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Materialism on the March: from conspicuous leisure to conspicuous consumption?

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ABSTRACT

This paper inserts Veblen's (1898) concepts of conspicuous leisure and conspicuous consumption into a very simple model. Individuals have the choice to either invest their time into working, leading to easily observable levels of consumption, or into conspicuous leisure, whose effect on utility depends on how observable leisure is. We let the visibility of leisure depend positively on the amount of time an individual and her neighbors have lived in the same area. Individuals optimize across conspicuous leisure and conspicuous consumption. If population turnover is high, individuals are made worse off, since the visibility of conspicuous leisure then decreases and the status race must be played out primarily via conspicuous consumption. Analyzing interstate mobility in the US, we find strong support for our hypothesis: a 1 percentage point rise in population turnover increases the average work week of non-migrants by 7 minutes. The negative externality of population turnover on the visibility of conspicuous leisure is an argument for higher transport taxes.

Keywords: conspicuous leisure, conspicuous consumption, mobility, labour supply, status races

JEL Classification: J22, J61, D10, D60, B15

I. Introduction

This paper builds on the classic arguments of Veblen (1898) concerning the way individuals play status games. In his book *The Theory of the Leisure Class* he distinguishes between the possibility to signal one's worth either via conspicuous consumption consisting of the display of expensive consumer goods, or via the overt display of leisurely activities.

Veblen saw conspicuous leisure everywhere. In his time, manual labor was heavily frowned upon by the nobility, and a truly wealthy man was a man of leisure. He saw it in the royal courts where kings signaled their wealth by their own idleness and that of a whole court of idle noblemen, who all had to be taken care off by others. He saw it in accounts of heavenly courts where an idle god was surrounded by idle angels. Veblen also saw it in the manners of people around him: he argued that the overt display of knowledge of etiquette, arts, defunct languages, and all other signals of 'sophistication and civilization' were essentially means of signaling the results of an abundance of leisure time.

In the modern day, the idle courts are a distant echo, but conspicuous leisure is all around us. People who speak Latin, play the piano with aplomb, know a Matisse from a Modigliani, or can list the best years for a Bordeaux have invested considerable time in gaining a set of skills whose primary productive purpose is to impress others. By engaging in conspicuous leisure, these people have made a conscious trade-off. The alternative means of impressing one's contemporaries is conspicuous consumption: working longer hours in order to purchase an expensive home, a flashy car, or the latest

model television. In recent decades, there has been a clear decline in conspicuous leisure relative to conspicuous consumption. Explaining this change is the main task of this paper.

Conspicuous consumption – which we equate with materialism – has been widely discussed in recent times. Early works by economists include Duesenberry (1949), Van Praag (1977), Layard (1980), Van der Stadt et al. (1985) and Frank (1985). These all refer to Veblen when they argue that the utility of one person falls as the incomes of those in her reference group rise. This prediction has been the subject of intense empirical debate within the happiness literature, with most finding evidence for "reference effects" (Clark and Oswald 1996, Knight and Song 2004; see also the surveys in Ferrer and Frijters 2004 and Layard 2003). The existence and optimal tax implications of conspicuous consumption has been a recent item of debate in the theory literature (Ireland 1998; Dupor and Liu 2003; Abel 2004; Samuelson 2004; Ljungqvist and Uhlig 2000). So far as we are aware however, Veblen's concept of conspicuous leisure has been absent from these debates, although Layard (1980) did call for models and applications with simultaneous status races.

In a very simple model we give individuals the choice to divide their time into working, leading to easily observable levels of conspicuous consumption, or into conspicuous leisure. Extending Veblen's arguments, we take the importance of conspicuous leisure to depend positively on the amount of time an individual and her neighbors have lived in the same area. The rationale for this is simple: whereas cars and houses are immediately observable for any new arrival in the neighborhood, it takes time to get to know the leisure activities of ones' neighbors. In a situation of high population turnover, the ones

indulging in conspicuous leisure are in great danger of being unnoticed. This argument sets our paper apart from Veblen and all papers mentioned above, which have either taken leisure's effect on utility to be independent of visibility (and thus invariably argue that conspicuous consumption is welfare inefficient) or have taken social norms on leisure as important but exogenous to economic factors (such as Stutzer and Lalive 2004).

We solve for the optimal time allocation path of the individual, which turns out to mean that an individual should over time increase the amount of time spent on leisure as his activities become wider known in the neighborhood. The optimal decision path for a neighborhood as a whole is that the 'older neighborhoods' should see relatively higher levels of conspicuous leisure.

We test our theory on US data. As our measure of the length of time individuals stay somewhere, we use the fraction of the population that has moved into the state in the past year. As our measure of investments into conspicuous consumption we use three variables: hours per week, weeks per year, and hours per year. Controlling for age, race, gender, education, average hourly wages, average annual income, the unemployment rate, population size, the population growth rate, and including state and year fixed effects, we find a positive relation between population turnover and conspicuous consumption. This relationship is strongest when we exclude the migrants themselves from our specifications. Our theory of conspicuous leisure can thus explain why various measures of labor supply rise as population turnover increases. An alternative potential explanation would be that positive state productivity shocks drive both increased migrant flows and increased labor usage. The results do not fully support that alternative though: not only is the wage rate effect on conspicuous consumption in theory ambiguous, but the

effect of positive productivity shocks should be captured in our controls for aggregate productivity. Also, the strongest effects on current labor supply are found using lagged migration rates, which should suffer less from contemporaneous unobserved productivity shocks.

Our very simple theory would thus predict that countries with lower rates of population turnover (the EU) would be less materialistic than those with high turnover (the US). By arguing that mobility costs are still going down nearly everywhere for a variety of reasons, we get the overall prediction that world levels of materialism will increase. The policy implications are simple: there is a negative externality of moving elsewhere on the visibility of other people's leisure, which gives an argument for taxes on mobility.

The remainder of the paper proceeds as follows. Section II presents the model. Section III presents the data and empirical analysis. The final Section concludes.

II. The Model

We take a very parsimonious model where an individual i's utility at time t looks like:

$$U_{it} = u_1\left(\frac{h_{it}w_i}{\bar{W}_t}\right) + f(\tau_{it}, \bar{\tau}_t)u_2\left(\frac{l_{it}}{\bar{l}_t}\right)$$

$$T = h_{it} + l_{it}$$

$$f(.,0)=f(0,.)=0, f(\infty,\infty)=1, f'>0, f''<0, \frac{\partial^2 f}{\partial \tau_{it}\partial \bar{\tau}_t}>0$$

$$u_1' > 0, u_2' > 0, u_1'' < 0, u_2'' < 0, u_1'(0) = \infty, u_2'(0) = \infty$$

Here u_1 is the utility payoff of conspicuous consumption, which depends on the ratio of one's own income ($h_{it}w_i$ where h_{it} is hours worked and w_i is the wage rate) to the average income in the neighborhood ($\overline{W}_t$); u_2 is the payoff to conspicuous leisure, which depends on the ratio of own leisure (l_{it}) to the average leisure enjoyed by others ($\overline{l}_t$); T is the total amount of hours available for discretionary leisure or work, and $f(\tau_{it}, \overline{\tau}_t)$ is the 'visibility' function of leisure which depends positively on the amount of time the individual i has lived in the same neighborhood (τ_{it}) and the amount of time others have lived in the neighborhood ($\overline{\tau}_t$). The reason for the positive marginals on f is simple: the longer you have lived in a neighborhood, the more time others have had to observe your leisure decisions.[1] The longer other people have lived in the neighborhood, the easier it becomes for them to see the activities of other people; partly because they can allocate more time to newcomers and partly because they have increased knowledge of the possible range of leisure activities to look out for. The assumptions on functional form are standard: they ensure an interior solution but follow Gossen's law of diminishing marginal utility to the two possible forms of consumption.

[1] As an example of how a particular function f(.) could arise from a matching framework: interpret f(.) as the expected fraction of the individuals in the neighborhood who know a person's leisure activities. Suppose that two random individuals from the same neighborhood meet each other with arrival rate λ. This meeting produces a contact that allows both to observe each other's leisure. Suppose also that this information is shared with a fraction δ of the existing contacts of the person met. This means that the fraction of the neighborhood that gets informed of ones' leisure activities at a single meeting is λ(1+ δR) where R is the expected number of contacts ('relations') of the other person at the meeting. This number R is an increasing function of $\overline{\tau}_t$. Taking the number of individuals in the neighborhood to be large and δR small, the probability that a random individual in the neighborhood does not know the leisure activities of person i after person i has been in the neighborhood for will then be $e^{-\frac{\lambda(1+\delta R(\overline{\tau}_t))}{N}\tau_{it}}$ where N is the number of individuals in the neighborhood. This makes $f(\tau_{it}, \overline{\tau}_t) = 1 - e^{-\frac{\lambda(1+\delta R(\overline{\tau}_t))}{N}\tau_{it}}$ which is an increasing function of $\overline{\tau}_t$ and τ_{it} and fits all the assumptions made on f(.).

The solution equation for the optimal choice of an individual is now simple. h_{it} solves

$$\frac{w_i}{\bar{W}_t} u_1^{'} = \frac{1}{\bar{l}_t} f(\tau_{it}, \bar{\tau}_t) u_2^{'}$$

The interesting things about this solution are the comparative statics from the point of view of an individual. These are

$$\frac{dl_{it}}{d\tau_{it}} = -\frac{dh_{it}}{d\tau_{it}} = \frac{-\frac{1}{\bar{l}_t} f_{\tau_{it}}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'}}{(\frac{w_i}{\bar{W}_t})^2 u_1^{''} + \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{''}} > 0$$

$$\frac{dl_{it}}{d\bar{\tau}_t} = -\frac{dh_{it}}{d\bar{\tau}_t} = \frac{-\frac{1}{\bar{l}_t} f_{\bar{\tau}_t}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'}}{(\frac{w_i}{\bar{W}_t})^2 u_1^{''} + \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{''}} > 0$$

$$\frac{dl_{it}}{dw_i} = -\frac{dh_{it}}{dw_i} = \frac{\frac{u_1^{'}}{\bar{W}_t} + \frac{h_{it}}{\bar{W}_t} \frac{w_i}{\bar{W}_t} u_1^{''}}{(\frac{w_i}{\bar{W}_t})^2 u_1^{''} + \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{''}} <> 0$$

The result on $\frac{dl_{it}}{d\tau_{it}}$ gives the prediction that time spent on conspicuous leisure will increase as a person lives in the same neighborhood for longer whereas time spent on conspicuous consumption by earning income will decrease. The same holds when the population turnover rate for the neighborhood as a whole declines: time spent on conspicuous leisure will increase as neighbors live in the same neighborhood for longer whereas time spent on conspicuous consumption by earning income will decrease. Neighborhoods with lower rates of population turnover (high $\bar{\tau}_t$) should thus see more involvement in leisure activities than neighborhoods with very high population turnover rates (low $\bar{\tau}_t$).

The results on $\frac{dl_{it}}{dw_i}$ reveal inconclusiveness (bearing in mind that the term $(\frac{w_i}{\bar{W}_t})^2 u_1^{''} + \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{''}$ is negative): the substitution effect ($\frac{u_1^{'}}{\bar{W}_t}$) would increase the time spent on earning income whereas the income effect ($\frac{h_{it}}{\bar{W}_t} \frac{w_i}{\bar{W}_t} u_1^{''}$) would go the other way.

As an extension to this, we can ask: what happens if the whole neighborhood and the individual stay longer and we take account of the effect of the community reaction on community wages? In other words, what happens when $d\bar{\tau}_{it} = d\tau_{it}$ and $\bar{W}_t = \bar{h}_t w_i$? Then, the total derivatives must take all these effects into account:

$$\frac{dl_{it}}{d\tau_{it}} = -\frac{dh_{it}}{d\tau_{it}} = -\frac{\frac{1}{\bar{l}_t} f_{\tau_{it}}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'} + \frac{1}{\bar{l}_t} f_{\bar{\tau}_t}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'}}{(\frac{w_i}{\bar{W}_t})^2 u_1^{''} - \frac{u_1^{'}}{\bar{h}_t^2} - \frac{u_1^{''}}{\bar{h}_t^2} + \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{''} - \frac{l_{it}}{\bar{l}_t^3} f(\tau_{it}, \bar{\tau}_t) u_2^{''} - \frac{1}{\bar{l}_t^2} f(\tau_{it}, \bar{\tau}_t) u_2^{'}} > 0$$

The initial positive feedback effect via $f(.)$ of lower population turnover rates ($\frac{1}{\bar{l}_t} f_{\tau_{it}}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'} + \frac{1}{\bar{l}_t} f_{\bar{\tau}_t}^{'}(\tau_{it}, \bar{\tau}_t) u_2^{'}$) involves several offsetting effects: as average conspicuous leisure increases, the relative payoff to conspicuous consumption increases because of the decreases in average income (reflected in the term $-\frac{u_1^{''}}{\bar{h}_t^2}$) and the relative payoff to conspicuous leisure decreases because of increased aggregate leisure (reflected in the term $\frac{l_{it}}{\bar{l}_t^3} f(\tau_{it}, \bar{\tau}_t) u_2^{''}$). These feedback effects only dampen the positive effect of greater longevity of a neighborhood. Average time spent on conspicuous leisure only

increases as the individual stays in a neighborhood longer, and population turnover in that neighborhood falls.[2]

A. Endogenous mobility

What are the main determinants of the average amount of time spent in a neighborhood? Here, we make the obvious point that population turnover depends negatively on the costs of moving, which means the average time spent in the neighborhood will increase as mobility costs rise:

$$\overline{\tau}_t = \overline{\tau}_t(C_{mt})$$
$$\overline{\tau}_t'(C_{mt}) > 0$$

where C_{mt} denotes the cost of moving. It is now easy to see that $\frac{dl_{it}}{dC_{mt}} = -\frac{dh_{it}}{dC_{mt}} = \overline{\tau}_t' \frac{-\frac{1}{\overline{l}_t} f_{\overline{\tau}_t}'(\tau_{it}, \overline{\tau}_t) u_2'}{(\frac{w_i}{\overline{w}_t})^2 u_1'' + \frac{1}{\overline{l}_t^2} f(\tau_{it}, \overline{\tau}_t) u_2''} > 0$ which means that aggregate conspicuous consumption will go down as moving costs increase, whereas aggregate conspicuous leisure will go up as moving costs increase.

Over recent decades, the cost of moving between cities has dropped substantially.[3] Among of the factors that have driven this change are reduced physical transport costs due to faster and cheaper means of transportation; increased international transparency of educational qualifications (eg. the EU's 1997 decision to adopt the Anglo-Saxon Bachelor-Masters university format); diminishing numbers of languages in common

[2] This holds because the denominator has to be negative if the initial situation is to be a symmetric stable equilibrium. Whilst the model in principle does not rule out multiple symmetric equilibria, the signs of the comparative statics are unaffected by this possibility.

parlance; fewer barriers to labor mobility within trading blocs; and increased harmonization of pension, tax, and company laws. Using the above model, the direction of materialistic values is predicted to co-move with the costs of mobility. According to our simple theory, factors such as falling prices of air travel in the US, harmonization of EU laws, and reduced barriers to internal migration in China should lead to rising materialistic values in the US, EU and China in the future.

B. Possible further extension

There are many ways in which one can extend the simple model above to fit various empirical phenomenon. The two main extensions one can think of concern the existence of initial wealth and a status-free consumption aspect.

Adding existing wealth could be done by adding an individual constant W_i to wage earnings $h_{it} w_i$. The effect of such a variable is very simple: greater initial wealth implies a lower marginal conspicuous consumption utility from an additional hour work. Hence a direct implication would be that those individuals with greater initial wealth would, ceteris paribus, invest relatively more time in conspicuous leisure. This concurs with another observation of Veblen: whilst Veblen made great play of the fact that royal courts and idle nobility spent a lot of their time on conspicuous leisure, he did not loose sight of the fact that they were also conspicuously rich. Veblen argued the poor were relatively more into conspicuous consumption, whilst the very rich were relatively more into

[3] Note however that the cost of moving *within* cities (ie. commuting) has not fallen, partly because the cost of delays rises with real incomes: Glaeser and Kohlhase (2003).

conspicuous leisure, which is exactly what one would predict from our framework once one inserts initial wealth. Veblen recognized that the very rich were engaged in both conspicuous leisure and conspicuous consumption even though he called them 'the leisure classes'.

Adding status-free consumption could be done by adding a function c($h_{it} w_i$) to the utility function. Such a function would attempt to capture classic consumption benefits from income. If one chooses the functional form of this appropriately, it could rationalize why hours worked goes down when wages increase via a classic income effect. One would then have to start putting additional restrictions on the subfunctions of utility though because one would then have 3 functions depending on hours (c(.), u_1(.) and u_2(.)), which leads to possible multiple equilibria and indeterminacy if one puts no restrictions on them.

Whilst these two additions are capable of fitting more stylized facts about status races, we feel they add no real additional insights to our parsimonious model which we thus prefer as the basis for looking at empirical evidence.

III. Empirical application

To evaluate our theory, we would ideally want data in which we could observe panel variation in individual time-use (i.e. a detailed list of how time during the day is spent), and observe how this time-allocation changes when population turnover causes changes in reference groups. Unfortunately, we know of no such dataset. We therefore proceed

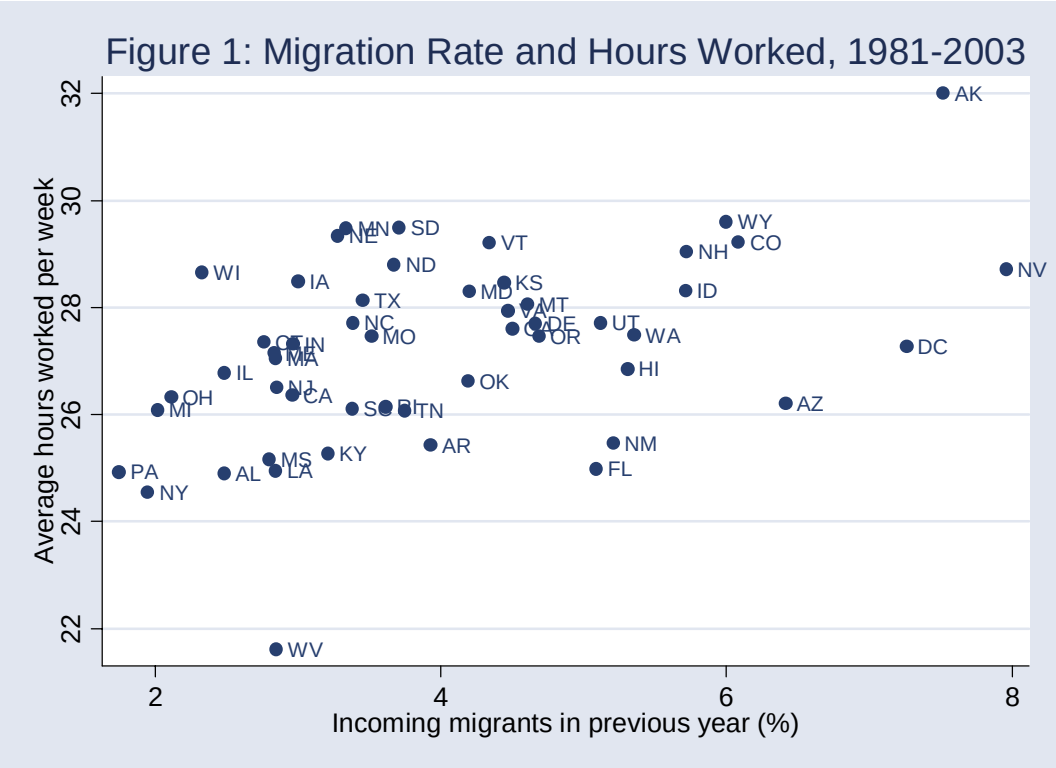
via a more indirect approach, in which observed work time is assumed to be positively correlated with an individual's investment in conspicuous consumption, and negatively correlated with investment in conspicuous leisure. This allows us to use changes in aggregate work time as evidence of changes in conspicuous consumption and conspicuous leisure.

To test our theory, we look at interstate mobility and work time in the United States. We use interstate mobility (rather than interstate plus intrastate mobility) on the basis that interstate mobility will almost always involve a change in one's social circles. Local turnover is harder to interpret because there are many movements within cities and within states that do not imply a change in the reference group. If there is an externality in population turnover, it should be more clearly evident when looking at interstate mobility rates.

Rosenbloom and Sundstrom (2003) note that in the immediate post-war decades, interstate mobility increased significantly – driven primarily by higher levels of educational attainment. Since mobility varies substantially over the life-cycle, it is necessary to compare across similar age groups. For example, focusing on the fraction of those aged 30-39 who had moved in the previous 5 years, this figure rose from 7.5 percent in 1940 to 12.2 percent in 1970.

Over recent decades, US interstate mobility rates have been relatively constant. Nonetheless, there has been considerable variation in mobility rates across states. Averaged over the period 1981-2003, the fraction of a state's population who had arrived from another state during the past year ranged from 1.7 percent in Pennsylvania to 7.9

percent in Nevada. Figure 1 shows a simple scatter plot of mobility rates against average hours worked per week. In the cross-section, there is a strong positive relationship between migration rates and hours of work.



However, the cross-sectional relationship is not necessarily indicative of a causal effect of population turnover on conspicuous leisure. To test our theory in a more robust manner, we instead look for variation *within* states over time. We use the March supplement to the Current Population Survey from 1981-2003, restricting our sample to those aged 16 and over. As our measure of mobility, we use a question that asked whether the respondent had changed residence in the previous 12 months (ie. since March 1 of the previous year). Respondents were coded as having moved if they had moved from another state. As our variation is only across state-year cells, we can without loss of generality collapse the data to this level. This gives us 21 years of data, since the mobility

question was not asked in 1985 and 1995. Across 50 states and the District of Columbia, the sample size is 1071.

Our dependent variables are three measures of labor supply: the usual number of hours worked per week in the previous year; the number of weeks worked in the previous year; and the number of hours worked in the previous year (calculated by multiplying together the first two numbers). The universe for all three variables is those who worked at some point in the previous year. If conspicuous leisure is declining and conspicuous consumption is increasing, we should expect to see an increase in labor supply. For those working full-time, this is more likely to occur on the hours margin, while for those with a weaker attachment to the labor force, it is more likely to occur on the weeks worked margin. One factor to bear in mind is that if we only found an effect on weeks worked, we might worry that we were picking up a participation effect rather than a conspicuous leisure effect.

Naturally, many factors apart from population turnover could affect labor supply. We therefore present all our specifications with state and year fixed effects. In addition, we control for several demographic factors that might affect labor supply: average age, average age squared, average years of education, fraction non-white, and fraction female. Furthermore, we include a set of controls intended to capture the effect of productivity shocks: the unemployment rate, the log of the population size in the current and previous year, the log of the average hourly wage, and the log of the average personal income per capita. With the exception of the hourly wage, our productivity variables are not drawn from the CPS. Per capita personal income is taken from the Bureau of Economic Analysis's Annual State Personal Income series, while unemployment rates and

population figures are from the Bureau of Labor Statistics' Local Area Unemployment figures. Note that by controlling for both the log of the population size and the log of the population size in the previous year, our specification also implicitly includes the population growth rate (the difference between the two). Thus if we find any significant population turnover effects, they will not be driven by state growth, but rather by the amount of 'population churn' in a state, controlling for the state's size and growth rate.

Because the mobility question provides the average mobility rate from the previous March to the current March, while the labor supply questions relate to the past calendar year (January to December), there is some question as to the appropriate lag structure. Clearly, labor supply decisions in January and February of the previous year cannot be affected by mobility in the period from March onwards. Furthermore, there will probably be some lag between changes in mobility and changes in labor supply. It may therefore be preferable to use the previous year's mobility rate. Thus we present three specifications:

- the current period's mobility rate, eg. the effect of mobility from March 2002 to March 2003 on labor supply from January 2002 to December 2002;

- the previous period's mobility rate, eg. the effect of mobility from March 2001 to March 2002 on labor supply from January 2002 to December 2002; and

- the average mobility rate across the two periods, eg. the effect of mobility from March 2001 to March 2003 on labor supply from January 2002 to December 2002.

Table 1 presents summary statistics for the sample. In the case of the labor supply measures, average hours worked per week falls if we exclude migrants (those arriving in the past year), while average weeks per year rises if migrants are excluded. This suggests that migrants tend to work more hours per week, but fewer weeks per year. On net, migrants work fewer hours per year than non-migrants. Because one might reasonably worry that migrants themselves differ in unobserved ways from non-migrants, we will look at specifications both with and without migrants.

Table 1: Summary Statistics

Variable	Mean	Std. Dev.
Migration rate	0.0401	0.017
Hours per week	27.212	2.023
Hours per week (excl migrants)	27.105	2.036
Weeks per year	31.348	2.480
Weeks per year (excl migrants)	31.424	2.501
Hours per year	1248.739	107.418
Hours per year (excl migrants)	1250.022	108.178
Average age	42.921	1.637
Fraction female	0.518	0.013
Fraction non-white	0.145	0.138
Average years of education	12.469	0.519
Log personal income per capita	9.871	0.352
Unemployment rate (percent)	6.000	2.147
Log population	14.653	1.033
Log average hourly wage	2.359	0.364

Sources:
1. Labor supply, migration, age, gender, race, education and hourly wage from March CPS, 1981-2003 (excluding 1985 and 1995). Sample includes all respondents aged 16 and over, collapsed to the state-year cell level.
2. Specifications excluding migrants omit those who had moved into the state during the previous 12 months.
3. Unemployment rate and population figures from Bureau of Labor Statistics.
4. Personal income from Bureau of Economic Analysis.

Our regression specification is as follows:

$$l_{st} = Mob_{st}\alpha + S_{st}'\beta + \ln(pop_{st})\gamma + \ln(pop_{st-1})\delta + f_s + f_t + \varepsilon_{st}$$

which relates labor supply in state s at time t to a measure of mobility, state characteristics, current and lagged population levels, state and time fixed effects, and an i.i.d. error term.

Table 2 shows the results using the current period's mobility rates. When both migrants and non-migrants are included, population turnover does not appear to have any significant effect on labor supply. However, when migrants are omitted, there is a significant positive relationship between population turnover and hours worked, such that a 1 percentage point rise in the interstate mobility rate in a year is associated with a 3 minute rise in the average working week. This is quite telling: the non-migrants react to the arrival of migrants by working more hours per week, which in our theory is due to the fact that their leisure activities are suddenly less observable when the neighborhood is in flux.

Table 3 uses the lagged migration rate instead of the current migration rate. This both allows for the possibility that it may take some time to change labor supply, and deals with the fact that mobility and labor supply imperfectly overlap in the data. In this specification, we find a significant positive relationship between population turnover and hours worked per week, whether or not migrants are excluded. When migrants are excluded, there is also a significant positive relationship between population turnover and hours worked per year, though this is only significant at the 10 percent level. We interpret this as a direct indication that the conspicuous leisure of non-migrants goes down soon after the arrival of new migrants.

Table 2: Labor Supply and the Current Migration Rate

	Full sample			Excl recent migrants		
	Weeks per year	Hours per week	Hours per year	Weeks per year	Hours per week	Hours per year
Migration rate	-5.449	3.039	-67.649	1.671	5.190**	178.924
	[1.57]	[1.11]	[0.44]	[0.47]	[2.03]	[1.16]
Average age	1.682***	1.262***	87.575***	1.677***	1.254***	87.408***
	[4.74]	[4.64]	[5.62]	[4.85]	[4.89]	[5.62]
Average age^2	-0.023***	-0.018***	-1.112***	-0.023***	-0.018***	-1.107***
	[6.24]	[6.11]	[6.93]	[6.42]	[6.46]	[6.95]
Fraction female	-0.784	-3.686	-125.796	-1.878	-4.38	-184.384
	[0.20]	[1.20]	[0.78]	[0.49]	[1.42]	[1.14]
Fraction nonwhite	-4.914**	-1.812	-103.898	-4.632**	-1.861	-109.53
	[2.29]	[0.98]	[1.13]	[2.06]	[0.99]	[1.16]
Average years of education	0.908***	0.941***	42.369***	0.910***	0.925***	43.817***
	[3.46]	[3.57]	[3.45]	[3.42]	[3.60]	[3.55]
Log personal income	-0.602	1.577	51.723	-0.511	1.572	54.003
	[0.28]	[0.94]	[0.50]	[0.25]	[1.05]	[0.57]
Unemployment rate	-0.304***	-0.162***	-13.448***	-0.299***	-0.154***	-12.998***
	[6.48]	[4.09]	[6.31]	[6.55]	[4.02]	[6.28]
Log population	10.140**	7.727**	482.120**	10.711**	8.699**	528.539**
	[2.14]	[2.08]	[2.26]	[2.22]	[2.35]	[2.49]
Log population $_{t-1}$	-9.130**	-7.529**	-426.433**	-9.945**	-8.664**	-482.529**
	[2.04]	[2.19]	[2.12]	[2.18]	[2.52]	[2.40]
Log average hourly wage	-0.543***	-0.586***	-24.266***	-0.520***	-0.567***	-23.462***
	[3.35]	[4.18]	[3.83]	[3.31]	[4.15]	[3.58]
State & year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1071	1071	1071	1071	1071	1071
R-squared	0.93	0.91	0.92	0.93	0.92	0.92

Sources: As for Table 1

Notes:

1. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively. Robust t-statistics, clustered at the state level, in parentheses.
2. In specifications excluding recent migrants, the average demographic characteristics (age, fraction female, fraction non-white, average years of education) and the average hourly wage are for non-migrants only.

Our preferred specification is Table 4, which uses the average mobility rate in the current and lagged period, which (from a theoretical standpoint) seems most likely to affect labor supply. The averaging of mobility rates across two years also reduces the importance of measurement error. We again find a positive and significant relationship between migration and hours worked per week. The coefficient in this specification is higher, which may be due to the reduced effect of measurement error. When migrants are excluded, a 1 percentage point rise in the interstate mobility rate is associated with a 7

minute rise in the average working week (significant at the 1 percent level), and a 3.8 hour increase in the number of hours worked per year (significant at the 10 percent level).

Table 3: Labor Supply and the Lagged Migration Rate

	Full sample			Excl recent migrants		
	Weeks per year	Hours per week	Hours per year	Weeks per year	Hours per week	Hours per year
Migration rate $_{t-1}$	0.304	5.646**	113.77	2.396	8.490***	257.153*
	[0.10]	[2.17]	[0.88]	[0.73]	[3.39]	[1.88]
Average age	1.550***	1.270***	83.679***	1.616***	1.344***	87.376***
	[4.36]	[4.59]	[5.40]	[4.61]	[5.11]	[5.60]
Average age^2	-0.021***	-0.018***	-1.068***	-0.022***	-0.018***	-1.100***
	[5.85]	[5.96]	[6.65]	[6.14]	[6.64]	[6.90]
Fraction female	-2.561	-5.653*	-196.894	-3.01	-6.045*	-231.278
	[0.61]	[1.73]	[1.11]	[0.67]	[1.76]	[1.25]
Fraction nonwhite	-4.649*	-2.143	-122.644	-4.861*	-2.271	-126.513
	[1.95]	[1.11]	[1.26]	[1.91]	[1.08]	[1.18]
Average years of education	0.701***	0.783***	34.473***	0.868***	0.828***	40.170***
	[2.60]	[2.84]	[2.72]	[3.08]	[2.98]	[2.98]
Log personal income	-1.416	0.689	14.12	-0.662	0.928	38.705
	[0.61]	[0.37]	[0.13]	[0.29]	[0.56]	[0.38]
Unemployment rate	-0.306***	-0.166***	-13.329***	-0.301***	-0.164***	-12.998***
	[6.26]	[3.77]	[6.00]	[6.22]	[3.94]	[5.89]
Log population	9.372*	7.475*	487.296**	9.883*	7.675*	505.911**
	[1.84]	[1.87]	[2.12]	[1.93]	[1.92]	[2.25]
Log population $_{t-1}$	-8.688*	-7.632**	-444.477**	-9.267*	-7.779**	-464.393**
	[1.83]	[2.11]	[2.07]	[1.96]	[2.16]	[2.24]
Log average hourly wage	-0.239	-0.372*	-15.083	-0.519***	-0.605***	-24.506***
	[0.93]	[1.71]	[1.57]	[3.07]	[3.96]	[3.60]
State & year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1020	1020	1020	918	918	918
R-squared	0.92	0.91	0.92	0.93	0.92	0.92

Sources and Notes: As for Table 2

Table 4: Labor Supply and the Average Migration Rate (Current and Lagged)

	Full sample			Excl recent migrants		
	Weeks per year	Hours per week	Hours per year	Weeks per year	Hours per week	Hours per year
(Migration rate+	-3.628	9.915**	140.952	3.211	12.190***	386.638*
Migration rate $_{t-1}$)/2	[0.71]	[2.32]	[0.64]	[0.63]	[3.31]	[1.81]
Average age	1.629***	1.347***	87.273***	1.608***	1.315***	86.430***
	[4.47]	[4.84]	[5.46]	[4.55]	[4.88]	[5.41]
Average age^2	-0.022***	-0.019***	-1.099***	-0.022***	-0.018***	-1.091***
	[5.88]	[6.24]	[6.67]	[6.07]	[6.40]	[6.68]
Fraction female	-2.004	-4.978	-160.925	-2.894	-5.604	-217.283
	[0.45]	[1.47]	[0.89]	[0.64]	[1.64]	[1.18]
Fraction nonwhite	-5.042**	-2.091	-115.157	-4.874*	-2.357	-129.987
	[2.14]	[1.06]	[1.12]	[1.96]	[1.15]	[1.24]
Average years of education	0.917***	0.877***	41.170***	0.872***	0.840***	40.436***
	[3.24]	[3.14]	[3.10]	[3.06]	[3.00]	[2.96]
Log personal income	-0.823	0.755	29.875	-0.728	0.638	28.668
	[0.35]	[0.41]	[0.27]	[0.32]	[0.38]	[0.28]
Unemployment rate	-0.304***	-0.170***	-13.317***	-0.301***	-0.163***	-12.977***
	[6.15]	[4.02]	[5.95]	[6.24]	[3.97]	[5.91]
Log population	8.875*	5.524	412.937*	9.646*	6.661*	471.505**
	[1.80]	[1.38]	[1.83]	[1.90]	[1.66]	[2.11]
Log population $_{t-1}$	-7.965*	-5.428	-359.598*	-9.025*	-6.741*	-429.116**
	[1.73]	[1.49]	[1.73]	[1.92]	[1.86]	[2.08]
Log average hourly wage	-0.523***	-0.604***	-24.383***	-0.513***	-0.587***	-23.956***
	[3.08]	[3.88]	[3.77]	[3.10]	[3.88]	[3.58]
State & year fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	918	918	918	918	918	918
R-squared	0.93	0.91	0.92	0.93	0.92	0.92

Sources and Notes: As for Table 2

IV. Conclusions

This short paper has put forward a very simple economic theory of the increase of materialism, understood as greater relative investments in conspicuous consumption, ultimately driven by lower costs of mobility. This may also shed light on the question of why the working patterns of Americans and Europeans have diverged over recent decades. From 1970-2002, the numbers of hours worked per year in European Union fell

by 13, and grew by 20 in the US (OECD 2004).[4] One possible reason for this divergence could be that Europe has lower rates of internal migration than the US, largely due to linguistic barriers between countries. High population turnover rates in the US might have helped to make Americans more materialistic than Europeans. If policymakers wished to rectify this, the clear remedy would be to tax mobility because of the negative externality that population turnover imposes on the visibility of the leisure of those that stay behind.

There are many reasons to think that the increase in population turnover over recent years is on balance a positive development. In highly mobile societies such as the US, people can move from declining industrial cities to cities with better weather and amenities (Glaeser and Kohlhase 2003), workers can relocate from high-unemployment regions to low-unemployment regions, and citizens can choose neighborhoods with their preferred level of public goods provision (Tiebout 1956).[5] Yet it is nonetheless important to recognize that higher rates of population turnover impose a cost on others, by requiring over-investment in conspicuous consumption, and under-investment in conspicuous leisure.

[4] This figure is the total number of hours divided by the total population, and thus captures both participation effects, and the hours worked by those in the workforce. The figure for the European Union is for the EU-15 (excluding the ten recent entrants).

[5] Cushing-Daniels (2004) finds that while labor market differences have a significant impact on migration patterns, welfare generosity does not.

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