into our use utility component by replacing  $S$  with  $\frac{d}{c}$ ,

we obtain  $U_{use} = L^{\left(\frac{\ln(1+\frac{d}{c})}{\frac{d}{c}}\right)} (24-L)^{\left(1-\frac{\ln(1+\frac{d}{c})}{\frac{d}{c}}\right)}$ , and this can be conveniently reformulated as

$U_{use} = L^{\ln(1+\frac{d}{c})^{\frac{c}{d}}} (24-L)^{1-\ln(1+\frac{d}{c})^{\frac{c}{d}}}$  for the sake of creating the most explicit exposition.

One can show (see appendix 1) that the leisure value that maximizes this function is  $L_{\max} = 24 \left( \ln(1 + \frac{d}{c})^{\frac{c}{d}} \right)$  or the equivalent  $L_{\max} = 24 \left( \ln(1 + S)^{\frac{1}{S}} \right) = 24\Omega$ . Therefore it is clear that if leisure has more weight than work, that is  $\Omega$  is closer to 1 than  $1 - \Omega$ , then naturally a higher  $L_{\max}$  value would bring  $U_{use}$  to the maximum. But if the opposite is the case, then the  $L_{\max}$  value that brings  $U_{use}$  to the maximum would be smaller. Thus, maximization of  $U_{use}$  with respect to  $L$  would automatically generate the best division of the day

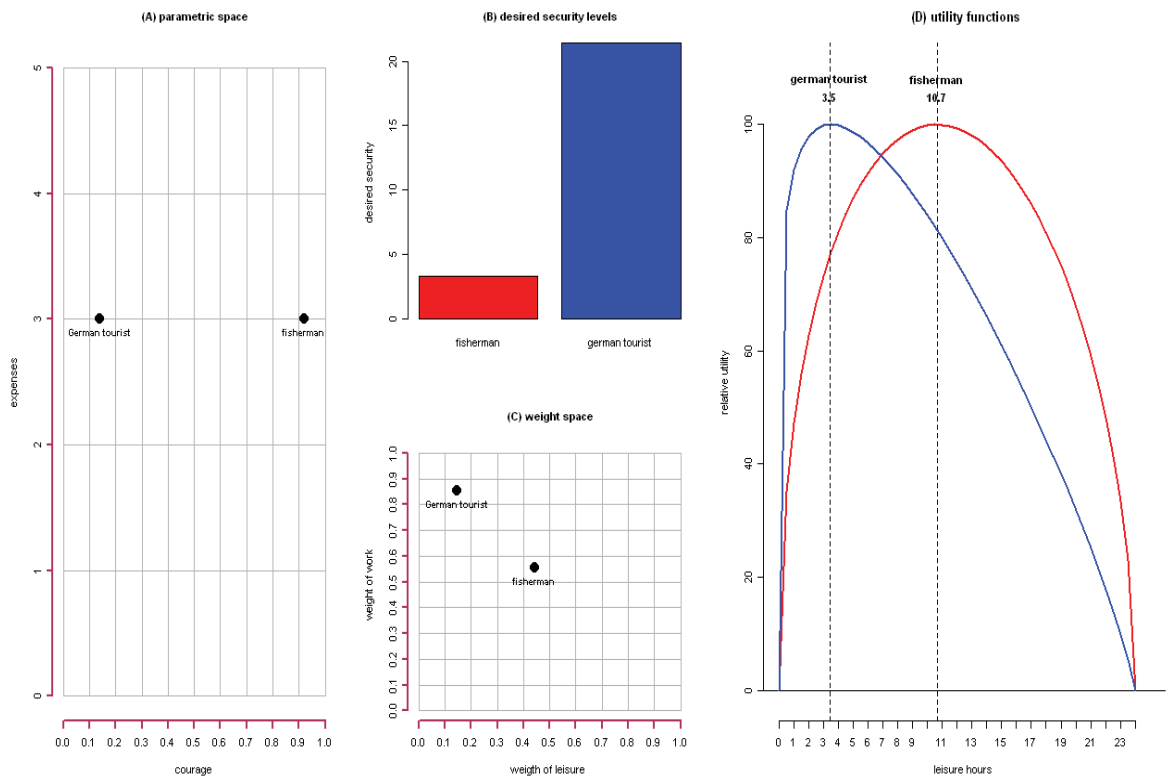
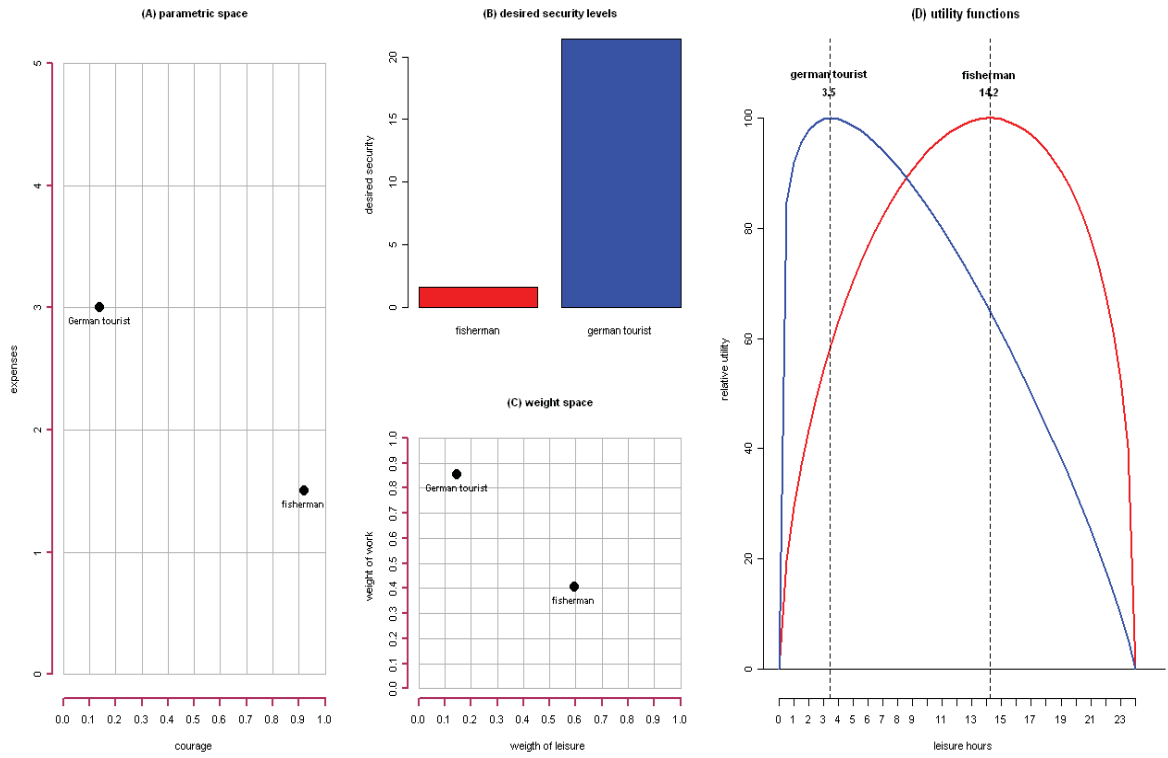
12 We are well-aware that the mainstream literature prefers the labels of risk-averseness or risk-acceptance to capture the notion of what we call varying levels of courage. We find the concept of courage superior as regards the criteria of "conceptual goodness" familiarity, resonance, parsimony, and depth and roughly on par with its rivals as regards coherence and differentiation (Gerring 1999). However, for purposes of our argument here, the concepts of courage and risk-acceptance can be considered equivalent.

into work and leisure for an individual in accordance with her desired level of security so as to maximize her use utility:  $L_{\max}$  for leisure and  $24 - L_{\max}$  for work.

In figure 1 we visually illustrate the way in which the use-utility function is generated. In the upper graph and in panel A we see the German tourist and the fisherman in the basic parametric space whose dimensions are courage and daily needs. From their locations in this space one can derive the level of security they desire as depicted in panel B. Obviously, the German tourist, who has less courage and more expenses, desires more security than the fisherman, who is not only more courageous but also more modest. In panel C we see our two heroes in the weight space. The locations here are derived from the desired security levels. Finally panel D reveals their use-utility functions generated by their locations in the weight space. One can see that the use utility function of the German tourist reaches its maximum at 3.5 hours of leisure but the fisherman's function has its maximum at approximately 14.5 hours of leisure.

In the lower graph of Figure 1 we equalize the daily expenses of the fisherman and the German tourist in order to see the extent to which the hours allocated for leisure change as courage remains the same but daily expenses increase. As one can see, under these circumstances, the fisherman's desire for security increases but his location in the weight space (panel C) is not radically transformed. In this case the use utility function derived from the new coordinates of the fisherman reaches its maximum at approximately 10.5 hours, less than the fisherman's function in the upper graph, but still substantially higher than the German tourist's maximizing value.

Figure 1: Use utility functions for two security levels



## 4.2. Operating in the “Social”: The Exchange Utility Component

Now we can move to the second component of our model: the exchange utility function that is to be derived from the dynamics in the “social” realm. Here individuals convert the hours they reserve for work into exchangeable utilities so as to attain the desired level of security. Obviously this entails social interaction whose dynamics cannot be controlled by any single individual.

We assume that individuals would (prefer to) divide the day between leisure and work in such a way that their use utility function would be maximized. Then, the number of hours reserved for leisure would be  $L_{\max} = 24 \left( \ln(1+S) \right)^{\frac{1}{S}}$  and consequently  $24 - L_{\max}$  hours would be devoted to work in order to ensure the desired level of security.

Obviously, how much one would earn from these hours of work depends on one’s occupation. There must be a rate of exchangeable utility that is generated by each occupation per hour, let us denote this with  $\Psi$  (and for now assume that it is constant), then we can define our exchange utility function as  $U_{exc} = \Psi(24 - L_{\max})$ . Therefore by reserving  $24 - L_{\max}$  hours to work in accordance with  $U_{use}$  one would produce exchangeable utility equivalent to  $U_{exc}$ . Of course, for this function (or amount) to make sense, one’s occupation must at least be capable of generating exchange utility which is sufficient to cover the needs of a day (Marx 1867; Webb 1912), that is,  $\Psi(24 - L_{\max}) \geq d$ . But this condition can also be read from the other direction:  $d \leq \Psi(24 - L_{\max})$ , namely, one should determine one’s daily needs in accordance with one’s occupation in order to be able to afford the division of the day between leisure and work in accordance with one’s use utility function.

However, for now, if we think that  $d$  is unalterable, then we can envisage a condition attached to the exchange utility component: One’s occupation should be capable of generating exchange utility compatible with one’s daily needs and courage, that is, the allocation of time implied by the use utility component. Formally this means that  $\Psi \geq \frac{d}{(24 - L_{\max})}$ . This is possible only if there exists an external authority which ensures that all occupations have hourly exchange rates that are compatible with each single individual’s daily needs and use utility based time allocations. A more somber proposition would be this: If one’s occupation is not compatible with the use utility based allocation of time, then a qualitative shift occurs in the relationship between  $U_{use}$  and  $U_{exc}$ : Instead of the situation where  $U_{use}$  determines the number of hours reserved for leisure as  $L_{\max} = 24 \left( \ln(1+S) \right)^{\frac{1}{S}}$  and work as  $24 - L_{\max}$ , we will have a situation in which the opposite relationship would be initiated, that is, the exchange utility component would determine how one’s day is to



be divided between work and leisure. One can show (see appendix 2) that in this situation at most  $\frac{24\Psi - d}{\Psi}$  hours would be reserved for leisure and at least  $24 - \frac{24\Psi - d}{\Psi}$  hours for work. Indeed this observation requires us to present a detailed comparison between these two entities, that is, the hours allocated to leisure by the use utility component,  $L_{\max} = 24 \left( \ln(1+S)^{\frac{1}{S}} \right)$ , and the maximum amount of leisure one can enjoy due to one’s occupation  $L_{exc} = \frac{24\Psi - d}{\Psi}$ . There are three possible situations:

First, if  $L_{\max} > L_{exc}$ , that is, the number of hours allocated to leisure by use-utility is *larger* than the maximum amount of leisure one can enjoy due to one’s occupation, then the exchange-utility based division of the day into leisure and work must prevail instead of the use utility based division (see appendix 3). This is because, unless there is another source from which one might cover one’s needs, one cannot live by reserving more hours to leisure than dictated by the exchange utility function. One might call this the situation of *dissatisfaction* (see appendix 4) due to negative enforcement of  $U_{exc}$ . In our story neither of our heroes appears to be in this situation, but the fear of finding himself there might be the prime motivation of the German tourist’s eagerness to work more. To be sure, this is rather a paradoxical reaction: working more in order to avoid being forced to work more.

Second, if  $L_{\max} < L_{exc}$ , that is, the number of hours allocated to leisure by use-utility is *smaller* than the maximum amount of leisure one can enjoy due to one’s occupation, then there would be some extra exchange utility generated by each hour of work. This is the situation of *profit maximization* in which one works more than necessary (i.e. more than the absolute minimum dictated by the exchange utility function) in order to attain the desired level of security. It is important to note that in this situation one is still maximizing one’s use-utility function, but this use-utility function allocates less hours to leisure than what is ‘socially’ possible due to one’s fear and expenses. Thus there is an intrinsic handicap in the use utility functions of individuals (such as the German tourist) who are in the profit maximization position given that the ultimate aim is always to have as many hours as possible for leisure. Profit maximization is an awkward position: On the one hand one desires a maximum amount of leisure, but, on the other hand, despite the fact that, thanks to one’s occupation, one can afford more leisure than one currently has, one cannot allow oneself to enjoy these extra hours of leisure due to what we here simply call fear. In fact, one may interpret the German tourist’s envy of the fisherman as his realization of this handicap. Of course, there is a more optimistic variant: It is possible to have an occupation whose  $\Psi$  is so high that it covers not only one’s daily needs but also one’s desired security in an instant. In this case, too, it would be  $U_{exc}$  which would be determining the

hours reserved for leisure instead of  $U_{use}$ . This may be seen as positive enforcement of  $U_{exc}$ ; however, as we show below, it seems probable only for individuals with high levels of courage.

Finally, if  $L_{max} = L_{exc}$ , that is, the number of hours allocated to leisure by use-utility, equals the maximum amount of leisure one can enjoy due to one's occupation, then one is in the situation of *satisficing*. This means that one works only sufficiently to cover the needs of a day and at the same time obtains maximum use-utility from this allocation. However, there might be some ambiguity and anxiety in this situation if one does not have a high level of courage. This is because it is possible that one desires a high level of security but does not have the capacity to accumulate this security because of one's occupation (one would expect such an individual to reduce her expenses so as to move to the position of profit maximization). Alternatively, one can be in the situation of *satisficing* without ambiguity and anxiety if one has a low level of desired security, due to high levels of courage and/or low levels of expenses. This is the situation of our fisherman.

Figure 2 explores all these contingencies. The upper graph is identical with the upper graph in Figure 1 except now in Panel D we see three occupations in the form of the maximum hours of leisure they dictate, that is,  $L_{exc} = \frac{24\Psi - d}{\Psi}$  values which are depicted as straight lines. In this picture, if we focus on the fisherman and assume that he has occupation 1 then he will be in the situation of dissatisfaction because, although his utility function is maximized at approximately 14.5 hours of leisure, occupation 1 would not allow him to enjoy leisure for more than 7 hours unless he has some other source to supplement his daily needs. If, on the other hand, he has occupation 2, then he will be in the situation of *satisficing* because the number of hours allocated to leisure by the use and exchange utility functions would be almost equal (see the correspondence between the straight line depicting occupation 2 and the dashed line indicating the maximizing leisure value for the use utility). Moreover, this would be *satisficing* without ambiguity and anxiety thanks to his low desire for security depicted in panel B. Finally, if the fisherman has occupation 3, then he will be in the situation of profit maximization because in this case, while his occupation would allow him to enjoy 18 hours of leisure, he would only use 14.5 hours of it and use the remaining time for extra work so as to attain his desired level of security. However, if we take the tranquility of the fisherman in our story into account we can suppose that the fishing near his home resembles occupation 2 and he is in the situation of *satisficing*. Now, if we look at the utility function of the German tourist, we can see that he is in the position of profit maximization with respect to all three occupations given in the upper graph.

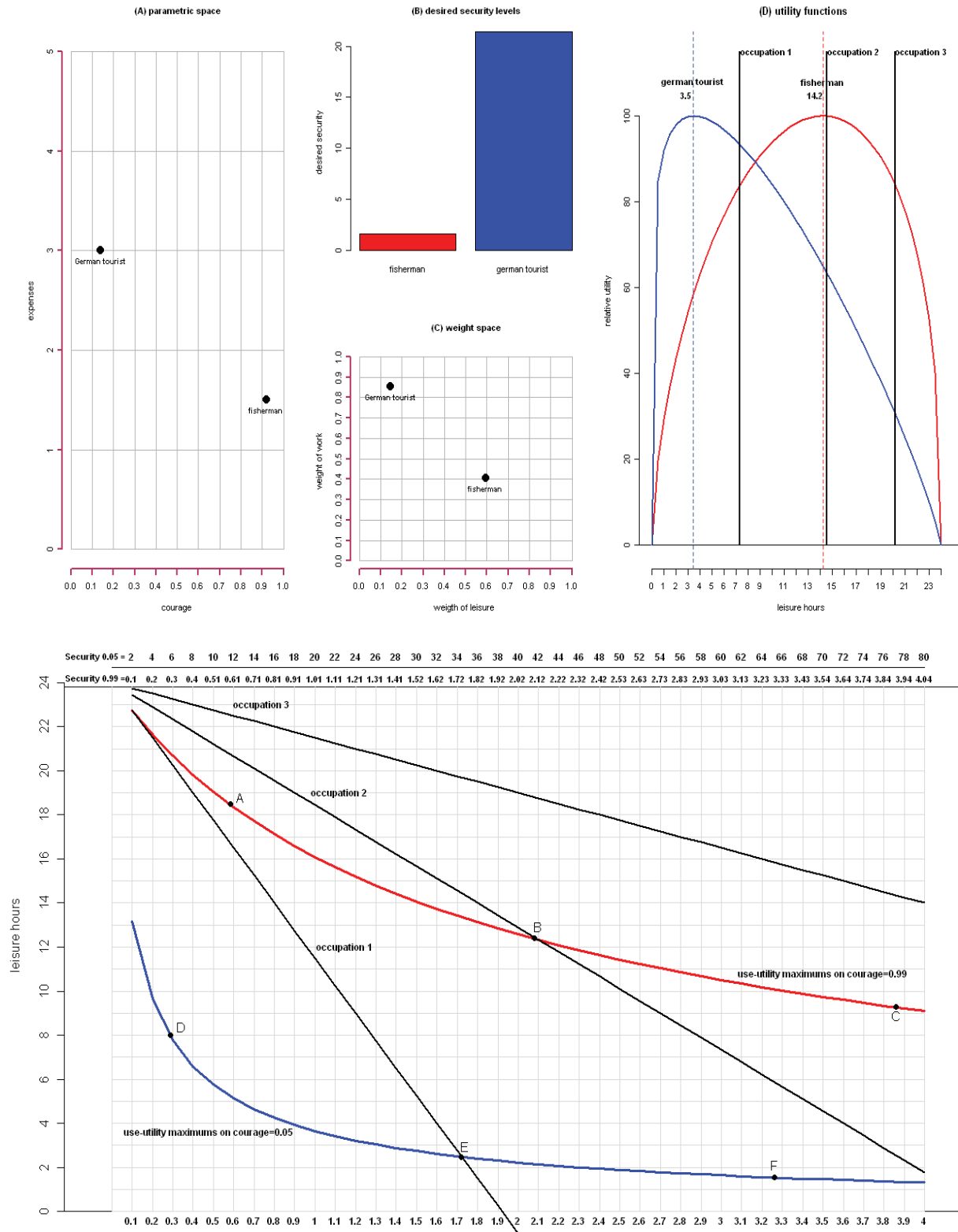
The upper graph in Figure 2 examines the positions of only two actors distinguished by their courage and daily needs, thus it does not allow us to observe all possible contingencies. For a more detailed visualization we generated the lower graph of Figure 2. Here we plotted leisure hours against a range of expense values (from 0.1 to 4). Two curves are generated by maximum values of use-utility functions, that is,  $L_{\max} = 24 \left( \ln(1+S)^{\frac{1}{5}} \right)$ , which are derived at each expense value for two extreme courage levels (0.99 and 0.05). Therefore these two curves consist of many actors, each of whom is represented by the maximum point of her use utility function. A similar logic applies to the straight lines: they represent the maximum number of hours allowed for leisure, that is,  $L_{\text{exc}} = \frac{24\Psi - d}{\Psi}$ , for three different occupations across the range of daily expense values. Finally, the uppermost horizontal axis gives two series of desired security levels that are generated from the division of each expense value by two courage levels (0.99 and 0.05).

Let us focus on the ABC line which is generated by the maxima of use-values of actors with courage of 0.99. For all the actors on this line occupation 1 would generate a situation of dissatisfaction (except for the actor on the extreme left) because they would all be forced to reserve less hours to leisure than they want. This is the negative enforcement situation in which instead of the use-utility function the exchange utility function dictates the allocation of hours for leisure and work. Now if all these actors have occupation 2, not surprisingly, those who are to the right of actor B would still be dissatisfied (thus in the situation of negative enforcement) because they would still be forced to work more than they want. But the interesting point is that the leisure hours of those who are to the left of actor B would also be dictated by occupation 2, though this time due to a better reason: We know that all actors desire the highest amount of leisure provided that they have the level of security they desire, and all actors on the ABC line desire security that almost equals their daily needs, but to the left of actor B occupation 2 provides them with this security and still allows them to have more leisure hours than they can conceive via their use utility function. Thus here again it would be the exchange utility function rather than the use-utility that would determine the number of hours reserved for leisure. This is the situation of positive enforcement. It is important to note that this situation emerges due to the high level of courage that is common to all actors on the ABC line (note that if all these actors had occupation 3, then they would all be in the positive enforcement situation). Finally if we focus on actor B in occupation 2 it is clear that she is in a situation of satisficing (and without any ambiguity), because in this occupation she can have all the security (which almost equals her daily needs) she desires without working more than she wants. In other words, her allocation of time for leisure and work is simultaneously and identically determined by her use and exchange utility functions.

Now let us look at the actors on the DEF line who are characterized by a very low level of courage (0.05). If we assume that these actors all have occupation 1, then those who are to the right of actor E would be dissatisfied because they would have to work more than they want: Their needs cannot be met if they divide the day into leisure and work in accordance with their use utility function. Once again this is the situation of negative enforcement, where it is the exchange utility function that dictates the number of leisure hours. Obviously those actors to the left of actor E would be in the situation of profit maximizing because they work more than ‘socially’ possible and thus reserve less hours to leisure than their exchange utility function allows (in fact all actors on the DEF line would be in this situation if they had occupation 2 or 3). The interesting point, however, is the situation of actor E: In fact her circumstances resemble those of actor B, who is in the situation of satisficing. In occupation 1 E’s division of time into leisure and work is simultaneously and identically determined by her use and exchange utility functions. However, there is an important distinction: E, unlike B, desires quite a high level of security due to her low level of courage; therefore her situation is satisficing with ambiguity: On the one hand she is better off than those actors on her right because, unlike them, E does not need to work more than she wants. However, unlike those who are on her right, she cannot accumulate in order to attain her desired level of security. Thus, actually E and B are quite different in terms of their satisficing: E satisfices with and B without ambiguity and anxiety (under these circumstances one would expect E to reduce her expenses so as to move to the position of profit maximization). There is one more thing we should observe about the actors on the DEF line: Unlike the actors on the AB line in occupation 2 and the ABC line in occupation 3, they would never be in the situation of positive enforcement in either occupation, because of their high desire for security (see the difference between the security series at two extreme courage levels in the upper horizontal axis), which results from their very low courage.

In this analytical landscape one might place the fisherman ideally at point B in occupation 2, thus in the situation of satisficing without ambiguity and anxiety. However, he might also be placed at any point on the AB line so long as he has occupation 2 or at any point on the ABC line if he has occupation 3, that is, he might also be in the situation of positive enforcement. The German tourist, on the other hand, should be placed at any place on the DEF line if he has occupation 2 or occupation 3. But if he has occupation 1 he would probably be to the left of actor E, because only in this way he might afford a vacation.

Figure 2: Interaction between Use-Utility and Exchange-Utility functions



### 4.3. Adding a Dynamic Element to the Model

Finally, we can focus on the dynamic element in the story. It is clear that our German tourist, who is in the situation of profit maximization, makes sense of his life by thinking that he needs a lot of security (a fishing empire!) and therefore he must work hard (i.e. more than the absolute minimum dictated by his occupation), but once this level of security is attained, he dreams, he will enjoy more, perhaps even permanent leisure. This is a dynamic perspective, which is based on the idea that one can accumulate exchange utility so as to get closer to the level of desired security and, as this happens, one would adjust one's use utility function, which, in turn, would make for a new division between leisure and work, presumably devoting more hours to the former. Now in order to complete the formalization of Böll's story we should also incorporate this dynamic element into the system that we have built up until now.

Let us assume that  $\Psi > \frac{d}{(24 - L_{\max})}$ , that is, one's occupation is capable of generating sufficient exchange utility so as to cover more than the needs of a day. At time  $t$  one can earn the equivalent of  $U_{exc(t)} = \Psi(24 - L_{\max(t)})$  exchange utility. As we explored above, the hours devoted to work, that is,  $(24 - L_{\max(t)})$ , are determined by the use utility component in accordance with the desired level of security at time  $t$ ; let this be  $S_t$ . Now, the exchange utility function will produce some exchangeable utility, and a portion of this utility, that is, an amount equal to daily needs  $d$ , will inevitably be spent and  $U_{exc(t)} - d$  amount of exchangeable utility will remain. With this extra amount one can pursue two different strategies: the strategy of saving, that is, accumulating this amount without any investment, and the strategy of investment, that is, using this amount in order to initiate a commercial venture. Obviously such an investment cannot occur immediately. One needs to have some savings for initiating any enterprise, thus the first strategy must precede the second one at least for a while (see appendix 5). For this reason we will here explore the dynamic element from the perspective of the strategy of saving.

In the strategy of saving an individual works  $(24 - L_{\max(t)})$  hours at time  $t$  and obtains  $U_{exc(t)} = \Psi(24 - L_{\max(t)})$  units of exchangeable utility. After spending on her daily needs an amount equal to  $d$ , she saves the remaining  $U_{exc(t)} - d$ , that is, accumulates a little in order to take a step forward towards attaining her desired level of security. Thus her level of desired security should decline at  $t + 1$  as now she has some accumulated amount that makes her feel a little safer.

Under this new condition the desired level of security at time  $t + 1$  requires the following adjustment:  $S_t - (U_{exc(t)} - d)$ . This means a reduction in the desired security that equals the magnitude of the accumulated amount. This can be rewritten conveniently as  $S_{t+1} = S_t + d - U_{exc(t)}$ . Now we know that we have to

rewrite our use utility component once again, but in accordance with this new level of desired security. This new version of use utility would allocate  $L_{\max(t+1)} = 24 \left( \ln(1 + S_{t+1})^{\frac{1}{S_{t+1}}} \right)$  hours to leisure and  $24 - L_{\max(t+1)}$  to work. And at time  $t + 1$  the exchange utility would be estimated as  $U_{exc(t+1)} = \Psi(24 - L_{\max(t+1)})$ . We can repeat the same adjustment for the desired security at time  $t + 2$ . This would be  $S_{t+2} = S_{t+1} + d - U_{exc(t+1)}$  and lead to a new evaluation for leisure hours:  $L_{\max(t+2)} = 24 \left( \ln(1 + S_{t+2})^{\frac{1}{S_{t+2}}} \right)$ ; on the basis of this we will estimate new exchange utility as  $U_{exc(t+2)} = \Psi(24 - L_{\max(t+2)})$  and readjust the desired security for  $t + 3$ :  $S_{t+3} = S_{t+2} + d - U_{exc(t+2)}$ . We can continue in the same way.

Of course when/if  $S_{t+n} \cong 0$  is attained we have an interesting situation where  $L_{\max(t+n)} = 24 \left( \ln(1 + S_{t+n})^{\frac{1}{S_{t+n}}} \right) = 24 \ln e = 24$  becomes the number of hours for leisure that maximizes the use utility function. This is a situation peculiar to the dynamic mode in which one may enjoy a degree of leisure even though one's level of courage does not suffice at any static position to afford such a choice. This would be, of course, the dream: permanent leisure, or more correctly, a situation where one only works for the needs of a day,  $d$ . Obviously, this is the equivalent of having complete courage  $c = 1$  and thus requiring  $S = \frac{d}{c} = \frac{d}{1} = d$  amount of security, or the position of the fisherman as envied by the German tourist.

In its entirety this dynamic logic can be expressed as a continuously readjusted trio of functions as follows:

$$\frac{d}{c} = S_0 \rightarrow UTILITY_{(0)} = \left\{ \begin{array}{l} U_{use(0)} = L^{\left(\frac{\ln(1+S_0)}{S_0}\right)} (24 - L)^{\left(1 - \frac{\ln(1+S_0)}{S_0}\right)} \\ L_{\max(0)} = 24 \left( \ln(1 + S_0)^{\frac{1}{S_0}} \right) \\ U_{exc(0)} = \Psi(24 - L_{\max(0)}) \end{array} \right\} \rightarrow S_1 = S_0 + d - U_{exc(0)} \rightarrow UTILITY_{(1)}$$

$$\dots S_t \rightarrow UTILITY_{(t)} = \left\{ \begin{array}{l} U_{use(t)} = L^{\left(\frac{\ln(1+S_t)}{S_t}\right)} (24 - L)^{\left(1 - \frac{\ln(1+S_t)}{S_t}\right)} \\ L_{\max(t)} = 24 \left( \ln(1 + S_t)^{\frac{1}{S_t}} \right) \\ U_{exc(t)} = \Psi(24 - L_{\max(t)}) \end{array} \right\} \rightarrow S_{t+1} = S_t + d - U_{exc(t)} \rightarrow UTILITY_{(t+1)}$$

This process is the expression of the hope (or illusion) that one may compensate for lack of courage (i.e. low  $c$ ) and/or excessive consumption (i.e. high  $d$ ) with hard work. The question is, of course, whether, or under which conditions, this is possible. It is easy to observe that in the situations of dissatisfaction and satisficing with ambiguity and anxiety, one cannot benefit from the dynamic process, because in these situations the dynamic process would lead to constant or increasing levels of desired security and more hours

of work, not less. Thus the question only applies to the situation of profit maximization: is it possible to accumulate enough to feel secure when one is a profit maximizer?

In formal terms this is the question of whether the sequence  $S_{t+1} = S_t + d - U_{exc(t)}$ , which equals  $S_{t+1} = S_t + d - \Psi \left[ 24 - 24 \left( \ln(1 + S_t)^{\frac{1}{S_t}} \right) \right]$ , converges, or more accurately, whether it converges to zero. One can show that this sequence may approximate zero if one's occupation rate  $\Psi$  is very high, that is, one has a very good job and/or one has very low daily expenses (see appendix 6). As noted by Easterlin (1971, 2001, 2004) and mentioned above, these two conditions in reality rarely occur simultaneously. Thus, far from all occupations could lead to the dream of the German tourist.

In Figure 3 we illustrate this dynamic process actually leading to the ideal outcome. In the upper graph and in panel A we see an individual who has an occupation with  $\Psi = 0.398$ . He has a courage level around 0.78 and daily expenses around 2.1. The first bar in panel B depicts his initial desired level of security, and this level generates his initial location in the weight space in panel C. The resulting use utility function in panel D has its maximum around 11.5 hours of leisure, but one can see in the same panel that his occupation allows this individual to have around 20 hours of leisure. Thus he is in the situation of profit maximization. Now, the dynamic process commences: As depicted in panel B at time t1 he needs less security than at the initial point due to the accumulation of some exchangeable utility that is obtained at the initial point. In panel C we see that the location at t1 has moved in the south-east direction by giving much more weight to leisure; this is because of the decline in desired security. The resulting shift in the use utility function is clear in panel D: Now this function reaches its maximum by allocating approximately 22.5 hours for leisure. Obviously this is more than the hours allocated by the occupation, thus in order to enjoy these leisure hours the individual must use a part of the accumulated amount in order to cover his daily needs, thus reducing the accumulated amount. The result is clear in panel B when we look at time t2: Now he needs more security compared to time t1 (because he has used part of the accumulated amount) but still less than at the initial point (because there still remains some accumulated amount). Now in panel C we observe a shift in the north-west direction from t1 to t2, which means more weight is attached to work in t2 compared to t1. The resulting use utility function in panel D reaches its maximum at around 13.5 hours of leisure, which is higher than the initial value but substantially lower than the amount that is made possible by the occupation. Thus once again there is accumulation which reduces the level of desired security to level zero at point t3, as depicted in panel B. The corresponding point in the weight space in panel C has unity as the weight of leisure, and thus the resulting use utility function in panel D attains its maximum at 24 hours of leisure.



.....

This is the dream of the German tourist. Now, since he has the security he desires as an accumulated amount safely put away somewhere he does not need to be a profit maximizer anymore. He only needs to work enough to cover his daily needs, that is, he can become a satisficer. This means he can work the minimum number of hours required by the occupation and use the rest of his time for leisure.<sup>13</sup> Consequently, he becomes "the fisherman" without changing his position in the courage & daily expenses space in panel A. Two observations are to be made here: first, it is clear that this outcome is closely related to the capacity of the occupation to generate exchange utility (in this case  $\Psi = 0.398$  per hour). Second, in order to understand whether a dynamic process leads to the ideal outcome it is sufficient to observe the changes in the desired security levels depicted in panel B. If the desired security declines to zero we know that the dynamic process leads to the ideal outcome and makes the individual a satisficer. Otherwise, if the desired security stabilizes somewhere above zero we know that the person will forever remain a profit maximizer who deceives himself with the illusion of becoming a satisficer in future.

With these insights in mind let us focus on the lower graph in Figure 3. Here the dynamic process that is given in the upper graph is reinitiated for the same individual but for following occupations:  $\Psi_1 = 0.105$ ,  $\Psi_2 = 0.235$ ,  $\Psi_3 = 0.285$ ,  $\Psi_4 = 0.335$ ,  $\Psi_5 = 0.385$ ,  $\Psi_6 = 0.398$ .

It is clear that the first four occupations generate dynamic processes that lead to constant levels of desired security after several iterations, indicating that if our individual had one of these occupations he would remain a hard-working profit maximizer who can never be a satisficer. Occupation 5, on the other hand, generates not a stable but oscillating levels of desired security. This implies that having this occupation would allow one to have some daily escapes from the dictates of the exchange utility function but would never free one completely from the situation of profit maximization. As one can see, occupation 6 is identical to the occupation that generates the dynamic process in the upper graph, and it is the only one that leads to the ideal outcome that converts one from a profit maximizer into a satisficer. Thus it might be called an "emancipating occupation".

In our story, if the German tourist does not have an emancipating occupation he will never reach his dream of being in the situation of the fisherman without being as courageous and/or modest as he is. The fact that the German tourist is a tourist, that is, he is on vacation and thus does not work at the moment of the encounter with the fisherman, should not give any consolation to him or to us. As we show in the lower graph of figure 3, some occupations, such as occupation 5, might allow the German tourist to have a few days of escape from work by occasionally generating use-utility functions like the one at time t1 in the

<sup>13</sup> This situation can also be achieved after retirement or by drawing on welfare provisions. See the next section.

upper graph, but these occupations are not truly emancipating. They do not have sufficient accumulation generating power to reduce the desired level of security to zero.

We argue that this dynamic process captures the dynamic element embedded in our story, but there is an implicit assumption:  $c, d$  (courage and daily expenses) do not change. It is possible to ease these restrictions, and it should be quite clear which effects the increase or decline of  $c$  and  $d$  would have, but for the sake of simplicity we here keep to this simple dynamic mode.

Figure 3: Dynamic Process

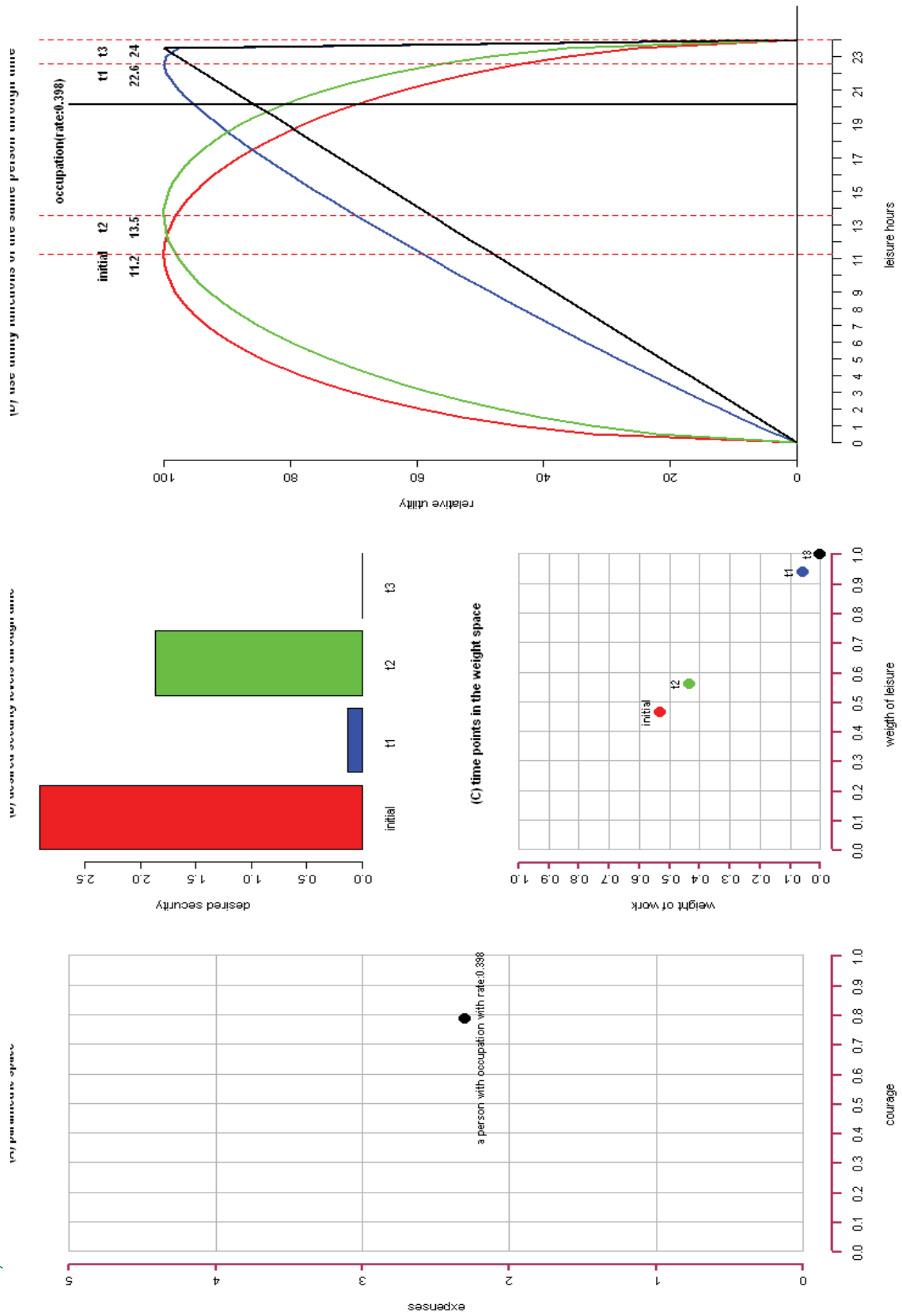
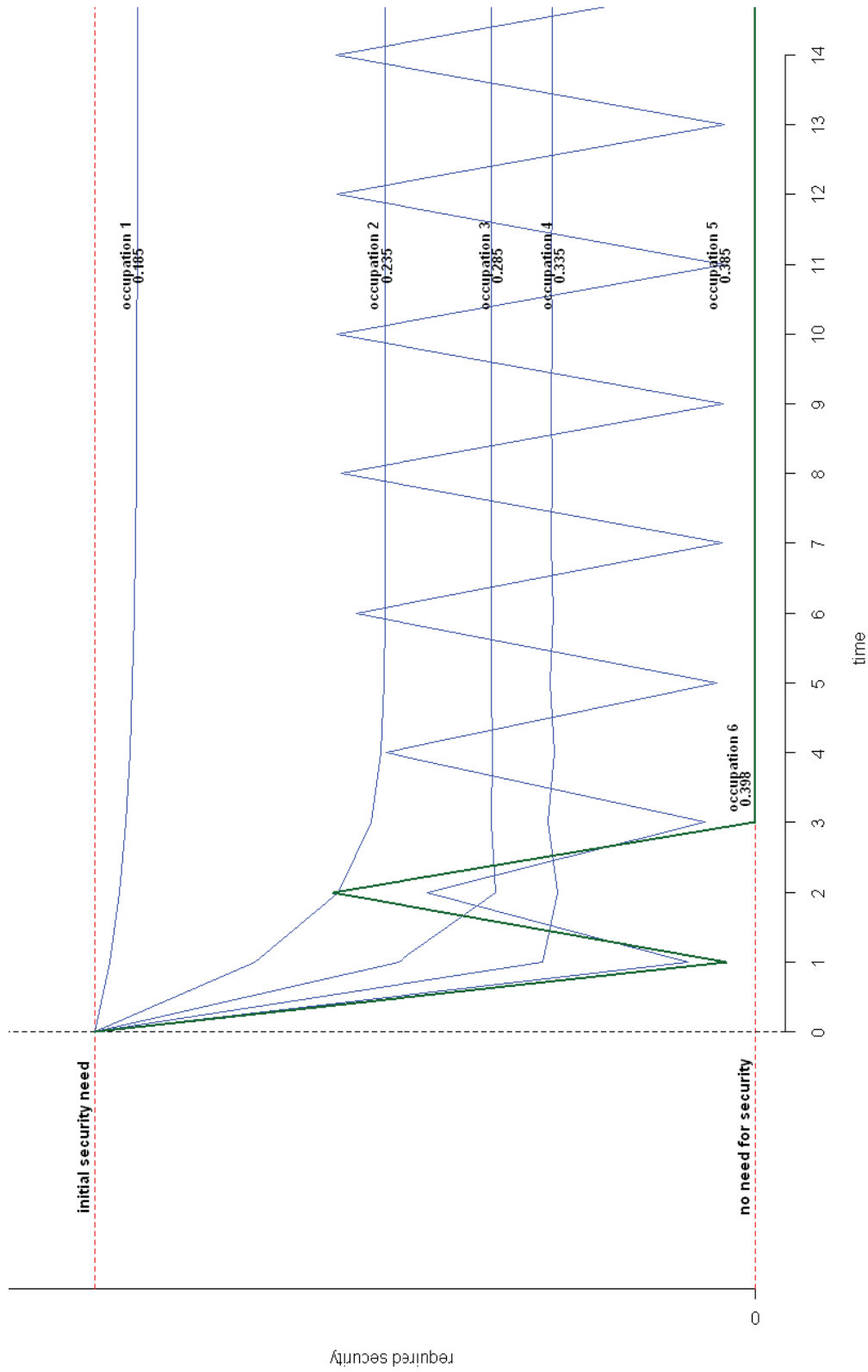


Figure 3: Dynamic Process - Continued



## 5. Implications: Fisherman and Tourist in Political Context

Our model shows that, with appropriate formalization, the fisherman can be depicted as a rational actor: Given his information (Simon 1957) he will choose the course of action that will yield the highest utility by maximizing his use utility component, provided that this is rendered possible by his occupation and courage at any given time. It is important to remember here that the very concept of use utility is based on the idea of maximizing (carefree) leisure hours, that is, the fisherman does not value work itself, nor fish, nor the things that fish can buy.<sup>14</sup> In fact, our model also reveals that, regardless of how differently they behave, both the fisherman and the German tourist can be shown to operate in accordance with this conceptualization of utility. But then the fisherman appears in a more enviable position than the German tourist: He is satisfied while the German tourist endures the hard work of profit maximization. Why this difference?

Our analytical presentation (depicted in the lower panel of Figure 3) made clear that living in the happy state of “satisficing”, like our fisherman, results from personal features which determine the level of desired security, but also from external conditions. The latter are reflected in our model, for simplicity’s sake, by occupation  $\Psi$ . Given that the German tourist, as a profit maximizer, envies the fisherman and ultimately works to attain a similar position by relying on the dynamic process outlined above, to benefit from the story and its model version we should scrutinize what makes it possible for the fisherman to be a satisficer. Let us then focus briefly on the features of fishing, that is on  $\Psi$  in our model, and the way in which they are related to the personal features of the fisherman in order to better understand the nature of satisficing.

The most plausible assumption to account for the behavior of the fisherman is that fish is a public resource, a resource for the collection of which the fisherman does not have to pay. Moreover, we should also argue that the cost to the fisherman of going out to fish is minimal. The boat is paid off or has been in the family for generations, gas and parts are cheap, and a costly fishing license is not required. In short, fishing is (close enough to) free.<sup>15</sup>

14 It is of course possible to think of our fisherman as using past fish to buy present leisure. In this sense the fisherman values what fish can buy. The crux of the matter, however, remains that work for him remains a means to the end of leisure, an expense to be minimized, not a value in itself.

15 Fishing is free, of course, only in the sense that it does not involve the expense of material resources. It does, however, cost time, that is, it carries opportunity costs associated with loss of leisure.

The fact that fish is free to the fisherman does, however, not mean that this resource is always readily available in sufficient quantity. The amount of fish that can be caught by the fisherman at any given time depends on circumstances beyond his control: the weather, water currents, the season, and perhaps other factors which the fisherman not only has no control over, but which he also cannot predict with sufficient accuracy to make probability estimates. Therefore, the fisherman is uncertain how much fish he will be able to catch at any time in the future. He may starve next week. He may never go hungry. He simply does not know.

But there is another factor to take into account: There is a major difference between depending on the forces of nature to attain a resource (the solitary mode), and interacting with other humans who also want to use the same resource for their ends, that is, the social mode of competition. It is quite probable that, even as our fisherman is basking in the sun, other fishermen are out catching the fish he is missing, a possibility which undoubtedly would greatly concern the tourist in our story.

Fortunately (from the perspective of our fisherman), genuine competition requires more than the mere presence of other economic actors providing the same good or using the same resource. It requires a lack of demand or surplus of supply or a scarcity of resources needed to ensure supply which can lead to effective competition in the market: the crowding out of suppliers which cannot provide their goods at the market price. As long as our fisherman can be sure that he will be able to sell all the fish he wants to at the price he needs in order to survive, he has no need to worry. The fact that he does not have to pay for the fish he catches since it is a public resource and the fact that it costs him next to nothing to harvest this resource help him to sell his fish cheaply. As long as demand for fish does not drop significantly, he is safe, and even if demand drops he still has a fair chance to sell at least some of his catch.

Thus, one may argue that three external factors determine the exchange rate of fishing (i.e. the  $\Psi$  of our fisherman) and help generate the difference between the fisherman and the tourist, making one a satisficer and the other a profit maximizer: 1.) the status of fish as a public resource; 2.) reasonably conducive natural conditions; and 3.) lack of competition.

However, the precariousness of these enabling factors which make satisficing through fishing possible also generates uncertainty as to the future of the fisherman's happy state of affairs. The fisherman might in fact be a satisficer because he discounts future leisure in favor of present leisure, due precisely to all the uncertainty embedded in the factors that make satisficing through fishing possible today but not necessarily tomorrow. This would, to some degree, be compatible with mainstream economic thought as well. As

Jevons points out, “to secure a maximum of benefit in life, all future events, all future pleasures or pains should act upon us with the same force as if they were present, allowance being made for their uncertainty [...]. But no human mind is constituted in this perfect way: a future feeling is always less influential than a present one.” (Jevons 1941: 85)

On the other hand, by appealing to the underlying logic of our model one might object to explaining the position of satisficing by the uncertainty of the future: The fisherman, regardless of the uncertainties imposed on future leisure by the precariousness of the three external factors, can be seen to attach a constant intrinsic value to carefree leisure which remains the same regardless of its “amount”. If leisure is not a means to an end but the end in itself of all economic activities, it cannot be valued more or less. This would, one may argue, lead to the conclusion that any person would be a satisficer as long as and as soon as external conditions permit, and uncertainties about the future would not play a role.

Obviously, the very existence of the prudent German tourist in Böll’s story contradicts this idea. For when the tourist imagines himself in the position of the fisherman, he remains a profit maximizer rather than becoming a satisficer. Thus we must admit that it is not only the three external factors wrapped into the factor occupation  $\Psi$ , or their precariousness, that generate the difference between our two protagonists. There are personal differences as well. Our model has envisaged three personal features that matter, namely, courage, expenses, and the level of security that is determined by the first two.

Some people, like our fisherman, have courage and modest expenses, and thus a low level of desired security as captured by  $S = \frac{d}{c}$ . Consequently they will enjoy the present without paying much attention to the future, and if external conditions allow (as reflected in their occupations  $\Psi$ ), they will live as satisficers. But others, like the German tourist, lack courage and perhaps also have higher expenses, consequently desire a high level of security, and therefore will be locked in the position of profit maximization (or else will be in the equally unenviable position of satisficing with ambiguity and anxiety, i.e. at point E in the lower panel of figure 2), even if they start to fish in Costa Rica (and thus their occupation’s  $\Psi$ , i.e. external factors, allow them to become satisficers). Following this logic, a maximizer of profit, that is, of material security, must of necessity be a person who lacks courage and/or is addicted to high expenses.

A courageous fisherman will not go fishing until his supply of fish runs out and he feels an immediate need to replenish it, that is, his desired level of security would approximate his daily needs, so that  $S = \frac{d}{c} \approx d$ . But another fisherman (who resembles the German tourist) with similar expenses but without much courage, thus with a high level of desired security, will keep fishing until a point at which he either

faces hard constraints (such as physical exhaustion or bad weather) or until there is no fish left in the sea. Our formalization of the story shows that this behavior is based on the hope (or illusion) that one can substitute lack of courage with hard work and may become a satisficer in the long run. However, it is clear in our model that, regardless of how hard one works, it is external conditions, that is, one's occupation's  $\Psi$ , which determines whether one ceases to be a profit maximizer and moves into the position of satisficing, as long as one's courage and expenses remain stable.<sup>16</sup>

Thus we may conclude that the difference between the fisherman and the German tourist results not only from external factors (status of fish as a public resource, conducive natural conditions, and lack of competition) but also from personal features (courage, expenses, and desired security). Moreover, these two groups of factors are related in such a way that they constrain long-term strategies of profit maximizers: Lack of courage or high expenses cannot be substituted for by hard work if external conditions do not allow one's occupation to have appropriate  $\Psi$  value, as revealed in the dynamic part of our model.

If our two protagonists shared the same external conditions and faced the same expenses, the fisherman's level of courage would still make him different from the tourist. This should lead us to ask what makes a person more or less courageous. One may argue that uncertainties regarding the external enabling factors which make satisficing possible may operate at a more personal level. Thus, as a step forward, we may think of decomposing the courage factor in our model into sub-components, and argue that a part of courage results from the interaction between one's personal history and external conditions. This would, to a large extent, make external conditions (once again) the prime culprit for the emergence of personalities with little courage. But we suggest that a personality component of courage also operates, regardless of external conditions, and constrains the tourist's imagination so that even as a fisherman he would remain a profit maximizer.

While this position does not seem an enviable one, given that the ultimate goal is leisure and not work, we emphatically do not suggest that the tourist's position is generally wrong, while the fisherman's is generally right. Both positions, as we have seen, are equally rational, both sometimes seem self-defeating and sometimes make good sense. For example, the tourist's advice would make sense for our fisherman if one of the other fishermen in the village, or more likely an investor or developer, decided to build the fishing empire envisioned by the tourist. Then our story would take a different turn: The fishing enterprise could catch more fish, sell it cheaper, and even with high demand our fisherman would not be able to sell his fish.

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16 In addition, one's occupation can also affect one's daily needs (e.g. due to expenses for status maintenance) and one's courage (e.g. due to intrinsic benefits ascribed to one's career or simply to socialization processes).



Finally, after years of overfishing by the insatiable fishing enterprise, there might not even be enough fish left in the bay for him to eat and he would have to find employment in the newly opened cannery in town, slaving away long hours for minimum wage (i.e. dissatisficing).

We might consider this outcome undesirable, but how could it be avoided? How can our fisherman survive in a thriving market? This is where politics comes in, and the underlying question becomes what sort(s) of good life our polities should be designed to enable. The easiest way to ensure the survival of satisficing, of course, is to outright constrain profit maximization, or reduce its utility. To this end, government might prevent fishermen in the village from pursuing the advice of the German tourist, that is, suppress profit maximization through restrictions on economic activity, such as limiting the size of firms<sup>17</sup> (and perhaps ban tourism in order to preclude the spread of the profit maximization ideology). Alternatively, government could attempt to discourage profit-maximizing activity and make money itself in the process, for example by imposing highly progressive income or high corporate taxes.

Another set of measures can be targeted not at reducing the incidence of profit maximization but rather at enabling satisficing in a context in which profit maximization also occurs. To let our fisherman survive in the face of profit-maximizing competition, government might guarantee that he can sell his fish at a “living” price, either by dictating a fixed or minimum price or, somewhat more in tune with market mechanisms, by buying up fish and taking it off the market. This would do nothing to change the price advantage of the fisherman’s competition, while preventing our fisherman from starving (or having to adapt his lifestyle). If government ensures that a product can be sold at a “living” price, producers can “satisfice” profit. Political intervention can also provide material security to the satisficer by reducing his expenses (e.g. by providing social housing) or by taking measures to bolster the non-intrinsic component of his courage by creating a social safety net (e.g. unemployment benefits).<sup>18</sup>

Pension systems play a two-fold role. On the one hand, they form part of the welfare state’s safety net and thereby generally increase (the external component of) courage, which supports satisficing. On the other hand, they also support profit maximization by guaranteeing a certain income for a future time at which one’s work life is over – a pay-off for hard work in the present. The dream of the profit maximizer is typically that at least when he retires, he will move into a guaranteed state of satisficing. The more closely proportional retirement income is to work-life productivity, the more strongly the worker believes that he

17 Of course there are many less direct ways to achieve some of the same effect, such as e.g. through regulations on unionization for firms over a certain size.

18 As indicated above, courage can be made partly endogenous to our model by showing how it is affected by institutional factors, but we focus here on its personality component.

will benefit from a substantial amount of retirement time, and the greater the faith in the stability of the pension system or retirement scheme, the more likely, *ceteris paribus*, he will be to profit maximize during his work life. Faith in the stability of the democratic system and rule of law within it has of course long been theorized as a factor which supports profit maximization (Downs 1957). It can, however, in this way just as well support satisficing.<sup>19</sup>

It should be obvious that these sorts of possible interventions run the gamut from state socialism to the liberal versions of social market economy. While in our fisherman's world there exists no built-in advantage to profit-maximization because fishing costs nothing but time and needs are simple, in a competitive free market economy in the absence of government interventions non-profit maximizers will not long be able to withstand competition from profit-maximizers who, at least over time, will be able to sell their products cheaper and will be better able to survive fluctuations in demand. It is probable that micro-economic decisionmakers in competitive settings are generally aware of this risk: Knowing that they will not survive if they do not maximize profit ensures that their uncertainty about future profit gives way to extremely low levels of courage, if not a quasi-certainty of their economic demise should they pursue non-profit maximizing strategies.

From the above reasoning we can generalize not only to one-man firms, but to all individuals who work for a living, be they entrepreneurs or employed workers, as well as to decisionmaking collectives. A situation of employment of course creates additional incentives to work, but the morale of our story, the trade-off between present carefree leisure and the material security which is meant to ensure future leisure but perhaps never will, remains in essence unaffected. Our model allows for a range of work-leisure trade-offs that encompasses distinctly different lifestyles, or economic "cultures". To what extent we want to protect variety in work-leisure trade-offs, or different economic lifestyles, from market competition is of course a question of enormous policy relevance. At stake is *inter alia* the survival of profit satisficing as a rational choice.

At the core of this policy challenge lies a dilemma contained within liberalism itself: On the one hand, as per the prescriptions of mainstream (neo)liberal economic theory, the selfish pursuit of maximum profit of the few benefits the many. On the other hand, as per especially *political* liberalism, we rightfully value plural-

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19 Loosening the assumption that work has no other value than to allow for leisure of course opens the door to other motivations for work, such as satisfaction derived from working as discussed by Lane (1991), the desire for status, or the impact of values and social psychological enforcement mechanisms such as a Puritan work ethic or the imitative reaction discussed by Sen (1987). This would effectively mean introducing a use utility component into work time by which work could contribute directly to happiness. Juster and Stafford (1991: 506) point to a weakness in our model by reminding us that "the utility generated directly by engaging in productive activities" should not be "ignored in systems that are aimed at a welfare concept." Seeing how this utility of work varies by occupation and also by occupation-occupant match, government can take measures to increase it, e.g. by helping people find work that suits them (as opposed to forcing them to accept any work at all).

ism and diversity.<sup>20</sup> How many people can make a living just because others do *not* maximize ruthlessly? On the one hand, where government support is needed to protect a nonproductive lifestyle, the money to do so will of necessity have to come from the productive, who will be disinclined towards such policies. On the other hand, the meeting with the ragged fisherman, whom he pitied at first sight, leaves the tourist in our story wistful and wondering whether he himself might not be missing out on a very real need, the need to enjoy the present, to live without constant fear of what the future might bring, and the ability to be more easily contented. The fundamental policy question this poses at the societal level is to what extent society is willing to collectively support profit satisficing and leisure maximization. This is to a large extent a cultural question – and cultural variation can still be observed across relevant policies and outcomes even within the European Union, where economic governance is currently being supranationalized with haste. At the same time, the political pressures to root out profit satisficing and leisure maximization are enormous. Sharing systems that would essentially allow some to contribute money and others to contribute time towards collective ends have become all but extinct in western developed economies (Juster and Stafford 1991). In mainstream development policy the superiority of the tourist’s lifestyle has never been questioned, and with the continued rise of “there-is-no-alternative”-neoliberalism since the 1980s the parametric space for work-leisure trade-off decisionmaking has shrunk, at the individual as well as the societal level. The recent fall from grace of Europe’s ancient cultural poster child Greece, the cradle of the work-labor distinction, can well be viewed in this light.<sup>21</sup>

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20 If we move beyond the normative parameters of liberalism and include values of solidarity or social justice, the case to protect satisficers is further strengthened, but we need not do so here to make our point.

21 A disapproving and green-eyed chorus of international media coverage (and politicians in the EU) blames the Greeks for *inter alia* retiring too early, saving too little, and enjoying life too much. Incidentally, it is not coincidence that none of the so-called PIIGS’s are majority-Protestant.



## 6. Conclusion

Failing to work to maximize profit is not an irrational, a “crazy” thing to do. Neither is working overtime for the sake of a potentially distant future of more leisure. A very broad range of decisions regarding how to divide up one’s life between work and leisure can be modeled within the same system of utility functions based on the assumption of individual rationality. The decisions an individual will make regarding this time division basically depend on her material expectations (or lifestyle needs), her courage to risk not making provisions for the future, and her ability to generate income through work (captured here as her occupation). This may in and of itself not be surprising, yet at least two contributions have been made here which have previously by and large been overlooked and are well worth exploring in more detail.

First, it has been shown that, unless her occupation is exceptionally strong at generating security-through-income, it is unlikely that a profit-maximizer will ever achieve the position of satisficing (while it is certainly possible at any time that, due to changes in labor market position, she will end up dissatisfied or satisficing with ambiguity and anxiety). To move from the taxing state of profit maximization to the often dreamt-of state of satisficing, it will usually be necessary to either adjust downward one’s material expectations or increase one’s courage, or both. This boils down to a change in lifestyle.<sup>22</sup>

Second, we have begun to show how political intervention can make and has made satisficing possible. Whether we want to ensure the rationality of a large range of possible work-leisure trade-offs (and the survival of satisficing as a rational choice) is a deeply political question, a question regarding the good life/lives we want to choose for society and make possible for the individual (and how we deal with possible tensions between the two). It is not far-fetched to claim that the tourist and the fisherman are not only compatible in the same society, but in fact depend on each other’s existence. This becomes especially clear when we think of these modes not as varying across individuals but as varying also for the same individuals over time. We may need profit maximization by many and often, for the sake of productivity, even if the profit maximizers might be being delusional about their personal futures. But we may also need the possibility for many of sometimes satisficing, because not everyone can always win, we are human and have in-built productivity limits, and we may not want to sacrifice our ultimate ends on the altar of delusions fed by mainstream economics.

<sup>22</sup> Of course a change in lifestyle can also take place in the other direction, when a satisficer becomes a profit maximizer.

Currently, we see our economic cultures polarizing between dissatisfaction and profit maximization. The space for satificing, even just for periods of our lives, small as it was to begin with, is rapidly shrinking further. Before we accept this trend as inevitable, we should stop to reflect: Can we honestly say that Hesiod was wrong?

# Appendices

## Appendix 1: Maximization of the use utility component

We know that  $S = \frac{d}{c}$ , then  $U_{use(t)} = L^{\left(\frac{\ln(1+S)}{S}\right)} (24-L)^{\left(1-\frac{\ln(1+S)}{S}\right)}$ . Let  $\Omega = \frac{\ln(1+S)}{S}$ , so we have  $U_{use} = L^{\Omega} (24-L)^{1-\Omega}$ . Let us use logarithmic differentiation:

$$\begin{aligned} \log(U_{use}) &= \Omega \log(L) + (1-\Omega) \log(24-L) \\ \frac{\partial \log(U_{use})}{\partial L} &= \frac{1}{U_{use}} \frac{\partial U_{use}}{\partial L} = \frac{\Omega}{L} - \frac{1-\Omega}{24-L} \\ \frac{1}{U_{use}} \frac{\partial U_{use}}{\partial L} &= \frac{\Omega(24-L) - L(1-\Omega)}{L(24-L)} \\ \frac{\partial U_{use}}{\partial L} &= \left[ \frac{\Omega(24-L) - L(1-\Omega)}{L(24-L)} \right] L^{\Omega} (24-L)^{1-\Omega} \\ \frac{\partial U_{use}}{\partial L} &= \frac{[\Omega(24-L) - L(1-\Omega)] L^{\Omega-1}}{(24-L)^{\Omega}} = \left[ \frac{L^{\Omega-1}}{(24-L)^{\Omega}} \right] [\Omega(24-L) - L(1-\Omega)] \end{aligned}$$

Now we should find the value of leisure which makes the derivative zero, that is,  $L_{\max}$

$\frac{\partial U_{use}}{\partial L} = 0 \Rightarrow \left[ \frac{L^{\Omega-1}}{(24-L)^{\Omega}} \right] [\Omega(24-L) - L(1-\Omega)] = 0$ . There are two solutions to this equation which provide the critical points of the use utility function:

$$\begin{aligned} \frac{L^{\Omega-1}}{(24-L)^{\Omega}} = 0 &\Rightarrow L_{opt} = 0 \text{ and } L - \Omega L = 24\Omega - \Omega L \\ \Omega(24-L) - L(1-\Omega) = 0 &\Rightarrow \Omega(24-L) = L(1-\Omega) \\ L_{\max} &= 24\Omega \end{aligned}$$

The first solution gives the minimum and the second solution gives the maximum values. Now let us express the maximum value in terms of courage and daily expenses:

$$\Omega = \frac{\ln(1+S)}{S} = \frac{\ln\left(1 + \frac{d}{c}\right)}{\frac{d}{c}} = \frac{c \ln\left(1 + \frac{d}{c}\right)}{d} = \frac{\ln\left(1 + \frac{d}{c}\right)^c}{d}; \text{ from this we can have}$$

two equivalent expressions in the text:  $L_{\max} = 24 \left( \ln\left(1 + \frac{d}{c}\right)^{\frac{c}{d}} \right)$  and  $L_{\max} = 24 \left( \ln(1+S)^{\frac{1}{S}} \right)$ .

## Appendix 2: Maximum hours of leisure imposed by the exchange utility component

$$\Psi(24 - L_{\max}^*) = d$$

$$24\Psi - \Psi L_{\max}^* = d$$

$$\Psi L_{\max}^* = 24\Psi - d$$

$$L_{\max}^* = \frac{24\Psi - d}{\Psi}$$

## Appendix 3

Needless to say this kind of allocation is physically possible when  $\frac{24\Psi - d}{\Psi} > 0$ , that is, despite the exchange utility based allocation between work and leisure there remains some time for the latter, and in occupational terms this means that any occupation must satisfy  $\Psi > \frac{d}{24}$ ; this is obviously an easier condition to be satisfied by an external authority than  $\Psi > \frac{d}{(24 - L_{\max})}$ , which requires adjustment of the hourly rate of exchangeable utility generated by the occupation for each individual.

## Appendix 4

In order to examine the degree of dissatisfaction occurring in this situation we need to mark  $U_{exc}$  based allocation in the use utility function  $U_{use}$  and estimate the magnitude of lost use utility as follows:

$$U_{lostuse} = L_{\max}^{\left(\frac{\ln(1+S)}{S}\right)} (24 - L_{\max})^{\left(1 - \frac{\ln(1+S)}{S}\right)} - L_{\max}^* \left(\frac{\ln(1+S)}{S}\right) (24 - L_{\max}^*)^{\left(1 - \frac{\ln(1+S)}{S}\right)}$$

$$L_{\max}^* = \frac{24\Psi - d}{\Psi} \text{ and } L_{\max} = 24 \left( \ln(1+S) \right)^{\frac{1}{S}}; \text{ therefore we obtain the following:}$$

$$U_{lostuse} = \left( 24 \ln(1+S) \right)^{\frac{1}{S}} \left( \frac{\ln(1+S)}{S} \right) \left( 24 - 24 \ln(1+S) \right)^{\left( 1 - \frac{\ln(1+S)}{S} \right)} - \left( \frac{24\Psi - d}{\Psi} \right)^{\left( \frac{\ln(1+S)}{S} \right)} \left( 24 - \frac{24\Psi - d}{\Psi} \right)^{\left( 1 - \frac{\ln(1+S)}{S} \right)}$$

## Appendix 5

We must also shortly reflect on the other possible strategy, that is, after some accumulation, initiating a commercial venture. This, in formal terms, implies the replacement of one's occupation rate  $\Psi$ , which has hitherto been considered constant, with a random variable, that is, an entity which assumes positive and negative values randomly at each time point in accordance with a probability distribution. Although this



alteration would lead to a more complicated dynamic form, in substantive terms it would not require us to be occupied with it extensively.

## Appendix 6

The general expression of the sequence is:  $S_{t+1} = S_t + d - \Psi \left[ 24 - 24 \left( \ln(1 + S_t)^{\frac{1}{S_t}} \right) \right]$ . It is clear that

if the convergence is attained  $S_{t+1} = S_t$  would be true. Consequently we can write  $S_{t+1} = S_t = S$ . Thus

$$S = S + d - \Psi \left[ 24 - 24 \left( \ln(1 + S)^{\frac{1}{S}} \right) \right], \text{ then } d = \Psi \left[ 24 - 24 \left( \ln(1 + S)^{\frac{1}{S}} \right) \right]$$

$$d = 24\Psi \left[ 1 - \frac{\ln(1 + S)}{S} \right], \text{ and we have } \frac{d}{24\Psi} = 1 - \frac{\ln(1 + S)}{S} \text{ and thus } \frac{\ln(1 + S)}{S} = 1 - \frac{d}{24\Psi}.$$

In this expression  $\frac{\ln(1 + S)}{S}$  approaches 1 as S approaches zero, and  $1 - \frac{d}{24\Psi}$  approaches 1 as  $\Psi$  approaches infinity (or d approaches 0). Therefore S approaches zero as  $\Psi$  approaches infinity.



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