The mathematics of labor

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Abstract

In this paper, I describe the mathematics of labor.
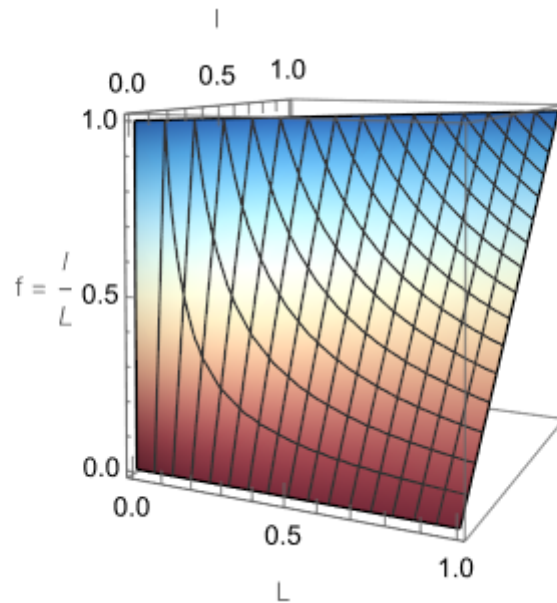The paper ends with "The End"

Introduction

The mathematics of labor is **invaluable** to economics, finance,
statistics and psychology.
In this paper, I describe the mathematics of labor.

The fraction of labor to leisure

The fraction f of labor l to leisure $L \neq 0$ is
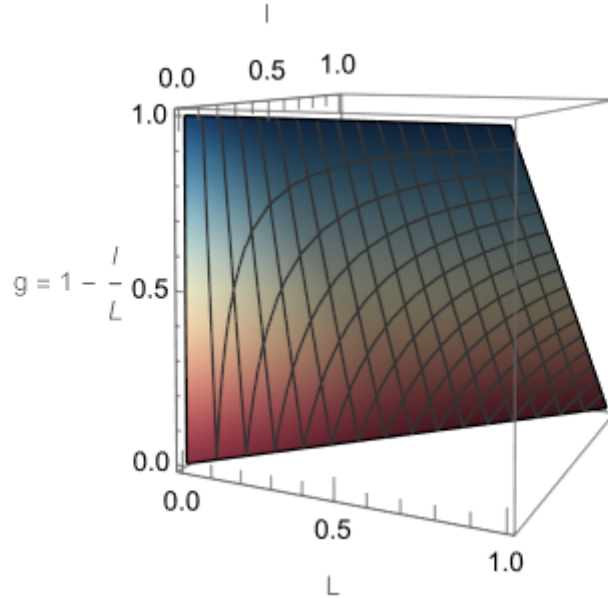
$$f = \frac{l}{L}$$

The surface of fraction of labor to leisure

The fraction of rest to leisure

The fraction g of rest $L - l$ to leisure $L \neq 0$ is

$$g = 1 - \frac{l}{L}$$

The surface of fraction of rest to leisure

The discounting of f through the risk-free rate and the labor premium

The discounting of f when the risk-free rate is r_f through the labor premium p_l requires

$$g = \frac{f}{1 + r_f + p_l}$$

Eliminating f and g

Eliminating f and g from the equations above yields

$$1 - \frac{l}{L} = \frac{\frac{l}{L}}{1 + r_f + p_l}$$

which can be solved to obtain

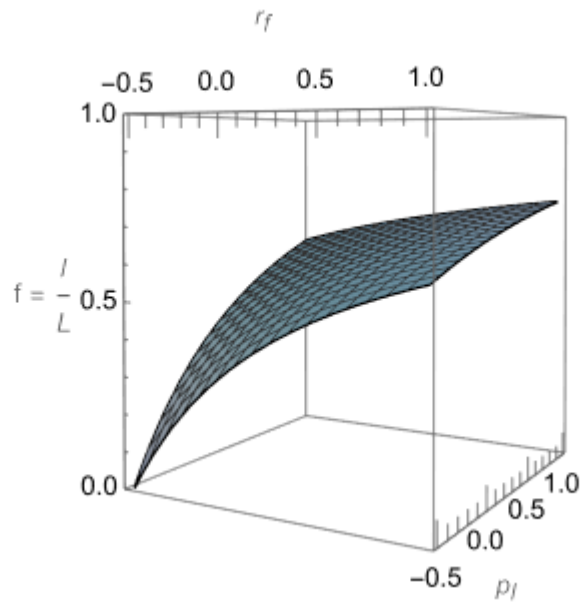$$f = \frac{l}{L} = \frac{1 + r_f + p_l}{2 + r_f + p_l}$$

When

$$-\frac{1}{2} \le r_f \le 1$$

and

$$-\frac{1}{2} \le p_l \le 1$$

we obtain

the surface of the fraction of labor to leisure

The surface of the fraction of labor to leisure

The End

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