Worktime reduction and rebound effects

Special Session “Energy, Efficiency, and Growth – Analyzing the Rebound Effect”

Behavioral turn in the analysis of rebound effects

The comprehension of rebound effects evolved over time. Most commonly, the understanding of rebound effects stemming from a more efficient use of a certain technology prevails throughout the literature. As soon as monetary savings occur due to efficiency gains, substitution and income effects of demand compensate potential savings. More comprehensively, Sorrell (2010) refers to rebound effects as “the unintended consequences of actions by households to reduce their energy consumption and/or greenhouse gas (GHG) emissions“. From an economic point of view, it basically does not matter for the analysis of effects if, for instance, more efficient light bulbs are plugged in, a candle is lit up or the light´s stay just switched off. It is no matter of efficient, consistent or sufficient sustainable actions, but of monetary savings (Buhl 2014). Every action that responds to savings in resources is prone to rebound effects. That ‘behavioral turn’ in the analysis of rebound effects responds to potential changes in consumer preferences and social institutions like the organization of labor (Greening et al. 2000, more recently Peters et al. 2012 and Santarius 2012). With respect to time, Greening et al. (2000) already saw changes in the allocation of time due to technological advances such that Jalas (2006) classified the notion of time use rebound effects as transformational rebound effects.

An elective affinity of social acceleration and economic growth

In this respect, a significant reduction of working time is considered to tackle issues that come with ecological sustainability in the shadow of productivity driven growth, social justice in the wake of a re-distribution of working hours followed by individual quality of life with an enhanced work-life balance (Schor 2005, Jackson and Victor 2011, Coote and Franklin 2013). By now, economic growth and social acceleration have formed what Max Weber (1930/1998) once called an elective affinity (*Wahlverwandtschaft*). So far, gains in productivity are re-invested in favor of economic growth. But gains in productivity due to technological progress may just as well realize leisure time. Still, despite rapid technological and time saving innovation, labor productivity speeds up for the sake of rapid innovation cycles which manifest in work and spend cycles by consumers. This brings a scheduling society (Southerton 2005) that manages time such that options may become obligations when ‘greedy insitutions’ (Coser 1974) ask for commitment in private and professional life. Consumers face a cornucopia of choices to make. And with emerging options at an increasing pace, opportunity costs of consumer decisions rise. Consequently, the pursuit to

diminish opportunity costs by squeezing actions per time accelerates lifestyles in an experience oriented society (Rosa 2013, Schulze 2013). More generally, Linder (1970) stated that in modern, western societies, disposable time decreases as productivity and wealth increases. Time savings become as precious as (economic) life speeds up.

The rationale behind time rebound effects

In contrast to money, time can be neither retained nor accumulated. In this sense, time is relatively 'democratic'. Besides the fact that average mortality declines and life time differs, hours per day, days per week and weeks per year constitute a universal and absolute budget constraint in calendars and clocks. Rosa (2013) describes 3 strategies to speed up lives: increase the speed of the action itself (e.g. fast food, speed dating), 2) reduce waiting or idle times (e.g. breaks, power naps, cues) and 3) multitasking. In the end, the pace of (economic) life accelerates, people become surfers and drifters (Rosa 2013) facing ubiquitous time scarcity, while paradoxically, technological change is evermore supposed to save time and increase one´s individual free time. Binswanger (2001, p. 131) concludes that "... the overall effect of time-saving technological progress will be an increase in energy use".

In rational terms, time is allocated to activities such that an increase in time use for one activity (over)compensates a decrease in time use for the other in order to maximize utility. Then, diminishing marginal returns suggest a love of variety and a diversification of activities to maximize utility. Given a constrained time budget, diversified consumption patterns imply the need for time savings. Accordingly, relatively time intensive, but inexpensive activities are prone to time rebound effects - private mobility for instance. Here, direct rebound effects may come with a transfer from regular trains to high speed trains, from train to plane. In the long run, Parkinson's law suggests that the work expands to fill the time available for it such that travel distances stretch. Time intensity of consumption is substituted by resource intensity of consumption. On the opposite, advocates of time intensive consumption suggest the concentration on few activities that promise increasing marginal returns enhances quality of life in the face of scarce time budgets. Spending discretionary time on individually meaningful activities provides a significant gain in life satisfaction despite potential financial losses. Then, time intensive activities in traditional hobbies, social life as well as honorary office or home care besides employment become relevant again (Gershuny 2000).

Empirical work on time rebound effects

The indication of time use supports a more comprehensive understanding of rebound effects. Observing time use enables to fully cover social practices of

everyday life. Robinson and Godbey (1997) ascribe a zero sum game to time budgeting – activities inevitably substitute activities. From the perspective of ecological sustainability, Druckman et al. (2012) and Aall et al. (2011) found that time savings from reduced working hours and gains in leisure time may be employed in more resource intensive consumption. From the perspective of quality of life, Garhammer (1999) for instance showed that life satisfaction is dependent on to the amount of discretionary time as well as to the amount of consumption. Yet, comparative studies on time use insufficiently account for a detailed analysis of the substitution of activities, their time budgets and its rationale in order to describe time rebound effects and comprehend them as transformational effects.

I seek to elaborate on the social differentiation of time use from quantitative analysis as well as on typical substitutions of activities and its institutional drivers from qualitative research. I present findings from semi-standardized interviews that have been conducted with people that reduced their working time. Following Jalas (2002) model of time rebound effects, I investigate whether it holds true that resource intensive consumption is increasing or substituted by time intensive activities due to an increase in leisure time. The qualitative research allows to present motivational and institutional drivers of changes in time use. In addition, I want to give insights into the relationship between main categories of time use and life satisfaction in Germany by analyzing types of time use in the German Socio-Economic Panel between 2001 and 2011. Eventually, I want to contribute to the empirical analysis of time rebound effects and support a transformational understanding of rebound effects in the context of social acceleration and economic growth.

Literature

Aall, C., Klepp, I. G., Engeset, A. B., Skuland, S. E., & Støa, E. (2011). Leisure and sustainable development in Norway: part of the solution and the problem. *Leisure Studies*, *30*(4), 453-476.

Binswanger, M. (2001). Technological progress and sustainable development: what about the rebound effect?. *Ecological economics*, *36*(1), 119-132.

Buhl, J. (2014). Revisiting Rebound Effects from Material Resource Use. Indications for Germany Considering Social Heterogeneity. *Resources*, *3*(1), 106-122.

Coser, L. A. (1974). *Greedy institutions: Patterns of undivided commitment*. New York: Free Press.

Coote, A. & Franklin, J. (Ed.) (2013). *Time on our side: why we all need a shorter working week.* New Economics Foundation, London.

Druckman, A., Buck, I., Hayward, B., & Jackson, T. (2012). Time, gender and carbon: A study of the carbon implications of British adults´ use of time. Ecological Economics, 84, 153–163.

Garhammer, M. (1999). Time structures in the European Union: A comparison of West Germany, UK, Spain and Sweden. *Time use : research, data, and policy*.

Gershuny, J. (2000). *Changing Times: Work and Leisure in Post-Industrial Societies*. New York: Oxford University Press.

Greening, L. A., Greene, D. L., & Difiglio, C. (2000). Energy efficiency and consumption – the rebound effect – a survey. *Energy Policy,* (28), 389–401.

Jackson, T., & Victor, P. (2011). Productivity and work in the 'green economy': Some theoretical reflections and empirical tests. *Environmental Innovation and Societal Transitions, 1*(1), 101-108.

Jalas, M. (2006). *Busy, wise and idle time: a study of the temporalities of consumption in the environmental debate*. Helsinki School of Economics.

Jalas, M. (2002). A time use perspective on the materials intensity of consumption. *Ecological Economics*, *41*, 109–123.

Linder, S. B. (1970). *The harried leisure class*. New York: Columbia University Press.

Peters, A., Sonnberger, M., Dütschke, E., & Deuschle, J. (2012). *Theoretical perspective on rebound effects from a social science point of view: Working paper to prepare empirical psychological and sociological studies in the REBOUND project* (No. S2/2012). Working paper sustainability and innovation.

Rosa, H. (2013). *Social Acceleration: A New Theory of Modernity*. Columbia University Press.

Santarius, T. (2012). *Green Growth Unravelled. How rebound effects baffle sustainability targets when the economy keeps growing.* Berlin/Washington: Heinrich Boell Foundation/Wuppertal Institute.

Schulze, G. (2013). The experience market. In Sundbo, J., & Sørensen, F. (Eds.). *Handbook on the Experience Economy*. Edward Elgar Publishing, pp. 98 – 122.

Schor, J. (2005). Sustainable Consumption and Worktime Reduction. *Journal of Industrial Ecology*, *9*(1), 37–50.

Sorrel, S. (2010). *Mapping rebound effects from sustainable behaviours: Key Concepts and Literature Review.* Sustainable Lifestyles Research Group (SLRG) Working Paper 01-10

Weber, M., & Parsons, T. (1930/1998). *The Protestant ethic and the spirit of capitalism*. Roxbury Publications.