Luxury and Wealth
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LUXURY AND WEALTH*

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I develop a dynamic theory of luxury consumption, particularly emphasizing the causal effect that pursuit of luxury goods has on wealth accumulation. A quasi-luxury is defined as a good whose marginal rate of substitution is increasing in a utility index. Under certain conditions, it is indeed a luxury good. When current wealth holding falls short of (exceeds) long-run needs, luxury consumption is postponed more (less) easily than necessity consumption, due to a lower (higher) time preference for luxury and/or a higher intertemporal elasticity of substitution thereof. Preferences for quasi-luxuries lead to a higher steady-state value of wealth or capital.

Countries which have sumptuary laws, are generally poor.
(Sir Dudley North, *Discourses Upon Trade*, 1691, p. 14)

1.   INTRODUCTION

By definition, the wealthier allocate higher proportions of their expenditures to luxuries than the poorer do. The standard price theory would describe this by saying that the richer consume more luxuries because they have more wealth. Using this static argument, which takes wealth holding as given, the pursuit of luxuries has often been condemned for enhancing the propensity to spend and decreasing saving, thereby harming capital formation and/or worsening the balance of payments. Partly for this reason, many countries, especially developing ones, commonly levy high luxury taxes and/or high luxury import tariffs.[2] From a dynamic viewpoint, however, how much wealth consumers accumulate is a part of their lifetime utility-maximization problem, as is how much of each good they consume in each period. If optimal saving behavior itself depends on the preference

[2] In the recent past, for example, Thailand levies luxury taxes on the entertainment industry that could be as much as 25%. Algeria imposes a 150% tax on caviar. Indonesia's luxury tax and import tariff on passenger cars of more than 3000 cc engines amount to 50% and 80%, respectively.

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A Dynamic Theory of Luxury

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Introduction

This paper develops a new dynamic theory of luxury consumption by using a mathematical model of dynamically optimizing consumers, focusing on the bilateral relationship between luxury and wealth accumulation. Particularly emphasized is the causal effect that pursuit of luxury goods has on wealth accumulation.

In economics, luxury goods are defined as ones whose shares in total consumption expenditures increase as income increases. By this definition, the wealthier allocate higher proportions of their expenditures to luxuries (e.g., good restaurant dinner) than the poorer do. The existing standard economic theory would describe this by saying, e.g., that the richer enjoy more expensive wine because they have more wealth. From a dynamic viewpoint, however, how much wealth consumers accumulate is a part of their lifetime consumption plan, as is how much of each good they consume in each period. If a consumer's saving behavior itself depends on how strongly he or she wants to spend luxurious lifetime and hence on his or her preference for luxuries, the effects of luxury taxation might well differ from what has been commonly believed. A comprehensive understanding of luxury consumption and its policy implications requires such a dynamic analysis as in this paper.

The topic of how preferences for luxury goods affect the total amount of national wealth is so old that it goes back to at least the seventeenth century (see, e.g., Mandeville (1714), List (1841), Sombart (1912)). My paper is a tentative response using modern consumption theory to this homework that has been left undone for a long time.

Characterizing luxury and necessity goods in consumers' intertemporal choices

In dynamic consumer theory, the optimal rate of consumption growth depends on two parameters: the rate of *time preference* ρ, as a measure of the degree of impatience, and the *intertemporal elasticity of substitution* σ, measuring the degree of tolerance to consumption variations. Roughly, the growth rate of optimal consumption is proportionate to the difference between the market interest rate r and time preference, r-ρ, with the proportion coefficient being equal to the intertemporal elasticity of substitution σ. Therefore, the lower time preference, the higher the consumption growth rate. Given the magnitude of a gap between the market interest rate and time preference, r-ρ, the larger the intertemporal elasticity of substitution, the larger the absolute value of the consumption growth rate.

In the existing literature, the set of the two parameter values is usually assumed to be the same among consumption goods. One of the key ideas in this paper is that I abandon this simplifying assumption by allowing for different parameter values for different goods. This enables me to describe distinct consumption dynamics for luxury and necessity goods.

By using a mathematical model, I show that luxury goods are characterized by lower (resp. higher) rates of time preference and/or higher intertemporal elasticity of substitution when wealth is increasing (resp. decreasing) over time. Formally, letting ρ^l and ρ^n represent time preferences for luxury and necessity goods, respectively, and σ^l and σ^n denote the intertemporal elasticities of substitution for the two goods, the first main proposition is expressed as that luxury and necessity consumptions satisfy:

(1) $\rho^l <$ (resp. >) ρ^n ; and/or (2) $\sigma^l > \sigma^n$,

when wealth is increasing (resp. decreasing) over time. I call a good that satisfies relation (1) a *quasi-luxury* good. By definition, people are patient for *quasi-luxury*. In the paper, I derive a necessary and sufficient condition for a quasi-luxury good to be a luxury good.

The characterizations (1) and (2) of luxury describe consistently the often-observed consumption patterns of nice restaurant dinners (i.e., luxury) and ordinary dinners at home (i.e., necessity) in terms of consumers' wealth-accumulating behavior. When current wealth holding falls short of the long-run required level, consumers usually save by holding down spending on nice restaurant dinners more than on ordinary dinners at home. In this sense, under wealth accumulation, luxuries are likely to be postponed more easily than necessities. This tendency is attributed not only to a higher intertemporal elasticity of substitution of luxury consumption but also to a lower time preference therefor.

In contrast, when wealth exceeds long-run needs, consumers are likely to increase spending more on restaurant dinners relative to the long-run level than on dinners at home today to decumulate wealth. In this sense, under wealth decumulation, luxuries are given priority over necessities today. From relations (1) and (2), this behavior can be explained by a higher time preference for luxury consumption and/or a higher intertemporal elasticity of substitution thereof.

Quasi-luxury preference promotes wealth accumulation.

The second main result of this paper is that a stronger preference for quasi-luxuries leads to a higher long-run value of wealth. Roughly, quasi-luxury consumption is associate with large wealth holding, and a preference for quasi-luxury induces a preference for wealth accumulation. People who like to enjoy lifetime by spending more on good restaurant dinner, than on
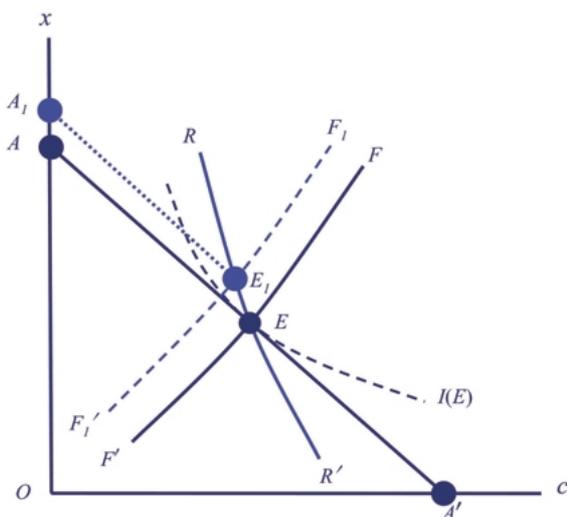
Figure 1. Quasi-luxury promotes wealth accumulation.

Figure 2. Total consumption elasticities and time preferences (in annual rates) of necessity and luxury goods. Time preferences are elicited by estimating by GMM good-specific Euler equations with external habits. Consumption data is from the Family Income and Expenditure Survey, 1971-1994. For the interest rate data, yields of bonds with repurchase agreement are used.

ordinary house dinner, have to accumulate wealth first.

Figure 1 illustrates the long-run determination of optimal consumption of a consumer, where c and x denote qausi-necessity and quasi-luxury consumptions. Downward sloping schedule RR' depicts the locus of (c, x) that equalizes the long-run time preference to the interest rate. Upward sloping schedule FF' represents the long-run contract curve, along which the subjective relative price between the two goods equals the corresponding relative market price. The long-run consumption basket (c, x) is determined at the intersection point E of schedules RR' and FF'. Given the consumption basket, in turn, the no-saving condition is depicted by schedule AA', which goes through point E with slope being equal to the relative price. Its vertical intercept OA gives the long-run wealth holding. Curve $I(E)$ represents the indifference curve at point E, which is tangent to budget schedule AA' at point E. Given that good x is a quasi-luxury, the paper shows that schedule RR' is steeper at point E than indifference curve $I(E)$ and hence than budget schedule AA'.

The long-run wealth holding, given by point A, may well reflect consumer preferences for the two goods as well as time preference. As an important implication, quasi-luxury preferences promote wealth accumulation, as explained as follows. An increase in the preference for quasi-luxury shifts the FF' schedule upward, bringing the optimal point from point E to E_1. The consumption of quasi-luxury x thus increases and that of quasi-necessity c decreases. Since schedule RR' is steeper than AA' and E_1A_1, the upward shift of the FF' schedule increases total wealth from OA to OA_1.

Policy implications:

Using the traditional static argument which takes wealth holding as given, the pursuit of luxuries has often been condemned for enhancing the propensity to spend and decreasing saving, thereby 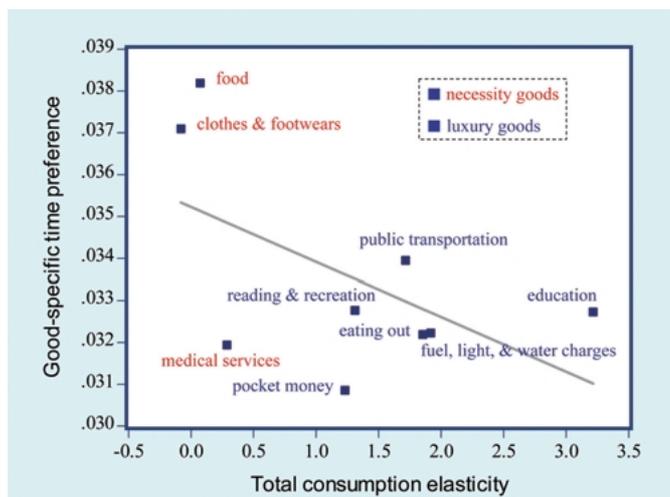harming capital formation and/or worsening the balance of payments. Partly for this reason, many countries, especially developing ones, commonly levy high luxury taxes and/or high luxury import tariffs. However, as easily conjectured from the above discussions, restricting luxury consumption harms wealth accumulation. In figure 1, this can be seen by considering the effect of taxation on quasi-luxury x at consumption point E_1. The luxury-restricting policy shifts the corresponding F_1F_1' curve downward, say to FF', thereby reducing wealth holding from OA_1 to OA.

Concluding remarks: Toward empirical analysis

An important hypothesis that is presented by this paper is that the rate of time preference with respect to a luxury good is likely to be lower than with respect to a necessity good when wealth is increasing over time. To check tentatively its empicail validity, I have estimated good-specific time preferences for various goods by using the Japanese consumption data of 1971-1994, during which total consumption expenditures were growing. Figure 2 summarizes how the estimated good-specific time preferences relate to total consumption elasticities. By definition, total consumption ealsticity is higher than one for luxury goods whereas lower than one for necessity goods. Consistent with my hypothesis, time preferences for luxuries (e.g., eating out and education) tend to be lower than for necessities (e.g., food and clothes and footwears).

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