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Toward a Deeper Economics of Sleeping

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Author

Bergstrom, Ted

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Miscellany

Toward a Deeper Economics of Sleeping

Exhaustive study of Professor M. A. El Hodiri's tedious, yet curiously superficial analysis of the economics of sleeping has led to a powerful and remarkably boring reformulation of Hodiri theory.¹

As Hodiri astutely observes, it is difficult to deny that a sensible man would seek to maximize $U(x, y) = x^2y$ where x is daily consumption and y is the fraction of the day spent in bed. Hodiri supposes that daily consumption equals daily income, which in turn equals the daily wage rate, w , times the fraction of the day one spends out of bed.² Hence $x = w(1 - y)$. But then $U = w^2(1 - y)^2y$. By substituting all real numbers between zero and one into this expression, the reader will quickly verify that U is maximized when $y = \frac{1}{3}$. Thus Hodiri asserts that, regardless of the wage rate he receives, a sensible man will sleep $\frac{1}{3} \times 24 = 8$ hours per day.

Had Hodiri been more deeply embedded in the profundities of economic literature, he could hardly have closed his eyes to the abundance of platitudinous evidence that some reap who do not sow. This fertile observation makes two things obvious. One is that the Hodiri equation, $x = w(1 - y)$, must be replaced by $x = w[(1 - y) + (R/w)]$ where R is daily earnings from nonlabor sources. The proper substitution for $U = x^2y$ is then $U = w^2[1 - y + (R/w)]^2y$. Consequently, U is maximized when $y = \frac{1}{3}[1 + (R/w)]$. This inescapable truth would appear to rend Hodiri theory all to pieces. How can it be that sensible men have

¹ It would be difficult to underestimate the importance of El Hodiri's contribution in enabling the author to achieve these heights of pedantry. Historians of thought could no doubt find many wearisome parallels in the advance of science. Though I do not presume to have mounted the shoulders of a giant, I hope that I have trod gently on the toes of El Hodiri.

² Professor J. T. Little of Washington University, St. Louis, in an unpublished note, maintains that not all time out of bed is spent in productive labor. However, there is reason to suppose that Little's observations have been confined to a pathological sample of the labor force.

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always slept 8 hours unless R/w has always been both constant and zero?

Resolution of this fearsome paradox will display once again to the jaded reader the beauty and the mystery of Economic Fairyland. Observe that the source of nonwage income is called "capital." Where r is the daily interest rate, K is the stock of capital, and N is the size of the labor force, the average daily nonwage income is $R = rK/N$. Then $R/w = (1 - y)rK/(1 - y)wN$. Since total daily labor income is $(1 - y)wN$, $rK/(1 - y)wN$ is the ratio of capital's share to labor's share of national income, which is well known to have been remarkably constant over time and is in fact equal to $\frac{1}{4}$. Hence in all historical epochs, the average value of R/w has been $(1 - y)\frac{1}{4}$. Recalling that $y = \frac{1}{3}[1 + (R/w)]$, making the appropriate substitution, and solving for y , we have $y = \frac{5}{13}$. Now $\frac{5}{13} \times 24 = 9.231$ hours. Thus have we elegantly vindicated Hodiri's tiresome "first law of soporifics," namely, "In all epochs the average man has spent the same amount of time in bed."

There remains a yawning chasm between Hodiri's banal "second law of soporifics" which is "most people sleep 8 hours a day" and our unassailable demonstration that the average man has always spent 9.231 hours per day in bed. As in the science of astronomy, the existence of the planet Pluto was first conjectured as a consequence of a remarkable deviation of planetary orbits from those predicted by pure theory, so must we conjecture that the average man spends 1.231 hours per day in bed doing something other than sleeping. I eagerly await the announcement that some penetrating theorist or tireless data-massager has actually discovered Activity X .

T. C. BERGSTROM

Washington University

Reference

El Hodiri, M. A. "The Economics of Sleeping." Unpublished manuscript, University of Kansas, 1973.