26 Demand
Louis Lévy-Garboua and Claude Montmarquette[*]

If you gotta ask, you ain't never going to know (Louis Armstrong[1])

An economist being asked to specify and estimate demand for the arts might begin to say that it is not essentially different from the demand for more down-to-earth consumer goods and services. Then, and only then, he or she would want to consider the specificity of 'art'. This short story summarizes the lines of research followed by art and cultural economics so far in the field of demand. By and large, the first economic studies were concerned with income and price elasticities, which they drew from scanty data, basic consumer theory and crude econometric models. The literature is still groping towards firm answers to simple questions, such as: is art a luxury good? Is it price-elastic or inelastic? Do art goods have close substitutes? However, the consumption of art challenges the conventional assumptions of homogeneous goods and services, completed learning of tastes, independence of choice among individuals and so forth. How do we deal with aesthetic quality and the heterogeneity of tastes? How do consumers who do not have full knowledge of their own taste decide and rely on others? Indeed, if you are going to ask why you like the theatre of Shakespeare, the operas of Puccini, and the paintings of Manet, you are never going to know. The subtle alchemy of individual taste for the arts ultimately relies on experience.

Following the lead of Baumol and Bowen (1966) and the availability of data, a majority of studies have dealt with live performing arts (theatre, music, opera, dance) and the cinema, which is a good substitute (see, for instance, the early works of Moore, 1968, and Throsby and Withers, 1979). A growing number of studies (see, for instance, Frey and Pommerehne, 1989; Agnello and Pierce, 1996; Pesando and Shum, 1999; Flôres *et al.*, 1999; Locatelli-Biey and Zanola, 1999) are now investigating the pricing and choice of artworks (paintings, pieces of sculpture and other artefacts). Since these have distinctive features of financial assets, public goods and uniqueness, we find it impossible to do justice in a short chapter to the expanding literature on artwork. We focus our discussion on the demand for live performing arts and the cinema because these have been more extensively studied so far and raise interesting questions for demand theory. Readers who are especially interested by artworks should consult the more extensive survey of Throsby (1994) and the additional references listed above. The aim of this chapter is to bring some clarification to the theories that can be used to understand the cultivation of taste and estimate the demand for the arts. This exercise is followed by a brief summary of the empirical evidence.

The cultivation of taste
The merit-good nature of the classical arts is attested by the permanence of public policies to enhance and preserve their production and consumption. The learned people, who are generally lovers of the classical arts, think that very many others would eventually
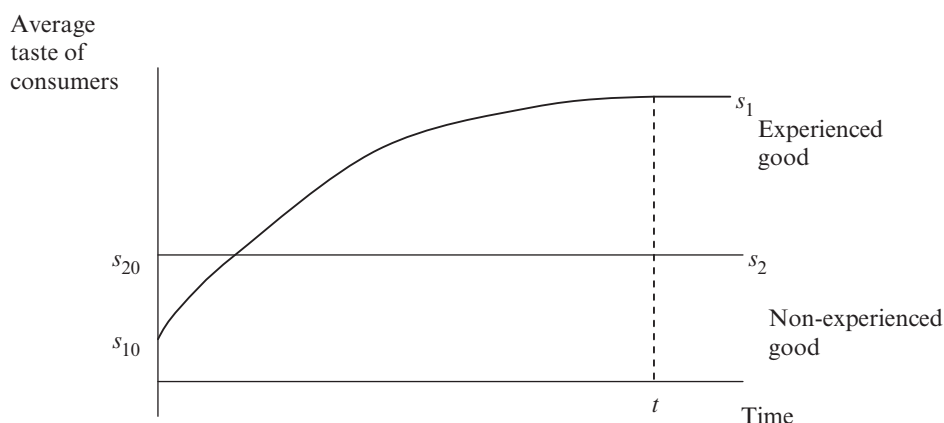
177

Figure 26.1   The cultivation of taste

feel like themselves if they were better exposed to them. This remark, which needs to be taken seriously, implies that the taste for arts is acquired or discovered, and the rate of art consumption increases over time with exposure. It may well be the case that the taste for popular culture, and even vegetables, is acquired or discovered too, but we would expect that most children have a broad exposure to such goods. Therefore the difference between classical arts and popular culture or vegetables would seem to be that the former are far less widespread in the consumption of parents than the latter. This might occur if classical arts were a strongly inferior good, but we would then run into a contradiction because they are disproportionately consumed by the rich and the educated. A more plausible assumption is that the classical arts are luxury goods[2] the consumption of which should relatively increase with economic growth. However, they run into the danger of getting lost over the generations because of lack of sufficient early exposure to them. Subsidizing the classical arts in order to give the new generations equal opportunities to invest in the acquisition of taste or discover their unknown taste for them would be a Pareto-improving policy.[3] The relative price increase of classical arts due to a lack of technical innovation in their production (Baumol and Bowen, 1966) would limit rather than legitimate the use of subsidization.

   Figure 26.1 will help to visualize this argument. It depicts the average variation of taste over time. The taste for good 1 (say, popular music) increases and eventually levels off because additional taste has been acquired through repeated exposure and experience. By contrast, the taste for a non-experienced good (say, classical music) remains stable. Even though the average individual might have initially more taste for classical music than for popular music, she would end up liking popular music better after a while because she was not exposed to classical music. A statistical confirmation of this story is given by Kurabayashi and Ito (1992), who show a positive correlation of preferences for different types of music of the same genre (either classical or popular) but a negative correlation between genres. Prieto-Rodríguez and Fernández-Blanco (2000) suggest, from a bivariate probit model, that both groups of popular and classical music lovers have a common 'innate' taste for music. However, they also show that age has a negative and non-linear

effect on popular music listening. Favaro and Frateschi (2007) further demonstrate with Italian survey data that persons actively taking part in musical activities listen to all kinds of music while non-musicians listen selectively to popular music.

The above intuition is borne by theories of specific consumption capital and rational addiction (Stigler and Becker, 1977; Becker and Murphy, 1988), and learning by consuming (Lévy-Garboua and Montmarquette, 1996). These two classes of theories can predict the dependence of current consumption of art goods upon past behaviour. However, they have different implications for the shape of demand. The issues of quality and risk are also discussed. We hope to bring some clarification in the theoretical discussion by presenting the alternative hypotheses in a common framework that will facilitate comparison and permit the derivation of closed-form equations of demand. To make the addiction model tractable, a simple version of these two models is derived in the technical appendix.

A common feature of these models is suggested by Figure 26.1: tastes for art and culture develop over long periods of time, through repeated exposure and consumption of cultural goods. This is captured by distinguishing the 'quantity' x_t of cultural experiences in period t from their 'quality' s_t, which has the nature of a stock of habit. Thus the true argument of period utility for art and cultural goods is not the quantity consumed but the quality-adjusted quantity of art or cultural appreciation X_t:

$$X_t = s_t x_t \tag{26.1}$$

Throsby (1990) defines objective quality for the live performing arts by a vector of characteristics including the repertoire classification, standards of performance, production and design, standards of comfort, seating, acoustics and so on. Hamlen (1991, 1994) even used the vibrato of pop singers as an index of their objective talent. Objective characteristics have been extensively used as regressors in hedonic price functions (Rosen, 1974) but they fall short in the prediction of superstars *à la* Rosen (1981) and MacDonald (1988). In an interesting study, De Vany and Walls (1999) show that movie box-office revenues are asymptotically Pareto-distributed and have infinite variance. Superstar movies are not determined by awards and totally unpredictable because the informational cascade among filmgoers leads to a great many paths. The models of rational addiction or learning by consuming under review endogenize s_t in equation (26.1). They describe two processes for the cultivation of taste by assuming distinct ways of updating s_t to past (before t) behaviour. The latter is the endogenous determinant of taste in both models and we call it the 'subjective quality' or, briefly, the individual's *taste* for art.

Specific consumption capital and rational addiction
This is the model developed by Stigler and Becker (1977) to account for musical appreciation and consumption, and further elaborated by Becker and Murphy (1988) under an assumption of consistent forward-looking behaviour. Brito and Barros (2005) have recently proposed an adaptation of this model of rational addiction (which they designate as 'learning by consuming') to cultural goods. These models define rational addiction (first introduced by Spinnewyn, 1981) as opposed to myopic habit formation, which was a common assumption for estimating 'dynamic' consumer demand equations

(Pollak, 1970). The taste for music is generated by a music-specific capital that raises musical appreciation in the future. We write this simply[4] (for $t \geq 1$):

$$s_t = s_{t-1} + r\,x_{t-1} \qquad\qquad (26.2)$$

with $r > 0$.[5] Since the arguments of the individual's utility function are quality-adjusted, the natural concept of price here is a quality-adjusted price, the 'price of art appreciation'. Art appreciation is not exchanged directly on the market, but it has a shadow price. It is shown in the appendix that, if the shadow price of art appreciation declines over time, the demand for art appreciation will certainly rise over time when the discount rate does not exceed the interest rate. The more impatient consumers, however, that is those with a high discount rate, may diminish their demand for art appreciation over time even if the shadow price of the latter commodity declines. Moreover, an increase of the demand for art *appreciation* over time does not necessarily entail that the demand for *consumption* also rise because the cultivation of taste allows consumers of art to maintain their level of appreciation by a diminishing level of consumption. Once again, the consumption is the more likely to rise, the lower is the discount rate and the higher is the interest rate. The choice of a quadratic utility function implies that demand be linear negative in the marginal utility of wealth. Since the latter is normally decreasing in wealth, the consumption of art is the more likely to be a luxury, the lower the levels of wealth. The demand functions are linear negative functions of the shadow prices of art appreciation. However, demand studies have not measured the shadow price elasticity of art appreciation but the market price elasticity of art consumption ($e_{11} = \partial x_1/\partial p{:}x_1/p$). It is possible to show that the shadow price elasticity is always lower than the market price elasticity on the negative scale because they differ by a term that is negative when addiction takes place. Hence, a shadow-price-elastic demand for art appreciation is not inconsistent with a market price inelastic demand for art consumption.

The model enables the researcher to calculate the current taste elasticity of art consumption $e_1 = \partial x_1/\partial s_1{:}x_1/s_1$, which indicates the influence of cultivated taste on the consumption of art. The latter relates to the market price elasticity and it can be shown that $e_1 > -(1 + e_{11})$. The last condition corroborates Stigler and Becker's (1977, p. 80) claim that 'the time (or other inputs) spent on music appreciation is more likely to be addictive – that is, to rise with exposure to music – the more, not less, elastic is the demand curve for music appreciation.

Learning by consuming

A different approach is taken by the theory of learning by consuming[6] (Lévy-Garboua and Montmarquette, 1996). Consumers are supposed to be unaware of their true taste and to discover it through repeated experiences in a sequential process of unsystematic learning by consuming. Tastes are given but unknown. Every new experience of a given art form reveals to the consumer an unexpected positive or negative increment in her taste for it. Instead of assuming a deterministic increase in taste, as equation (26.2) does, the shift is now stochastic and may take negative as well as positive values with an expected value of zero. It is certainly more realistic to assume that individuals differ widely in their taste for specific art forms than is implied by the pharmacological force of addiction. Some like attending concerts, while others definitely prefer the opera. Recognition of

the vast heterogeneity of tastes does not preclude the study of taste formation, as Stigler and Becker once feared (see, for instance, Becker, 1996). Furthermore, it allows for the great differentiation of art and cultural goods. Keeping the notations defined above, the experienced taste for the art consumption of period t is:

$$s_t = E_{t-1}(s_t) + \varepsilon_t, \text{ if } x_t > 0 \qquad (26.3)$$

where E_{t-1} designates the expectation operator before period t's choice and ε_t is the taste surprise experienced in period t (that is, $E_{t-1}(\varepsilon_t) = 0$). Someone who discovers that she has a taste for music will normally experience over time repeated pleasant surprises by listening to music and will revise her expectations upward. Since consumers base their expectation of taste solely on their own past experience of the specific art form, the expectation of taste one period ahead is no different from its expectation in the more distant future. This feature of the model, which obtains whether expectations are rational or not, preserves the intertemporal separability of the utility function conditional on past consumption, contrary to what occurs in the rational addiction model. Consequently, the shadow price of art appreciation is p_t/s_t, so that the shadow price elasticity is equal to the market price elasticity (e_{11}) and the taste elasticity (e_1) is simply related to the own-price elasticity by: $e_1 = -(1 + e_{11})$. If the price elasticity is greater than unity (in absolute value), the experience of consuming a good will have a positive effect on current consumption when the good was enjoyable overall, and a negative effect when it was not enjoyable overall. These effects of experience are reversed if demand for the good is inelastic, and are non-existent if the elasticity is equal to unity. This implication provides a useful way of measuring the price elasticity of art consumption from survey data yielding proxies for accumulated experience and taste for a specific art form. If rational addiction also takes place, the latter measures still provide an upper bound for the absolute value of the market price elasticity. The demand equation (26A.11 in the appendix) also describes the dynamics of consumption. Since the dynamic elements of the model are the shadow prices rather than the parameters defining the utility function, the long-term equilibrium is achieved when all the subjective qualities have stabilized at path-dependent stationary values determined at the end of the learning period. The 'true' price and income elasticities are the same in the short run and the long run. The learning by consuming model is thus a case where the addition of a stochastic process does greatly simplify, not complicate, the analysis.

Rational addiction and learning by consuming describe distinct processes of taste formation that may both be present at successive stages of consumption. West and McKee (1983) have suggested a threshold in the demand for the arts, with art consumption climbing slowly for some time and then rising quite rapidly as the effect strengthens. Moreover, rationality has a different meaning in the two theories. It describes forward-looking behaviour (which is no longer a controversial issue among economists) in one case; and it describes rational expectations in another. Besides, the sole and perhaps excessive reliance of expectations on past own experience introduces a special sort of 'myopia', long recognized by habit formation models (e.g. Pollak, 1970), which has in fact more to do with ignorance and uncertainty than with irrationality. Part of the ignorance and uncertainty that surrounds the demand for arts is resolved by repeated exposure and experience.[7] However, an element of short-run uncertainty is inevitable for

live performances whose subjective quality cannot be assessed prior to own experience.[8] Abbé-Decarroux and Grin (1992) and Abbé-Decarroux (1994) suggest that potential spectators of live performances must bet on the latter's quality. If the coefficient of relative risk aversion is smaller than one, the more risk-averse the consumer, the less risky the performances attended. The presence of risk also helps to explain the role of critics and herd behaviour in the consumption of arts.

The empirical evidence

A growing body of empirical research is devoted to estimating the demand for the arts. The demand for live performing arts (theatre, dance, opera, music) and cinema has been estimated from aggregate time-series data, cross-section surveys on the audience of live performing companies, and individual survey data on specific groups or on the general population. The difficulty of gathering good data is obvious to account for own price, cross price, human capital accumulation, learning experience, quality and time costs. Thus the results are often partial and the methodology varies considerably from one study to another (see also the extensive review by Seaman, 2006). Since attendance at live performances is typically an infrequent event, the use of aggregate data requires caution in interpreting the price and income elasticities of demand when the frequency rate changes over time. The estimation of micro demand equations for the arts requires large samples in order to obtain a sufficient number of participants and be able to correct for a potential selectivity bias. Until recently, these sources of bias have not been largely discussed in the empirical literature devoted to the demand for arts. Moreover, few empirical studies have relied on a structural model. Without specific theoretical references, our previous discussion points to the difficulty of correctly interpreting the empirical results.

Most of the empirical work on the demand for the arts is concerned with price and income elasticities and the tracking of who is the audience of performing arts. The characteristics of audience are often similar, whether for classical music, theatre or museums: the audience, which includes a number of tourists (Gapinski, 1988), is predominantly female, well educated, from upper and middle class and with well-paying jobs (Dickenson, 1992; Kurabayashi and Ito, 1992; Towse, 1994; Donnat, 1998; Prieto-Rodríguez and Fernández-Blanco, 2000; Favaro and Frateschi, 2007; Ateca-Amestoy, 2008). For live performances with the conventional demand equation, own price elasticity estimates (short-term) are negative, relatively low but statistically significant (see, for example, Moore, 1966 and Gapinski, 1984, 1986). Price-inelastic demand was observed in studies for group of companies and Felton (1992) has confirmed this result even in restricting the econometric regressions to a sample of subscribers (long-term demand). She found an exception for metro orchestras and stressed that elasticities vary widely among companies (this is the well-known Le Châtelier principle). Throsby and Withers (1979) observe that elasticies are unequal between genres. Cameron (1990), Fernández-Blanco and Banos-Pino (1997), McMillan and Smith (2001) found that the demand for cinema is price elastic. Few studies (see Krebs and Pommerehne, 1995) have estimated cross-price elasticities, but Gapinski (1986) showed that price interdependencies with close substitutes do matter. Income elasticity estimates are positive, not always statistically significant, and in many studies less than one (see Gapinski, 1986). This finding, which runs counter to the impression that art goods are luxuries, may be a consequence

of the cost of time (Becker, 1965). Attending live performances is a time-intensive consumption and Withers (1980) has shown that a large full-income effect may be partially offset by a negative leisure-price effect. He found a 'pure' income elasticity of about unity. Zieba (2009) confirms these findings with a large dataset for 178 German public theatres over 40 years (1965–2004). By adding the value of leisure time to disposable income, she finds that the disposable income elasticity is approximately one and the full-income elasticity is well above one, indicating that the performing arts are a luxury good.

Do these elasticity estimates differ when quality is taken into account? Quality matters to explain attendance to performing arts. Most of the studies that find a low price elasticity of demand measure prices by dividing revenues by the number of seats and, thus, don't adjust prices by the objective quality of seats[9] and performances. The resulting elasticity captures the offsetting effects of price and quality and tends therefore to be low. Indeed, Abbé-Decarroux (1994), observing the paid attendance at 64 productions by one theatre company in Geneva over seven years, showed that the demand for full-price seats is inelastic but the demand for reduced-price seats has a unit price elasticity. Schimmelpfennig (1997) also estimated that for three out of five categories of seats, the demand for ballet is significantly downward sloping. Survey data are generally rich in quality variables, but do not normally allow for the variation of quality-adjusted prices. However, Lévy-Garboua and Montmarquette's (1996) learning-by-consuming model enabled them to recover the own-price elasticity from survey data that provided adequate measures of art experience and taste. After controlling for many variables including indexes of the cost of time and information, the cost of transportation and babysitting and the price of substitutes, they conclude that the demand for theatre is price-elastic, holding the marginal utility of wealth constant. The elasticity of price does not significantly differ from unity in absolute value and reaches a peak of 1.47 for the most experienced category of theatregoers. Their results also indicated a significant effect of the marginal utility of wealth on theatregoing.

The idea that early exposure to arts or investment in human capital increases interest in art consumption has been supported by various studies (Ekelund and Ritenour, 1999; Smith, 1998; Dobson and West, 1997; McCain, 1995; Lévy-Garboua and Montmarquette, 1996). Smith (1998) concluded that culture or art is at the very least habit forming rather than addictive. Results by Cameron (1999) and Dewenter and Westerman (2005) mildly support the rational addiction model on the demand for cinema in the UK and Germany, while stronger support was obtained by Sisto and Zanola (2004) on pooled cross-section time-series data for 13 European countries over the period 1989–2002.

Abbé-Decarroux and Grin (1992) have related risk with age and concluded that risk-free ventures will attract relatively older audiences (opera and symphony), while more risky venues will attract younger audiences (theatre). But the latter results may also be interpreted somewhat differently: older people are more likely to gain experience with the given stock of classical operas and symphonies, but less so with more innovative theatre shows.

Several studies have examined the consumer's decision to attend a specific live performance. The latter depends on the alternatives one has. The set of alternatives may differ from one individual to another. For example, the set of alternatives of a theatre

critic consists exclusively of the plays that are being currently produced while an occasional theatregoer might consider a movie or a television show as viable alternatives. This might help explain why the evaluation of plays appearing in press reviews has a strong influence on attendance on a by-performance basis, according to Abbé-Decarroux (1994) and Urrutiaguer (2002), but, according to the second author, has no influence on the average attendance of theatre companies, which often seek to attract a stable public to their theatre and away from alternative activities.

Conclusion

It is likely that the demand for the arts is price-elastic and art is a luxury good. But this prediction stems more, as yet, from a theoretical conjecture than from well-replicated empirical estimates. Careful econometric work, the increased use of large data sets, and a more intensive use of explicit models of the cultivation of taste are certainly needed before definite answers to these basic questions can be given. Price, income, education and learning experiences are important factors in the demand for the arts, but art is also associated with emotions and feelings. The extent to which aesthetic emotions are amenable to economic analysis and measurement remains to be shown. However, we believe that this is perhaps not an impossible task. For instance, aesthetic emotions may be simply approached by the reported satisfaction for an experienced art event (Lévy-Garboua and Montmarquette, 1996), which is an easily observable variable. Thus the endogenization and cultivation of taste, the role of emotions and the many distinguishing features of demand for the arts are important fields for future research.

Notes

*   We thank Claire Owen for excellent research assistance.
1. Quoted by Throsby (1994).
2. Browning and Crossley (2000) show, under a few technical assumptions, that luxury goods are easier to postpone. Indeed, the consumption of classical arts seems to be easier to postpone than the consumption of vegetables.
3. Champarnaud *et al.* (2008) have recently argued, based on an overlapping-generations model, that it is preferable to subsidize public education of art than the consumption of art if the intergenerational transmission of art generates a positive externality. Using a model calibrated on French data, they even show that art consumption should then be taxed rather than subsidized. This corroborates our analysis that what should be subsidized is the investment in taste rather than the consumption of art goods.
4. Smith (1998) substitutes music-specific training (in the form of piano lessons, for instance) for music consumption (like listening to recorded music or attending concerts) to characterize the investment effort. This does not alter the main qualitative conclusions that we wish to draw here. Moreover, it is often difficult to distinguish empirically between training and consumption of music.
5. Becker and Murphy (1988) deal with harmful addictions, like heroin, by assuming $r < 0$. Therefore their model cannot be applied to the cultivation of musical taste without the appropriate adaptations.
6. McCain (1979) coined the term 'learning by consuming' in a study on wine. McCain (1995) used this idea in the context of a simulated model of bounded rationality to explain discontinuities in the consumption of art events.
7. Art and cultural goods are essentially experience goods in the sense of Nelson (1970). Attendance is obviously required for a full appreciation of live performances. However, even though objects of art like paintings can be inspected in art galleries before purchase, their full appreciation requires extensive comparisons with many alternative paintings that are not commonly exhibited in the same place.
8. Price appreciation of an art object also contains a random component. Anderson (1974) showed that paintings are not very attractive investments when risk has been adjusted for. Similar findings are reported in Throsby (1994) for investments in the secondary and tertiary art markets and in Pesando and Shum (1999) for the return to Picasso's prints. However, Locatelli-Biey and Zanola (1999) find that, from 1987 to 1991, an investment in paintings (with repeat sales) performs well compared to US stocks, US 30-year government bonds and gold.

9. It is worth noticing that movie theatres usually sell all tickets for the same price, in contrast with most theatres. Interestingly, higher price elasticities have been found for the demand for cinema (see Cameron, 1990; Fernández-Blanco and Banos-Pino, 1997; McMillan and Smith, 2001cited above).

See also

Chapter 37: Marketing the arts; Chapter 49: Pricing the arts; Chapter 56: Superstars.

References

Abbé-Decarroux, F. (1994), 'The Perception of Quality and the Demand for Services: Empirical Application to the Performing Arts', *Journal of Economic Behavior and Organization*, 23, 99–107.

Abbé-Decarroux, F. and F. Grin (1992), 'Risk, Risk Aversion and the Demand for Performing Arts', in R. Towse and A. Khakee (eds), *Cultural Economics*, Berlin: Springer Verlag, pp. 125–40.

Agnello, R.J. and R.K. Pierce (1996), 'Financial Returns, Price Determinants, and Genre Effects in American Art Investment', *Journal of Cultural Economics*, 20, 359–83.

Anderson, B.C. (1974), 'Painting as an Investment', *Economic Inquiry*, 12, 13–26.

Andersson, Ake E. and David Emanuel Andersson (2006), *The Economics of Experiences, the Arts and Entertainment*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar.

Ateca-Amestoy, V. (2008), 'Determining Heterogeneous Behaviour for Theatre Attendance', *Journal of Cultural Economics*, 32, 127–51.

Baumol, W.J. and W.G. Bowen (1966), *Performing Arts: The Economic Dilemma,* New York: Twentieth Century Fund.

Becker, G.S. (1965), 'A Theory of the Allocation of Time', *Economic Journal*, 75, 209–27.

Becker, G.S. (1996), *Accounting for Tastes*, Boston, MA: Harvard University Press.

Becker, G.S. and K. Murphy (1988), 'A Theory of Rational Addiction', *Journal of Political Economy*, 96, 675–700.

Brito, P. and C. Barros (2005), 'Learning-by-Consuming and the Dynamics of the Demand and Prices of Cultural Goods', *Journal of Cultural Economics*, 29, 83–106.

Browning, M. and T.F. Crossley (2000), 'Luxuries Are Easier to Postpone: A Proof', *Journal of Political Economy*, 108, 1022–26.

Cameron, S. (1990), 'The Demand for Cinema in the United Kingdom', *Journal of Cultural Economics*, 14, 35–47.

Cameron, S. (1999), 'Rational Addiction and the Demand for Cinema', *Applied Economics Letters*, 6, 617–20.

Champarnaud, L., V.A. Ginsburgh and P. Michel (2008), 'Can Public Arts Education Replace Art Subsidization?', *Journal of Cultural Economics*, 32, 109–26.

De Vany, A. and W.D. Walls (1999), 'Uncertainty in the Movie Industry: Does Star Power Reduce the Terror of the Box Office?', *Journal of Cultural Economics*, 23, 285–318.

Dewenter, R. and M. Westerman (2005), 'Cinema Demand in Germany', *Journal of Cultural Economics*, 29, 213–31.

Dickenson, V. (1992), 'Museum Visitors Surveys: An Overview, 1930–1990', in R. Towse and A. Khakee (ed.), *Cultural Economics*, Berlin and Heidelberg: Springer-Verlag, pp. 141–50.

Dobson, L.C. and E.G. West (1997), 'Performing Arts Subsidies and Future Generations', in R. Towse (ed), *Cultural Economics: The Arts, the Heritage and the Media Industries*, vol. I, Cheltenham, UK and Lyme, US: Edward Elgar Publishing, pp. 108–16.

Donnat, O. (1998), *Les Pratiques Culturelles des Français. Enquête 1997*, Paris: La Documentation Française.

Ekelund, Jr, R.B. and S. Ritenour (1999), 'An Exploratory of the Beckerian Theory of Time Costs: Symphony Concert Demand', *American Journal of Economics and Sociology*, 58, 887–99.

Favaro, D. and C. Frateschi (2007) 'A Discrete Choice Model of Consumption of Cultural Goods: The Case of Music', *Journal of Cultural Economics*, 31, 205–34.

Felton, M.V. (1992), 'On the Assumed Inelasticity of Demand for the Performing Arts', *Journal of Cultural Economics*, 16, 1–12.

Fernández-Blanco, V. and J.F. Banos-Pino (1997), 'Cinema Demand in Spain: A Cointegration Analysis', *Journal of Cultural Economics*, 21, 57–75.

Flôres Jr, R., R.G. Gôres Jr, V. Ginsburgh and P. Jeanfils (1999), 'Long- and Short-Term Portfolio Choices of Paintings', *Journal of Cultural Economics*, 23, 191–208.

Frey, B.S. and W.W. Pommerehne (1989) *Muses and Markets*, Oxford: Basic Blackwell.

Gapinski, J.H. (1984), 'The Economics of Performing Shakespeare', *American Economic Review*, 74, 458–66.

Gapinski, J.H. (1986), 'The Lively Arts as Substitutes for the Lively Arts', *American Economic Review*, 75, 20–25.
Gapinski, J.H. (1988), 'Tourism's Contribution for the Demand for London's Lively Arts', *Applied Economics*, 20, 957–68.
Hamlen, W.A. (1991), 'Superstardom in Popular Music: Empirical Evidence', *Review of Economics and Statistics*, 73, 729–33.
Hamlen, W.A. (1994), 'Variety and Superstardom', *Economic Enquiry*, 32, 395–406.
Krebs, S. and W.W. Pommerehne (1995), 'Politico-Economic Interactions of German Public Performing Arts Institutions', *Journal of Cultural Economics*, 19, 17–32.
Kurabayashi, Y. and T. Ito (1992), 'Socio-economic Characteristics of Audiences for Western Classical Music in Japan', in R. Towse and A. Khakee (eds), *Cultural Economics*, Berlin and Heidelberg: Springer-Verlag, pp. 275–87.
Lévy-Garboua, L. and C. Montmarquette (1996), 'A Microeconometric Study of Theatre Demand', *Journal of Cultural Economics*, 20, 25–50.
Locatelli-Biey, M. and R. Zanola (1999) 'Investment in Paintings: A Short-Run Price Index', *Journal of Cultural Economics*, 23, 209–19.
MacDonald, G.M. (1988), 'The Economics of Rising Stars', *American Economic Review*, 78, 155–67.
McCain, R.A. (1979), 'Reflections on the Cultivation of Taste', *Journal of Cultural Economics*, 3, 30–52.
McCain, R.A. (1995), 'Cultivation of Taste and Bounded Rationality: Some Computer Simulations', *Journal of Cultural Economics*, 19, 1–15.
McMillan, P. and I. Smith (2001), 'Explaining Post-War Cinema Attendance in Great Britain', *Journal of Cultural Economics*, 25, 91–108.
Moore, T.G. (1966), 'The Demand for Broadway Theater Tickets', *Review of Economics and Statistics*, 48, 79–87.
Moore, T.G. (1968), *The Economics of American Theater*, Durham, NC: Duke University Press.
Nelson, P. (1970), 'Information and Consumer Behavior', *Journal of Political Economy*, 78, 311–29.
Pesando, J.E. and P.M. Shum (1999), 'The Returns to Picasso's Prints and to Traditional Financial Assets, 1977 to 1996', *Journal of Cultural Economics*, 23, 181–90.
Pollak, R.A. (1970), 'Habit Formation and Dynamic Demand Functions', *Journal of Political Economy*, 78, 745–63.
Prieto-Rodríguez, J. and V. Fernández-Blanco (2000), 'Are Popular and Classical Music Listeners the Same People?', *Journal of Cultural Economics*, 24, 147–64.
Rosen, S. (1974), 'Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition', *Journal of Political Economy*, 82, 34–55.
Rosen, S. (1981), 'The Economics of Superstars', *American Economic Review*, 71, 845–58.
Schimmelpfennig, J. (1997), 'Demand for Ballet: A Non-parametric Analysis of the 1995 Royal Ballet Summer Season', *Journal of Cultural Economics*, 21, 119–27.
Seaman, B.A. (2006), 'Empirical Studies of Demand for the Arts', in V.A. Ginsburgh and D. Throsby (eds), *Handbook of the Economics of Art and Culture*, Amsterdam: Elsevier (North Holland), pp. 415–72.
Sisto, A. and R. Zanola (2004), 'Rational Addiction to Cinema? A Dynamic Panel Analysis of European Countries', Universita Del Piemonte Orientale, Working Paper No. 41.
Smith, T.M. (1998), 'Two Essays on the Economics of the Arts: The Demand for Culture and the Occupational Mobility of Artists', unpublished PhD thesis, University of Illinois, Chicago.
Spinnewyn, F. (1981), 'Rational Habit Formation', *European Economic Review*, 15, 91–109.
Stigler, G.J. and G.S. Becker (1977), 'De Gustibus Non Est Disputandum', *American Economic Review*, 67, 76–90.
Throsby, D. (1990), 'Perception of Quality in Demand for the Theatre', *Journal of Cultural Economics*, 14(1), 65–82.
Throsby, D. (1994), 'The Production and Consumption of the Arts: A View of Cultural Economics', *Journal of Economic Literature*, 32, 1–29.
Throsby, D. and G.A. Withers (1979), *The Economics of the Performing Arts*, London: Edward Arnold.
Towse, R. (1994), 'Achieving Public Policy Objectives in the Arts and Heritage', in A. Peacock and I. Rizzo (eds), *Cultural Economics and Cultural Policies*, Dordrecht: Kluwer Academic Publishers, pp. 143–65.
Urrutiaguer, D. (2002), 'Quality Judgements and Demand for French Public Theatre', *Journal of Cultural Economics*, 26, 185–202.
West, E.G. and M. McKee (1983), 'De Gustibus Est Disputandum: The Phenomenon of "Merit Wants" Revisited', *American Economic Review*, 73, 1110–21.
Withers, G.A. (1980), 'Unbalanced Growth and the Demand for Performing Arts: An Econometrics Analysis', *Southern Economic Journal*, 46, 735–42.
Zieba, M. (2009), 'Full-Income and Price Elasticities of Demand for German Public Theatre', *Journal of Cultural Economics*, 33, 85–108.

Further reading

Extensive surveys on the demand for the arts can be found in Seaman (2006) and in Chapter 3 of a recent book by Ake E. Andersson and David Emanuel Andersson (2006). Victoria Ateca-Amestoy (2007) derives the market demand for cultural goods from a two-period version of the rational addiction model presented here.

Appendix: simple models of demand for cultural goods
We assume simply two goods ($i = x$, y) and three periods ($t = 1, 2, 3$), and the time-additive utility function

$$U(X_1, y_1) + \beta\, U(X_2, y_2) + \beta^2 U(X_3, y_3) \qquad (26A.1)$$

where X_t designates 'art appreciation', that is the subutility associated with the art good x in period t and β is the discount factor. The arguments of the utility function are the values expected at the time of decision, that is, the beginning of period 1. To illustrate the properties of these models, we assume

$$X_t = s_t x_t, \ \ \text{for } t = (1, 2, 3) \qquad (26A.2)$$

For comparison purposes, we specify everywhere a quadratic period utility function

$$U(X, y) = X - \frac{1}{2}aX^2 + by - \frac{1}{2}cy^2 + dXy \qquad (26A.3)$$

with $a, b, c, d > 0$ and $ac - d^2 > 0$ to ensure the second-order conditions. The individual maximizes her utility function (26A.1) under (26A.2), (26A.3), and her wealth constraint

$$\sum_{t=1}^{3} \rho^{t-1}(p\, x_t + y_t) = W \qquad (26A.4)$$

The interest factor (ρ) and the price of art (p) are assumed constant because we focus on the role of tastes. With positive consumption of the two goods, the first-order conditions yield the relative shadow prices of art appreciation in the three periods. However, the expression of these shadow prices crucially depends upon the formation of taste. Two alternative assumptions are explored.

(a) Rational addiction
If taste follows a deterministic process depicted by the recurrence equation (26.2), the first-order conditions can be written as:

$$\frac{MU_{X_3}}{MU_{y_3}} = \frac{p}{s_3} \equiv \Pi_3 \qquad (26A.5)$$

$$\frac{MU_{X_2}}{MU_{y_2}} = \frac{p}{s_2}[1 - \rho\alpha_3] \equiv \Pi_2 \qquad (26A.6)$$

$$\frac{MU_{X_1}}{MU_{y_1}} = \frac{p}{s_1}[1 - \rho\alpha_2(1 - \alpha_3) - \rho^2\alpha_3] \equiv \Pi_1, \qquad (26A.7)$$

with $\alpha_t = rx_t/s_t, t = (1, 2, 3)$

The *rate of addiction* (α_t), that is the rate at which the taste for art increases with the consumption of art, is always positive. It might rise at young ages and eventually

decrease. Under the assumptions that $\alpha_1 > \alpha_2 > \alpha_3$ and that they are small, we can neglect terms of the second order – like $\alpha_2\alpha_3$ in (26A.7) – and show that the relative shadow price of art appreciation declines over time.[10]

We can then derive the *taste-constant Frisch* (marginal utility of wealth constant) *demand functions* for art[11]

$$s_1x_1 = D[c + bd - d\lambda - \lambda\Pi_1] \qquad (26A.8)$$

$$s_2x_2 = D[c + bd - \sigma d\lambda - \sigma\lambda\Pi_2] \qquad (26A.9)$$

$$s_3x_3 = D[c + bd - \sigma^2 d\lambda - \sigma^2\lambda\Pi_3] \qquad (26A.10)$$

with ($\lambda > 0$) for the marginal utility of wealth, $\sigma = \rho/\beta$ and $D = \dfrac{1}{ac - d^2} > 0$.

(b) Learning by consuming

If taste follows a stochastic process described by (26.3), the intertemporal separability of the utility function (26A.1) is preserved conditional on past consumption, contrary to what occurs in the rational addiction model. Consequently, the demand function for art in period 1, as any other period, keeps the simple form:

$$s_1x_1 = D\left[c + bd - d\lambda - \lambda\frac{p}{s_1}\right] \qquad (26A.11)$$

and the shadow price of art appreciation is simply $\dfrac{p}{s_1}$.

1. By (26.3), (26A.5) and (26A.6),

$$\frac{MU_{X_3}}{MU_{y_3}} - \frac{MU_{X_2}}{MU_{y_2}} < 0 \text{ if } (1 + \alpha_2)(1 - \rho\alpha_3) > 1.$$

   This inequality is certainly verified if $\alpha_2 > \alpha_3$ since $\rho \leq 1$. Similarly, by (26.4), (26A.6) and (26A.7),

$$\frac{MU_{X_2}}{MU_{y_3}} - \frac{MU_{X_1}}{MU_{y_1}} < 0$$

   yields, if terms of the second order can be neglected : $\alpha_1 - \rho\alpha_2 - \rho(1 - \rho)\alpha_3 > 0$. This inequality holds because the left-hand expression exceeds $(1 - \rho)(\alpha_1 - \rho\alpha_3) \geq 0$ *if* $\alpha_1 > \alpha_3$.

2. The Frisch demand function is natural in the time-additive framework. It is also convenient because the marginal utility of wealth is invariant over the life cycle and this non-observable factor can easily be captured through socioeconomic variables when current income is not known, as is often the case in survey data.