A Classroom Experiment on Status Goods and Consumer Choice

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June 8, 2009

Abstract

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[1]I would like to thank Brit Grosskopf, Jose A. Pagan, Shane Sanders, and the reviewers of the economic education poster session proposals (AEA Committee on Economic Education, 2010 ASSA meeting in Atlanta) for insightful comments and constructive suggestions.
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Abstract

This paper presents a classroom experiment that illustrates the impact of socioeconomic positional concerns on consumer choice and welfare. Students decide on how to allocate a budget across two goods: a non-positional (consumption) good and a status good. The amount invested in the status good determines all students' relative standing in the classroom (elite, upper class, middle class, or lower class citizens). The utility of each student depends both on relative standing and absolute consumption of the non-positional good. This experimental design has been used in principles of microeconomics classes to illustrate both experimentally and theoretically that an increased income does not increase utility and well-being in the presence of positional goods and "catching up with the Joneses" considerations.

1 Introduction

The idea that status concerns can have an impact on economic behavior has a long tradition in economics and the social sciences. The notion that relative income matters can be traced back to the works of the classical economists, yet, the theoretical foundation of the relative income hypothesis and the premise that positional considerations impact consumption and savings decisions are due to Thorsten Veblen (1899) and James S. Duesenberry (1949).

Duesenberry's relative income theory has been almost completely overshadowed since the 1950s and 1960s by Friedman's permanent income model and subsequent life-cycle models of consumption and savings despite the fact that these models are less successful in explaining existing empirical evidence. The research on relative income and conspicuous consumption has grown considerably in recent years. Currently, Duesenberry's theory is virtually absent from economics textbooks, and students' first encounter with the relative income hypothesis is mostly through journal articles.

The contemporary empirical literature which started with Easterlin (1974) generated ample evidence that people evaluate their own consumption relative to that of others.[3] Recent laboratory experiments provide further evidence of the importance of status considerations. Charness and Grosskopf (2001) explore the link between self-reported happiness and behavior in distribution experiments. They find that subjects who report lower levels of happiness are more likely to act in a way that lowers the payoffs of their counterparts below their own. Charness and Rabin (2002) observe that welfare-damaging behaviors occur more often in the direction of increasing inequality than in the direction of decreasing inequality between subjects.

[3] See Oswald (1997) for a survey of the older literature, and Luttmer (2005) and Solnick and Hemenway (2005) for more recent empirical studies.

The distinction between absolute and relative aspects of utility has significant implications for an array of important public policy issues ranging from government taxation and expenditure (Abel 1990; Frank 1985a; Frank 1985b, Frank 2008; Ljungqvist and Uhlig 2000), to regulation of unions and the design of retirement savings and social security programs (Frank 1985a), and also to health care reform and the possible effects of socioeconomic status on health outcomes (Goodman, Slap and Huang 2003; Gravelle and Sutton 2009).

Given the theoretical and practical significance of positional concerns on consumer choice, it is important that students of economics, business, public administration, and the social sciences in general become familiar with the behavioral and welfare aspects of relative income theories. Economics textbooks, for example, rarely discuss the effects of status concerns on consumption choices and well-being, and the topic, although important, is usually ignored in principles of economics courses.

To address this gap, this paper presents a classroom experiment that introduces status considerations into the classical consumer choice problem. The experiment is easily adaptable to classroom audiences of various sizes. It takes no longer than one class session (1 hour and 15 minutes)—including discussion—and allows every student to make choices and observe the outcome of his/her choice depending on the choices of the remaining classroom participants. The experiment can be embedded in a classroom session that introduces the concepts of utility and optimal consumer choice. This classroom exercise introduces the distinction between positional and non-positional goods and illustrates (a) how status considerations affect consumption choices; (b) how the choices of one's peers affect one's personal well-being; (c) how, in turn, these choices impact optimal personal behavior; and (d) why an increased income does not lead to higher consumer welfare when "keeping up with the Joneses" considerations are present.

The proposed framework is similar in spirit to the theoretical models by Frank (1985a) and Hopkins and Kornienko (2004), and is able to illustrate most of their results. The setting is simple enough to permit an analysis that does not require any knowledge of mathematics beyond multiplying and comparing numbers. The simple theoretical framework and the experiment are able to illustrate the intuition behind the main conclusions of the leading theoretical models in a straightforward manner, and the overall design of the classroom exercise is suitable for students with diverse academic backgrounds.

The need to bring research findings on the relative income hypothesis to the classroom has recently been recognized in the literature on economic education. Sanders (2009) provides an exhaustive and well-organized summary of the recent developments in this field and presents an analytical framework based on indifference curves that is ideally suitable for a classroom session. The present paper complements these efforts in two ways. First, it explicitly models the positional externality by proposing a simple yet intuitive mechanism by which each student's behavior impacts the well-being of the rest of the group. Second, it allows students to interact in an experiment. That is, students are able to experience "firsthand" how considerations of relative position affect their behavior, the behavior of others, and ultimately, the well-being of everyone.

2 The model

Consider an economy with two goods: a purely positional (or status) good and a purely non-positional (or consumption) good.

Positional and consumption goods

A positional good is a good that is acquired solely for demonstration purposes. Its only role is to determine the relative standing of an individual in the community, but it has no value outside the societal context. The non-positional good, in contrast, has only consumption value, and cannot be used by an individual to gain status in the society. This distinction is purely conceptual, and it is clear that in reality many goods (e.g., a house, a car, or a vacation to an exotic locale) have both positional and non-positional aspects. Although these aspects coexist for most goods, often times it is easy to rank different types of consumption goods based on their positional characteristics. Most people would probably agree that children's education is more positional than leisure, or that real estate is more positional than health insurance coverage. While a house is not likely to be overlooked by friends and neighbors, people usually are not aware of how much others spend on health insurance coverage.[4] Similarly, a $500,000 Mercedes Benz Roadster is much more of a positional good than a heart surgery, and a Christian Audigier or Ed Hardy shirt is more positional than an economics textbook (although these goods might cost the same).

The classical consumer choice problem

As a starting point for a classroom discussion consider a classical textbook consumer choice problem. Let all consumers in the society derive utility from the consumptions of two goods, c and s. Assume that the price of each good is $1, and let consumers have a budget of $400 and a Cobb-Douglas utility function which is the product of the quantities purchased of the two goods. Standard utility maximization or an

[4] See Frank (1985a) for a discussion and Hirsch (1976: Ch. 3) for a definition of status goods.

indifference curve analysis reveals that each individual should split their budget equally between the two goods spending $200 on each of the goods.

Introducing a positional good

Now, let us introduce a positional element in the model by assuming that the good s is a status good. Each individual selects how much he/she wants to invest in the status good and in the consumption good. The available alternatives are given in the table below.

Table 1: Available choices

Your Choice	Consumption good	Status good
	$400	$0
	$300	$100
	$200	$200
	$100	$300
	$0	$400

Depending on their investment in the status goods, students are assigned to one of four possible classes in "society". Students who made the highest investment in the status good will be "upper class" citizens. If a student invested in status more than all other students (i.e., there are no ties) this student will be an "elite" citizen. If a student invested $100 less than the maximum amount invested by another citizen, this student will belong to the "middle class". If a student invested 200 or more dollars less than the highest amount invested by another student, this student will be a "lower class" citizen. The satisfaction derived from a student's consumption choice depends on the amount of money a student spent on the consumption good and the student's social rank factor. The rank factors are given in the table below.

Table 2: Rank factors

Rank	Factor
Elite (unique highest amount)	10
Upper class (highest amount tied with other citizens)	4
Middle class ($100 less than highest amount)	2
Lower class ($200 or $200+ less than highest amount)	½

The utility of each student is the product of the rank factor and the spending on the consumption good.

Theoretical solution

The availability of a positional good creates behavioral interdependencies across individuals that are not present in the standard utility maximization problem. The optimal choice of a citizen clearly depends on the investments of his/her fellow citizens in the positional good. The more other citizens invest in the positional good, the lower will be the status of an individual citizen and, in turn, the stronger will be his/her incentive to spend more on the status good. This increase in the spending on the status good in turn affects negatively the status of the rest of the players. We will analyze this "catching up with the Joneses" effect by considering the best responses of the players and examining the Nash equilibrium outcome of this game. For audiences without exposure to game theory there is an informal way to rationalize the equilibrium solution by discussing which choices are "not good choices" and subsequently eliminating these choices until only the equilibrium choices remain as possible "good" choices.

Let us consider what will be the best choice from the perspective of a single individual (me), given the highest amount invested by another citizen in the status good.

a) If all other citizens do not invest in the status good, then I will be an elite citizen by investing only $100 in this good. This is my optimal choice because I will belong to the elite and still keep as much as possible for personal consumption.

b) If the highest amount invested by my peers in the status good is $100, then I will be an elite citizen by investing $200 in the status good. This latter choice is optimal because the rank factor for elite citizens is substantially higher than the one for upper class citizens.[5]

c) If the highest amount invested by my peers in the status good is $200, then I will be an elite citizen by investing $300 in the status good. Similarly to the previous case, this choice is optimal (i.e., it brings the highest utility).

d) Consider now the case in which the highest amount invested by my peers in the status good is $300. To be an elite citizen I need to invest the full amount of $400 in this same good, but then I will have no money for consumption (I will belong to the "elite" but I will have "nothing to eat"). This is clearly not optimal. If I invest $300 in status I will belong to the upper class, and my utility will be $4\times100=400$. Alternatively, if I invest $200 in the status good, then I will be a "middle class citizen" and my utility will be $2\times200=400$. In this case it is optimal to invest either $200 or $300 in the status good. Investing less is inferior because the rank factor for the "lower class" is too low.

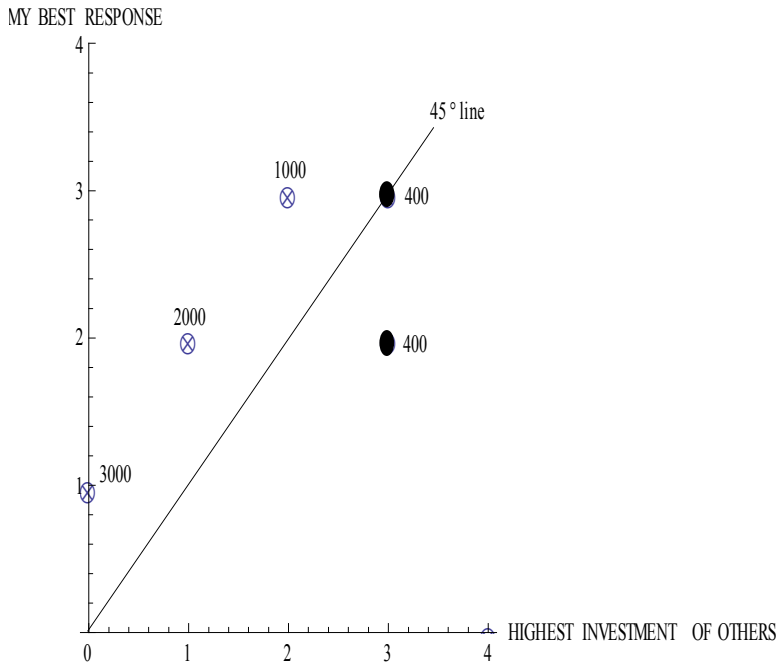
e) Let there exist a person who invested the entire budget in the status good. Such a behavior is clearly not optimal because there will be no budget left for consumption. The choice of investing $300 in the status good will put me in the "middle class" and my utility will be equal to $2 \times 100 = 200$. Alternatively, I can

[5] Making this optimal choice I will push the ones who invested $100 to the "middle class" and the ones who invested $0 to the "lower class".

decide not to strive for status at all and consume the entire $400 monetary units. This choice generates the same utility. So, investing either $0 or $300 in the status good are my two optimal choices.

How do rational players behave in this social “quest for status” game? Clearly, investing the entire amount in the status good is not optimal because there will be no budget left for consumption. But then no one will choose to invest $0 in the status good (and be a lower class citizen) because this is optimal only if there is a person who invested $400. Investing $100 is not optimal because in these cases there will always be someone who wishes to invest $100 more than you in order to become an elite citizen. Hence, the optimal choice for each citizen is to invest either $200 or $300. With this optimal behavior a two-class society emerges with upper class and middle class citizens, and all of them derive a utility of $400. The next figure presents the best response of an individual citizen given the highest amount invested in the status good by the other citizens.

Figure 1: Best response of a player depending on the highest amount invested in the status good by another player. Budget is $400. Investments are measured in hundreds on the graph. The numbers next to the best responses indicate utility. The thick dots are the equilibrium investments in status.

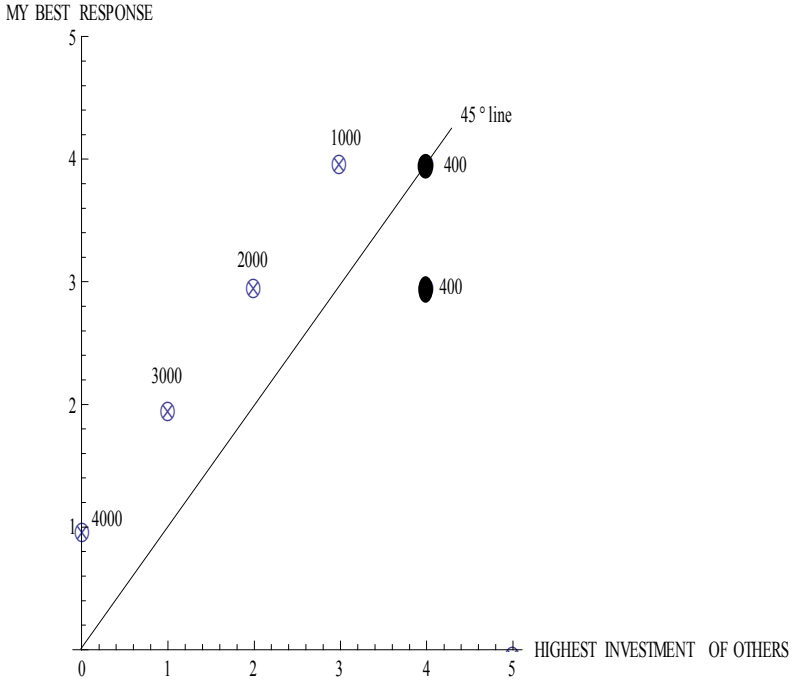


Increase in income

Let us assume now that income increases by 25% reaching a level of $500. Citizens decide how to split this budget between the two goods, whereby the expenditure on each good is constrained to be a multiple of $100 or zero. How will this increase impact people's well-being in a society where position matters? The effect of this income increase is quite predictable. The highest amount invested by a player will clearly be above $200 because otherwise there will always be a citizen who wants to invest more in status in the desire to become an elite citizen. As before, investing the entire amount of $500 is not optimal as it leaves no money for consumption. Thus, in equilibrium we will observe again a two-class society with upper class and middle class citizens and investments of $400 and $300 in the status good, respectively. The entire

increase in income will be wastefully expended on the status good causing all individuals to "run in order to keep at the same place" in the social hierarchy.[6] As we will see later, in the experiment this effect is even more pronounced. Experimental subjects compete to an extent where a higher income indeed leads to a lower average utility.

Figure 2: Best response of a player depending on the highest amount invested in the status good by another player. Budget is $500. Investments are measured in hundreds on the graph. The numbers next to the best responses indicate utility. The thick dots are the equilibrium investments in status.



Relation to Frank (1985a) and Hopkins and Kornienko (2004)

In an influential paper Frank (1985a) develops a theoretical model to explore the effects of income on the demand for nonpositional goods and consumer welfare. As we

[6] See Hopkins and Kornienko (2004) for more on this metaphor.

will see, of the results derived in Frank (1985a, see Propositions 1, 2 and 3) can be discussed in the present setting.[7]

a) *"Red Queen" effect: As income in society increases, the proportion of income spent on conspicuous consumption increases.*[8] When income increases to $500, the additional $100 are expended on the status good. Thus, while with income of $400 the expenditures on status range between 50% and 75%, when income is $500 these levels range between 60% and 80%. Utility remains at the same level, and players "keep running at the same place". Hopkins and Kornienko (2004) allow for individuals to vary by income and demonstrate that as income in society increases the equilibrium utility falls at each level of income. This behavior will actually be observed in the classroom experiment.

b) *Cooperatively determined demands will be higher for nonpositional goods and lower for positional goods than the corresponding demands determined noncooperatively (Frank 1985a, Proposition 1).* How will students behave if they can come together and jointly negotiate the amounts they spend on the positional good to their best advantage? The cooperative solution is obviously to agree not to spend money on the purely status good.

c) *Each individual's utility will be higher in the case of cooperatively determined demands than in the case of non-cooperatively determined demands (Frank 1985a, Proposition 2).* If no citizen spends money on the status good, the society

[7] The only exception is Proposition 3' which deals with individuals with different income, and this is an aspect not considered here. Similarly, all the results presented in Hopkins and Kornienko (2004) are derived for individuals who have different income.

[8] The "Red Queen" allegory comes from Lewis Carroll's (1871) book *Through the Looking-Glass* and refers to the dialogue between Alice and the Red Queen (a character representing a Queen in chess) in Chapter 2 of the book. Although Alice and the Red Queen run faster and faster, they remain in the same spot. The Red Queen explains to Alice: "Now, *here,* you see, it takes all the running you can do to keep in the same place." In evolutionary biology this term is used to describe the hypothesis that evolutionary change is necessary for the survival of species. In economics the "Red Queen" phenomenon is used as a metaphor for wasteful contests and competition.

will consist of upper class citizens only with a utility of 4×400=1,600 (or 2,000 when income is $500). The non-cooperative equilibrium utility is 400.

d) *Budget shares for non-positional goods grow more rapidly (or decline less rapidly) with income in the non-cooperative than in the cooperative case (Frank 1985a, Proposition 3).* The cooperative solution dictates that players should not invest in the positional good as they incur a negative externality on their peers. Hence, expenditures on the consumption good remain constant at 100% for every level of income. In contrast, in the non-cooperative case, the share spent on the non-positional good declines in income. When the budget is $400 the share ranges between 25% and 50%, and when income is $500 this share is between 20% and 40%.

3 The experiment

In this part I describe the experimental results from two sections of a course in Principles of Microeconomics (let us call them Sections A and B) which I taught in the Spring semester of 2009, and in which I conducted this classroom experiment. In Section A there were 57 students and in Section B there were 58 students who participated in the experiment.

Conducting the experiment in the classroom

The experiment was conducted in the class session following the topic on utility and consumer choice. I first introduced the concept of status goods and discussed the distinction between positional and non-positional goods with examples. I explained that the textbook examples we studied do not consider social position or status, yet this consideration has an impact on consumer choice. So, the standard (utility maximization under budget constraint) framework for analysis might not always give an accurate

picture of the actual choices people make. Then students were given the experimental instructions (see the Appendix). After students answered the test questions, I explained the correct solution on the board. Then I conducted a trial session with a budget of $400 to make sure students understood the experimental setting and, thus, eliminating potential learning effects for the following two experimental sessions in which students allocate budgets of different sizes. For each possible investment in the status good ($0, $100, $200, $300, $400) I counted the number of students who made this particular choice by asking students to raise their hands, and I recorded these numbers on the board. I asked students to calculate the utility for each possible investment choice and wrote down the correct solution on the board. Those choices are summarized in the table below for the two sections of this course. The purpose of the trial session is not only to familiarize students with the rules of this social game but also to allow them to gain first impressions of how others behave in this experiment and what are the implications of this behavior for their utility.

Table 3: Choices and utilities in trial session

Investment (hundreds)	# of students Section A	# of students Section B	Social standing	Rank factor	Utility
4	1	1	elite	10	0
3	11	24	middle class	2	200
2	28	20	lower class	0.5	100
1	14	8	lower class	0.5	150
0	14	2	lower class	0.5	200

Experimental results

In the next two sessions students allocated a budget of $400 and $500, respectively. The next table provides a breakdown of the students by investments in the status good in Sections A and B depending on their budgets.

Table 4: Investment in status with budgets of 400 and 500

	Class Section A (57 students)		Class Section B (58 students)	
Investments in status (hundreds)	**Budget $400 # of students**	**Budget $500 # of students**	**Budget $400 # of students**	**Budget $500 # of students**
0	13	1	1	2
1	14	11	11	7
2	9	16	16	17
3	29	16	30	18
4	1	11	0	14
5	0	2	0	0
Average investment in status (hundreds)	2.16	2.58	2.29	2.60

Table 4 reveals that subjects increase on average their investments in status when their budget increases. The next table reports the utilities in Sections A and B for each budget level.

Table 5: Utility with budgets of $400 and $500

	Class Section A (57 students)		Class Section B (58 students)	
Utility	**Budget $400 # of students**	**Budget $500 # of students**	**Budget $400 # of students**	**Budget $500 # of students**
0	1	2	0	0
50	0	1	0	0
100	9	16	0	0
150	14	15	11	17
200	33	22	1	7
250	0	1	0	2
400	0	0	46	32
Average Utility	168.4	150.0	349.1	297.4

Utility tends to decrease with an increase in the budget. To test whether the difference in the average utility at the two budget levels is statistically significant, I used a paired samples t-test and a Wilcoxon signed rank sum test.[9] The two-tailed tests for class Section A indicate that the mean utility with a budget of $400 is not significantly different than the mean utility with a budget of $500. The null hypothesis that the means of the utility distributions under the two budget levels are the same cannot be rejected at the 5% level (the *P-value* for the two-tailed t-test is 0.0628, and the *P-value* for the two-tailed Wilcoxon signed rank sum test is 0.1274). Yet, the null hypothesis can be rejected at the 5% significance level when tested against the one-tailed alternative that students have a lower utility when they have a higher budget (the *P-value* of the t-test is 0.0314).

The statistical tests for class Section B show significant differences in the means, suggesting that average utility is lower when budget is higher. The *P-value* for the two-tailed t-test is 0.0013 and for the Wilcoxon signed rank sum test is 0.0374. The null hypothesis that the means are the same can thus be rejected at the 5% significance level for both tests even when tested against the two-sided alternative.

The next two tables present the distribution of students across utilities attained with budgets of 400 and 500 for class Section A and class Section B, respectively.

[9] These tests are used for data containing two related observations as in the current dataset (i.e., two observations per subject corresponding to the two budget levels). The Wilcoxon signed rank sum test, as a non-parametric alternative of the paired samples t-test, accounts for the fact that the difference between the utilities is not normally distributed.

Table 4. Class Section A. Distribution of subjects according to utilities attained with a budget of $400 (utilities in first column) and a budget of $500 (utilities in first row).

B400\B500	0	50	100	150	200	250	400
0	**1**	0	0	0	0	0	0
50	*0*	**0**	0	0	0	0	0
100	*0*	*0*	**3**	3	3	0	0
150	*0*	*0*	*1*	**6**	7	0	0
200	*1*	*1*	*12*	*6*	**12**	1	0
250	*0*	*0*	*0*	*0*	*0*	**0**	0
400	*0*	*0*	*0*	*0*	*0*	*0*	**0**

Table 5. Class Section B. Distribution of subjects according to utilities attained with a budget of 400 (utilities in first column) and a budget of 500 (utilities in first row).

B400\B500	0	50	100	150	200	250	400
0	**0**	0	0	0	0	0	0
50	0	**0**	0	0	0	0	0
100	0	0	**0**	0	0	0	0
150	0	0	0	**5**	5	0	1
200	0	0	0	0	**0**	1	0
250	0	0	0	0	0	**0**	0
400	0	0	0	12	2	1	**31**

Students with utilities on the main diagonal (the shaded cells) are the students who attained the same level of utility when having a budget of $400 and a budget of $500 (22 students for Section A and 36 for Section B). Students below the main diagonal lost utility as a result of the increase in their income. In total, 21 students from Section A and 15 students from Section B had a lower utility when they had a budget of $500. The number of students who gained utility as a result of the increased budget is above the main diagonal. This number is substantially lower: 14 for Section A and 7 for Section B (sum of the numbers above the diagonal).

These results let us conclude that in both sections students' behavior exhibits a considerable "Red Queen" effect. In their quest for status, students overinvest in the

positional good when they have a higher budget so that eventually they attain a lower utility.

4 Conclusion

The theoretical and empirical research on the relative income hypothesis has been steadily growing in the last three decades, and the modern literature on the topic generated a rich set of important behavioral and welfare results. The objective of this paper is to make the major theoretical results from this important literature in economics accessible to undergraduate students. The paper presents a simple analytical framework and a classroom experiment which demonstrate the effects of positional considerations on consumption choices.

The theoretical model shows that, in the presence of a positional good, the consumers' utility should remain constant even when the consumers' budget increases. In their quest for status, rational agents invest the entire increase in their budget in the positional good, effectively "remaining at the same place" in the social ranking. The experimental results suggest that the "keeping up with the Joneses" and "Red Queen" effects might be even more dramatic than theory predicts. In the experiment, higher income levels resulted in lower levels of utility.

The experiment is relatively straightforward to conduct in a classroom. Students are able to assess how considerations of their relative position in society affect their behavior as well as the behavior of their classmates. The experimental exercise is also easy to understand and can be implemented without the use of advanced mathematical concepts or the use of costly technology.

References

Abel, A. B. (1990). Asset prices under habit formation and catching up with the Joneses, *American Economic Review*, 80, 38-42

Charness, G. and Grosskopf, B. (2001). Relative payoffs and happiness: an experimental study, *Journal of Economic Behavior and Orgainzation*, 45, 301-28

Charness, G. and Rabin, M. (2002). Understanding social preferences with simple tests, *Quarterly Journal of Economics*, 117, 817-69

Duesenberry, J. S. (1949). *Income, savings, and the theory of consumer behavior,* Cambridge, MA: Harvard University Press

Easterlin, R. A. (1974). *Does economic growth improve the human lot?* In Paul A. David and Melvin W. Reder, ads., Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz, New York: Academic Press

Goodman, E., Slap, G. B. and Huang, B. (2003). The public health impact of socioeconomic status on adolescent depression and obesity, *American Journal of Public Health*, 93, 1844-50

Frank, R. (1985a). The demand for unobservable and other nonpositional goods, *American Economic Review*, 75, 101-16

Frank, R. (1985b). *Choosing the Right Pond: Human Behavior and the Quest for Status,* New York: Oxford University Press.

Frank, R. (2008). Should public policy respond to positional externalities, *Journal of Public Economics*, 92, 1777-86

Gravelle, H. and Sutton, M. (2009). Income, relative income, and self-reported health in Britain 1979-2000, *Health Economics*, 18, 125-45

Hopkins, E. and Kornienko, T. (2004). Running to keep in the same place: consumer choice as a game of status, *American Economic* Review, 94, 1085-1107

Hirsch, F. (1976). *Social limits to growth*. Cambridge: Harvard University Press, 1976

Ljungqvist, L. and Uhlig, H. (2000). Tax policy and aggregate demand management under catching up with the Joneses, *American Economic Review*, 105, 356-66

Luttmer, E. F. P. (2005). Neighbors as negatives: relative earnings and well-being, *Quarterly Journal of Economics*, 963-1002

Oswald, A. J. (1997). Happiness and Economic Performance, *Economic Journal*, 107, 1815-31

Sanders, S. (2009). A model of the relative income hypothesis, *Journal of Economic Education*, forthcoming

Solnick, S. J. and Hemenway, D. (2005). Are Positional Concerns Stronger in Some Domains than in Others?,*American Economic Review*, 95, 147–51

Veblen, T. (1899). *The theory of the leisure class.* New York: Macmillan

Appendix

Experiment instructions

You have a budget of $400 and you derive utility from 2 goods – a consumption good (C) and a status (or positional) good (S). Your well-being depends on your purchases of the consumption good, and on your status, which is determined by your consumption of the status good. You need to make a choice of how to spend your budget on the two goods. Your choice and the choices of the rest of the class will determine your standing in the classroom and utility.

You need to select one of the following five options:

Choice	Consumption good	Status good
	$400	$0
	$300	$100
	$200	$200
	$100	$300
	$0	$400

If you are among the ones who made the highest investment in the status good you will be an *"upper class"* citizen. If you are the only person with the highest spending on the status good, you will be an *"elite"* citizen. If you invested one unit less than the maximum amount invested by another citizen, you will belong to the "*middle class"*. If you invested two or more units less than the highest amount, you will be a "*lower class"* citizen. The satisfaction derived from your consumption choice (i.e. spending on status and consumption good) is the amount of money you spent on the consumption good multiplied by the factor corresponding to your rank in the society. The rank factors are given in the table below.

Rank	Factor
Elite (unique highest amount)	10
Upper class (highest amount tied with other citizens)	4
Middle class (100 less than highest amount)	2
Lower class (200 or 200+ less than highest amount)	1/2

Example: You decided to spend 200 on the status good and 200 on the consumption good as shown in the first table. The highest amount invested by another citizen in the status good is 300. Thus, you are a middle class citizen. Your utility is 200 (amount spent on consumption good) times 2 (factor relevant to the middle class), which equals 400.

Test questions

The highest amount invested by another citizen in the status good is $300.

1. What will be your rank if you invest the entire amount of $400 in the status good?_____
   Calculate your utility. _____
2. What will be your rank if you invest the entire amount of $400 in the consumption good._____ . Calculate your utility. _____

Trial session

Please choose how you wish to spend your budget:

Choice	Consumption good	Status good
	$400	$0
	$300	$100
	$200	$200
	$100	$300
	$0	$400

Session 1

Please choose how you wish to spend your budget:

Choice	Consumption good	Status good
	$400	$0
	$300	$100
	$200	$200
	$100	$300
	$0	$400

Session 2

Your income increased by 25%, i.e. from 400 to 500 monetary units. Please choose how you wish to spend your budget:

Choice	Consumption good	Status good
	$500	$0
	$400	$100
	$300	$200
	$200	$300
	$100	$400
	$0	$500