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**Introduction: *Economics & Psychology:
Developments and Issues***

by

Bruno S. Frey and Alois Stutzer

CESifo

Poschingerstr. 5, 81679 Munich, Germany

Phone: +49 (89) 9224-1410 - Fax: +49 (89) 9224-1409

office@CESifo.de

<http://www.cesifo.de>

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Economics & Psychology: Developments and Issues

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Bruno S. Frey and Alois Stutzer
University of Zurich
and

CREMA- Center for Research in Economics, Management and the Arts^{*}

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The interface between economics and psychology contains imports and exports: elements from psychology are introduced into economics, and vice versa. Since the authors are economists, only the influence of psychology on economics is discussed here. The reverse influence is left to psychologists to consider, but our general impression is that so far only few elements have been brought into psychology.

The developments and issues covered here are based on our personal evaluation and the selection strongly shaped by our research interests. No effort towards “objectivity” if it were even possible, is made. Rather, we advance our own opinions in order to stimulate the discussion, knowing that other scholars would focus on different aspects, and evaluate them differently.¹

We understand “*Economics & Psychology*” as interactions of the two disciplines in several dimensions: exchange of scientific insights, improvements of empirical methods and personal scholarly exchange. For at least two reasons, this is a much broader view on the interface

^{*} Address: Institute for Empirical Research in Economics, University of Zurich, Bluemlisalpstr. 10, CH-8006 Zurich, Switzerland. Phone: 0041-44-634 37 31, fax: 0041-44-634 49 07, e-mail: bsfrey@iew.unizh.ch and astutzer@iew.unizh.ch. We are grateful to Christine Benesch, Matthias Benz, Simon Lüchinger, Susanne Neckermann and Anna Winstein for helpful comments.

¹ See the surveys dealing with economics and psychology, examples being Schoemaker (1982) and Rabin (1998; 2002). The authors have also provided a survey of their own, see Frey and Stutzer (2001).

between the two disciplines than the introduction of Behavioral Decision Research (a subfield of psychology) into economics, sometimes called “Behavioral Economics”. Firstly, *Economics & Psychology* takes both imports and exports from economics to be part of the field while behavioral economics is focusing on improving economics by psychological elements.² Secondly, *Economics & Psychology* is not restricted to behavioral aspects but extends, for instance, to reported subjective evaluations such as undertaken in happiness research.

In our discussion, we briefly cover four areas: anomalies, experiments, motivation and happiness.

I. Anomalies

Rarely a field in economics has been so strongly dominated by one set of authors as has been the case with anomalies. The article by Tversky and Kahneman on “Prospect Theory” published in *Econometrica* (1979) has indeed been the most cited article of this journal. The *psychologist* Kahneman therefore rightly received the Nobel Prize in *Economics*.³

Tversky and Kahneman’s article attracted the attention of a large number of economists by providing an alternative to the classical economic approach of Subjective Expected Utility Maximization. Moreover, particular elements of Prospect Theory such as “loss aversion” became widely known and were applied to a vast number of different issues. Both have become part of modern economics despite the fact that most scholars consider them to be incompatible with neoclassical theory (to which many of them otherwise adhere). This does not necessarily mean that Prospect Theory has become part of the syllabus taught to undergraduates; indeed many micro-economics textbooks still choose to disregard it.⁴

The dominance of Tversky and Kahneman’s approach has perhaps overshadowed other work by psychologists in this vein. An example is the work by Gigerenzer (2000) who claims that

² The research in behavioral economics is described as “Most of the papers modify one or two assumptions in standard theory in the direction of greater psychological realism.” (Camerer and Loewenstein 2004, 3). For a survey on the advances in behavioral economics see Camerer et al. (2004).

³ It may be argued that this has also been the case for Herbert Simon and his concept of “Bounded Rationality”, but Simon was no pure psychologist having graduated in political science.

⁴ The first three textbooks we checked and did not find a reference to prospect theory were Jehle and Reny (2001), Mas-Colell et al. (1995) and Varian (1992).

many of the effects contradicting SEU-theory essentially disappear when the probability formulation of uncertainty is substituted by a frequency formulation. Gigerenzer also argues that many of the heuristics used by individuals, which at first sight appear inconsistent with rationality, are perfectly compatible with the broader view of bounded rationality.

The anomalies or paradoxes found in psychology (and partly also in economics as e.g. by Allais 1953) have been introduced into economics mostly in two ways. The first approach analyzes the question of what cognitive limits of humans lead to what anomalies in behavior. This research has primarily been undertaken using laboratory experiments and has produced convincing evidence that under a wide set of conditions individuals are subject to anomalies compared to perfect or full rationality. The second approach has been axiomatic dealing with the question of how far formal decision theory must be adjusted in order to integrate these anomalies into economic theory. The purpose is to transform “anomalies” into “regularities”.

A third possible approach has, however, been rather neglected. It analyzes the incentives produced when individuals are subject to anomalies. This “incentive” approach studies the question of how individuals *react* when anomalies appear.⁵ On the one hand, persons subject to anomalies often become at least partly aware of them and realize that they suffer a utility loss and would benefit from avoiding them. The extent to which they are able to *guard* against utility reducing behavior depends on the available technologies, or on the marginal benefits and costs of doing so. On the other hand, when individuals are prone to anomalies, other actors have an incentive to *exploit* this irrationality. As a result of this interaction the equilibrium extent of anomalies observable depends on a set of institutional conditions determining the benefits and cost of guarding and exploiting. In general, anomalies are unlikely to be fully eliminated by such interaction; yet they are *transformed*. It seems that few laboratory experiments have taken this interaction sufficiently into account. An exception are market experiments some of which suggest that anomalies are eliminated under perfect competition (List 2003). However, the market is only one decision-making system; individuals act under many other conditions so that in equilibrium anomalies appear in different extent and form.

⁵ See Conlisk (1996, 684), and the more general earlier attempt by Frey and Eichenberger (1994).

II. Experiments

Laboratory experiments are the bread and butter of psychologists. Although economists have long thought that this technique could not be applied to their discipline, attitudes have changed dramatically. Today, laboratory experiments are widely accepted and used. Sessions at conferences are devoted solely to this technique, and there exist specialized societies and journals on experimental economics.⁶

The familiar advantages of lab experiments lie mainly in the possibility of controlled intervention for causal inference. The limitations, however, seem to be less well known. The reason may be an economic one. In order to run experiments outside the questionable classroom setting, a costly laboratory is necessary. The founding and running of a lab requires corresponding budgets. In order to get them assigned, the researchers must write applications “selling” the importance of experiments for their research. Success in receiving funding virtually binds them to use the lab in their research. They therefore tend to see social issues mainly or even exclusively in terms of a potential lab experiment. To secure their position, they are reluctant to accept criticism of this method by outsiders, let alone to raise doubt themselves. There is indeed a difference to standard econometrics using officially published statistics. Both the data and the computers nowadays are readily available, normally without charge to the investigators. They therefore are less committed to use the corresponding technique.

Laboratory experimenters have to some extent become a self-contained group whose major preoccupation is maintaining a high internal validity of their experiments, or what Harrison and List (2004, 1029) call “the passion for abstract scripts”. The quest for as context-free and abstract experimental conditions as possible does not provide more general findings if the context matters for the behavior of the subjects. Correspondingly, little emphasis has been put on external validity, i.e. on the question what the experiment and its results mean outside the lab. Some people perceive a non-negligible portion of laboratory experiments as dictated by self-defined issues internal to the discipline consisting in small variations around some basic game such as the ultimatum or the dictator game. As a result experimental economics has to some extent disassociated itself from the rest of economics, and has less influence than it otherwise could.

⁶ See the symposium in the *Journal of Economic Methodology* (vol. 12, no. 2, 2005) on the role of experiments in economics.

A few economists engaged in laboratory experiments are well aware of these limitations and have transcended them. Conventional laboratory experiments have been opened by using nonstandard subject pools (i.e. not only students), and more importantly by going into the *field* (see the survey by Harrison and List 2004). The extent of controls is reduced by taking the commodity, the task and the information set the subjects can use from the field (“framed field experiments”), or where the subjects do not know that they are in an experiment and do these tasks naturally (“natural field experiment”). Another step outside the constraints of the lab are “social experiments” where government agencies or other institutions undertake new programs whose consequences are studied (for surveys see Ferber and Hirsch 1978; 1982; Hausman and Wise 1985). This development should be welcomed and should not be seen mainly in terms of a loss of control of the experimental conditions. Indeed, it can be argued that abstract laboratory experiments fail to control for the contexts the subjects impose on themselves when solving the tasks. At the same time, this development raises the relevance of experimental research for general economic and social issues and the results can be linked more easily to econometric research based on official statistics and surveys.

III. Motivation

Psychology has helped economists to overcome the narrow concept of the homo oeconomicus, particularly the assumption that human beings always and everywhere pursue their selfish interest. It has now been firmly established by experimental and field research that humans are well capable of higher motives such as altruism and commitment (see, e.g., Fehr and Schmidt 2003 and Meier 2005 for surveys). *Pro-social behavior* has been found to be important under many conditions. Not surprisingly it is crucial with respect to donations and volunteering (see e.g. Frey and Meier 2004; Meier and Stutzer 2004). This is no small step forward not least because it makes economics more palatable to adherents of other scholarly disciplines who often tend to dismiss rational choice reasoning because of its “too cynical” view of human nature.

Another fruitful input from psychology into economics has been the notion of *procedural utility*. It has been convincingly demonstrated that people do not only value outcomes but also the way by which they are reached. Sometimes they are prepared to accept an inferior outcome if they feel that the process has been administered in a fair way (Lind and Tyler 1988). In social interaction, intentions also matter (Falk et al. 2000). Procedural utility is relevant in a great number of social and economic contexts such as democratic participation in

economic policy or in enterprises, or in the way taxpayers are treated (see the survey by Frey et al. 2004a).

Psychologists have also influenced economists' thinking by pointing out the importance of *intrinsic* motivation. This opens the door to a broader view of incentives which in economics was restricted to extrinsic factors, often to monetary compensation. Intrinsic motivation may be due to internalized norms or to the pleasures of pursuing a task as such. Field research has been able to establish that many economic activities and reactions can be better understood by accepting the existence of intrinsic motivation than by artificially concocting some extrinsic motive. An example is entrepreneurs whose main incentive to become independent is the larger work autonomy, an intrinsic value. They are prepared to choose this more risky work despite the fact that, on average, their income is lower, and their work load higher (e.g. Benz 2005).

The existence of intrinsic motivation as an additional incentive is not the only thing that matters. Perhaps even more important is the insight of Crowding Theory that extrinsic and intrinsic motivations cannot simply be summed up as was assumed in micro-economic theory. Rather, the use of extrinsic motivators can crowd out or crowd in intrinsic motivation, depending on identifiable conditions (Frey 1992; Gneezy and Rustichini 2000). For economics, crowding out is more relevant than crowding in because it may result in a reversal of the fundamental relative price effect: paying individuals can perversely induce them to work less by undermining work morale. This negative effect may be attributed to various causes. Some scholars prefer to see it as an informational response (Bénabou and Tirole 2003) while others resort more directly to the reasons given in the psychological literature (see, e.g., Frey 1997; referring to Deci et al. 1999).

Crowding Theory has important implications for principal agent theory, a cornerstone of the corporate governance literature (surveys are given by Gibbons 1998; Prendergast 1999; Becht et al. 2003). The common argument of the latter is that monetary compensation of employees should be aligned as closely as possible to their performance. This argument has spawned or at least stimulated the pay for performance movement, which has extended beyond the corporate sector, especially to public bureaucracy ("New Public Management"). However, recent huge scandals surrounding the management of large corporations in the United States and elsewhere has forced a reconsideration. Observers have become aware of the danger that a focus on monetary compensation as an incentive instrument may undermine work morale as well as honorable behavior – with potentially far-reaching political and social

consequences. Measures to maintain and foster the intrinsic motivation of employees, possibly by a stronger emphasis on selection, provide an alternative to relying on monetary compensation as an incentive instrument (see Frey and Osterloh 2002).

IV. Happiness

Traditional economics was totally convinced that utility *cannot* and *need not* be measured – and that view still exists today not only in economics textbooks. Psychology has taught us a different lesson. For a long time, psychologists discussed under what conditions can happiness measures reliably indicate individual well-being. This brought economics “back to Bentham” (Kahneman et al. 1997; more generally Kahneman et al. 1999). Some insightful economists such as Sen (1986) have for a long time harshly criticized the serious limits of analyzing human behavior by revealed preference alone. This had, however, little effect on economics teaching and research as long as utility was thought to be unmeasurable.

At present, psychologists inform economists about at least four different measurement methods to approximate utility. Most often used are global self-evaluation questions as included in representative surveys such as the Eurobarometer, the World Values Survey or national household panels. Other measures are based on Experience Sampling or the Day Reconstruction Method (Kahneman et al. 2004). The fourth approach uses brain scanning and thus links up to the new field of Neuro-Economics (Davidson et al. 2004; Camerer et al. 2005). These techniques do not measure the same aspects of individual well-being. Surveys on life satisfaction, for instance, are best suited to capture longer run global life evaluations while brain scanning captures short run positive and negative affects.

Economics & Psychology has become truly interdisciplinary in the empirical analysis of reported satisfaction with life. Personality, socio-demographic characteristics, economic circumstances (in particular income, unemployment and inflation) and institutional factors (e.g. the type and extent of democracy and political decentralization) have been identified as determinants of life satisfaction in cross-section and time series analyses (surveys are provided in Frey and Stutzer 2002b; Frey and Stutzer 2002a). Two aspects have come to the fore:

- Adaptation and relative evaluations have been shown to be of great significance for many determinants, in particular for the influence of income, unemployment but also marriage on happiness (Clark 2003; Stutzer 2004; Layard 2005; Stutzer and Frey 2005). Adaptation

and relative evaluations may possibly be understood in terms of the same cognitive and unconscious processes of comparisons to other states and other persons.

- Causation between circumstances and happiness often runs in both directions. Thus, for example, higher incomes provides higher subjective well-being but more satisfied persons are also more successful in social and economic life and tend to have higher incomes (Lyubomirsky et al. 2004). Similarly, unemployed individuals are markedly less happy, but unhappy people are less likely to get a job or to remain employed. While this dual causation is well recognized, it is difficult to analyze, in particular when there are serious data restrictions.

Research on happiness allows us to study many issues in the interface of *Economics & Psychology*. Two examples must suffice:

- The utility provided by *public goods* can be empirically evaluated. The traditional methods existing to capture the willingness to pay, however, have serious shortcomings. Methods relying on reflections in prices presume a flexible and near-perfect market which in most countries typically does not exist for housing prices and rents as well as for wages considered. Contingent valuation methods rely on questions about the willingness to pay for a specific public good and therewith induce individuals to bias their answers. In some cases, they are induced to think for the first time about the issue (“What are you willing to pay to prevent an oil spill in an Alaskan sound?”). Serious researchers are aware of the danger of directing the attention and unwillingly producing a Hawthorne effect but it is difficult to avoid (see Harrison and List 2004). In contrast, as the happiness data are collected independently of any particular public good this possible bias is circumvented. The new approach can be applied to many different public goods as has been shown for airport noise or terrorism (Frey et al. 2004b; van Praag and Baarsma 2005).
- Individual decisions with few exceptions involve future utilities. Economic theory has assumed as a matter of course that individuals correctly predict what amount of utility will be derived from future consumption. Indeed, standard micro-economics has solved the problem by assuming that preferences are unchanged and that therefore present utility from an alternative is the same as future utility from it. Psychologists have adduced convincing arguments that this assumption is way off the mark (Loewenstein and Schkade 1999; Wilson and Gilbert 2003). Individuals seriously mispredict the future utility of commodities. As included already in van Praag (1968), people overestimate the

utility they will derive from future income. For economics the essential point is that the extent and direction of misprediction varies between commodities. While the future utility of material goods tends to be overestimated, the future utility of social interaction tends to be underestimated. Empirical research suggests that as a result people tend to devote too much time to work and too little time to be with the family and friends. According to their own evaluation, they reach a lower level of well-being than they could if they were not subject to such systematic misprediction (Frey and Stutzer 2004).

V. Conclusions

This introduction has achieved its goal if the reader has become aware that *Economics & Psychology* is a vibrant and fruitful field. We have argued that psychology has had a strong impact on economics: it has helped to substitute the assumption of complete rationality by isolating anomalies in individual behavior; it has made experiments a valid and widely accepted method of research; it has broadened the view of human nature by showing pro-social, intrinsic and procedural aspects in people's preferences; and by showing that utility can be measured has induced economists to participate in happiness research. The danger that *Economics & Psychology* becomes an additional playground to exhibit one's mathematical prowess is perhaps smaller than in other areas because psychologists' influence has from the very beginning introduced a strong empirical (experimental) orientation.

We have argued that remarkable insights have already been reached but at the same time we are fully aware that in so many respects we still know so little. The field is widely open for future research.

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