

## HEDONIC PRICE METHOD

TI: Aircraft Noise Social Cost and Charge Mechanisms--A Case Study of Amsterdam Airport Schiphol

AU: Morrell,-Peter; Lu,-Cherie-H.-Y.

SO: Transportation-Research:-Part-D:-Transport-and-Environment; 5(4), July 2000, pages 305-20.

AB: The increasing trend of charging for aircraft noise nuisance to encourage the sustainable development of the air transport industry has resulted in a need to evaluate the real social costs of such externalities for the formulation of effective charge mechanisms. After comparing the current charge mechanisms at world airports as well as reviewing existing externality measurements, mathematical models are developed to calculate the noise social cost in monetary terms, and noise charge mechanisms are subsequently established. The hedonic price method is applied to calculate the annual social cost of aircraft noise during the landing and take-off stages of the flight. This is done by estimating the implicit costs of aircraft noise imposed through a decline in property values in the vicinity of the airport. The empirical results, using Amsterdam Airport Schiphol as the case study, show that the current noise charge level imposed by the Dutch Government is lower than the actual noise social cost resulting from aircraft movements. Several noise charge mechanism scenarios are derived according to the modelling results, as well as the environmental objectives of the airport related authorities.

TI: Consumers' Willingness to Pay for Recycled Content in Plastic Garbage Bags: A Hedonic Price Approach: Erratum

AU: Anstine,-Jeff

SO: Applied-Economics-Letters; 7(5), May 2000, pages 347.

TI: Utilisation de la methode des prix hedonistes pour l'evaluation des amenites agricoles et forestieres: Etat des lieux et donnees disponibles. (Use of Hedonic Price Method for Estimation of Agricultural and Forestry Amenities: Current Situation and Available Data. With English summary.)

AU: Michalland,-Beatrice; Vollet,-Dominique

SO: Cahiers-d'Economie-et-Sociologie-Rurales; 0(51), 2nd Trimester 1999, pages 41-64.

AB: Among methods of environmental economics, the hedonic price method offers the advantage of being based on transactional data and not on survey findings. It permits an estimate of what consumers are willing to pay to obtain an improvement in the quality of their natural environment. The results obtained show that agricultural or forestry amenities can account for an appreciable part of variations in real estate prices in rural areas.

TI: Hedonic Pricing of Agriculture and Forestry Externalities

AU: Le-Goffe,-Philippe

SO: Environmental-and-Resource-Economics; 15(4), April 2000, pages 397-401.

AB: In this study, the hedonic price method was used to identify and monetarize some of the external effects of agricultural and sylvicultural activities. We examined the renting price of rural self-catering cottages, or gites. Intensive livestock farming caused the renting-price of gites to decrease, whereas permanent grassland had the opposite effect.

TI: Are Eco-labels Valuable? Evidence from the Apparel Industry  
AU: Nimon,-Wesley; Beghin,-John  
SO: American-Journal-of-Agricultural-Economics; 81(4), November 1999, pages 801-11.

AB: Using apparel catalog data from the United States, we estimate hedonic price functions to identify market valuation of environmental attributes of apparel goods. We identify a significant and robust premium for the organic fibers embodied in the apparel goods. We also find a discount for the "no-dye" label. We do not, however, find any evidence of a premium for environment-friendly dyes. We further investigate the pricing behavior of apparel suppliers for potential heterogeneous pricing of the organic-fiber attribute and find no evidence of different premia across firms.

TI: Consumers' Willingness to Pay for Recycled Content in Plastic Kitchen Garbage Bags: A Hedonic Price Approach  
AU: Anstine,-Jeff  
SO: Applied-Economics-Letters; 7(1), January 2000, pages 35-39.

TI: Estimating Irrigation Water Value Using Hedonic Price Analysis: A Case Study in Malheur County, Oregon  
AU: Faux,-John; Perry,-Gregory-M.  
SO: Land-Economics; 75(3), August 1999, pages 440-52.  
AB: Hedonic price analysis is applied to agricultural land sales to reveal the implicit market price of water in irrigation. This provides price information, where otherwise absent, which can facilitate reallocation of water supplies to meet growing demands. The failure to include available information on soil quality, an important determinant of agricultural land value, results in erroneous conclusions. Joint testing of heteroskedasticity and functional form is demonstrated. The value of irrigation water in this location is estimated at \$9 for an acre-foot on the least productive land irrigated, and up to \$44 per acre-foot on the most productive land.

TI: Implicit Prices of Prawn and Shrimp Attributes in the Philippine Domestic Market  
AU: Salayo,-Nerissa-D.; Voon,-Thomas-J.-P.; Selvanathan,-Saroja  
SO: Marine-Resource-Economics; 14(1), Spring 1999, pages 65-78.  
AB: Improving quality is a major goal in the global seafood market due to increasing consciousness among buyers, who are becoming "quality consumers" rather than "quantity consumers." This paper uses the hedonic approach to determine the marketable characteristics of prawn and shrimp in a domestic market that prioritizes export of quality products to a more lucrative market. Using price and attribute data for prawn and shrimp purchased from the Philippine domestic market, we estimate a log-linear hedonic price model with combined continuous and dummy explanatory variables. The estimation results show significant implicit prices of attributes, such as: tail length, freshness, product form, species, color, size, ease of preparation, discoloration, protein, and carbohydrate content. Longer tails and banana species are highly valued. Peeling and breasting to ease preparation obtain a high premium. Freezing, although commonly practiced, receives the highest discount among forms of preservation. As the characteristics of local consumers and the market in the Philippines are similar to other competing Asian exporters such as Indonesia, India, Malaysia, Thailand,

and Vietnam, the results presented in this paper will be applicable to these exporting countries.

TI: Valuing New Urbanism: The Case of Kentlands

AU: Tu,-Charles-C.; Eppli,-Mark-J.

SO: Real-Estate-Economics; 27(3), Fall 1999, pages 425-51.

AB: This study assesses the impact of new urbanism on single-family home prices. Specifically, we use Duany and Plater-Zyberks traditional neighborhood development (TND) of Kentlands and surrounding conventional subdivisions to estimate the premium, if any, that single-family homeowners are willing to pay to reside in a community with new urbanist features. Using data on 2,061 single-family home transactions and several hedonic price models, the empirical evidence reveals that consumers are willing to pay a premium to locate in Kentlands.

TI: Economic Development and Environmental Quality: Evidence from Taiwan

AU: Wu,-Pei-Ing

SO: Asian-Economic-Journal; 12(4), December 1998, pages 395-412.

AB: The relationship between economic growth and environmental quality is identified for Taiwan. The question is investigated by using a set of pooling data on per-capita income and selected major environmental quality variables as well as an aggregated environmental quality indicator constructed by a hedonic price approach. The results have indicated that different environmental indicators portray different portions of an inversed U-curve relating pollution and income. As with the aggregate environmental indicator, an index used to generalize the overall trend and account for the general perception of environmental quality, gives a relationship between the indicator and economic growth which is said to be compatible in foreseeable income levels. The positive relationship between economic development and environmental quality, however, does not imply that a greater percentage of income, inferred from monetary measure of aggregate environmental index, would be spent on the improvement of environment as income increased.

TI: La methode des prix hedonistes: Principes et application a l'evaluation des biens environnementaux. (The Hedonic Price Method: Principles and Application to Environmental Goods Valuation. With English summary.)

AU: Le-Goffe,-Philippe

SO: Cahiers-d'Economie-et-Sociologie-Rurales; 0(39-40), 1996, pages 179-98.

AB: The estimation of the hedonic price function is constrained by many practical problems as definition of pertinent environmental criteria, consumer perception or expectation of environmental change, market segmentation. In addition, econometric problems should be emphasized: model specification and functional form, multicollinearity. Finally hedonic pricing is limited by methodological constraints, but also by the nature of values to be measured (use value only) and the field of application (mainly urban). However, when applied to assets such as noise or air quality in town areas the methodology may bring satisfying results.

TI: Evaluation de la fonction de demande en eau d'irrigation et application de la methode des prix hedonistes. (Evaluation of Irrigation Water Demand and Application of the Hedonic Price Method. With English summary.)

AU: Michalland,-Beatrice

SO: Cahiers-d'Economie-et-Sociologie-Rurales; 0(39-40), 1996, pages 199-222.

AB: The article gives more attention to the hedonic method, which has not yet been used in France to estimate the irrigation water demand function. The numerical application presented is based on data from the Midi-Pyrenees region (France). Having no access to a large number of complete individual transaction data, we have preferred to work at a "small agro-regional" scale, for which we could gather simultaneously information on the agricultural land market, agronomic potentialities, space organization, irrigation practices.

TI: An Estimation of the Economic Value of an Air Quality Improvement Program in Santiago de Chile

AU: Figueroa-B.,-Eugenio; Rogat-C.,-Jorge; Firinguetti-L.,-Luis

SO: Estudios-de-Economia; 23(0), Special Issue 1996, pages 99-114.

AB: There is no doubt regarding the negative effects of air pollution on human health, economic property and the environment. The almost five million inhabitants living in Santiago, Chile, are exposed to high levels of air contamination, especially during winter time when the level of pollution is at its worst. In this paper, a hedonic price model is used to first, estimate the effect of air pollution on house prices in Santiago and second, to estimate the willingness to pay (WTP) for a program that reduces air contamination by 50 percent. The data consists of 992 observations containing market prices for houses and their characteristics. The average WTP for the air quality improvement program was estimated in \$567,000 (US \$1,626), and the aggregated WTP for Santiago in almost 600 billion pesos (US \$1.7 billion).

TI: Recreational and Aesthetic Value of Water Using Hedonic Price Analysis

AU: Landford,-Notie-H., Jr.; Jones,-Lonnie-L.

SO: Journal-of-Agricultural-and-Resource-Economics; 20(2), December 1995, pages 341-55.

AB: Historically, water allocation focused on quantities demanded by consumptive uses. As quantity demand grows, efficient allocation among consumptive and nonconsumptive uses becomes more critical. This hedonic approach provides information regarding recreational and aesthetic (RA) value for a central Texas lake. The model indicates several statistically significant RA characteristics of housing; proximity is the most important. Waterfront properties command a premium but marginal RA price falls rapidly with increasing distance. Marginal RA values are estimated for selected water levels and are found to have a lower marginal price per acre-foot than many agricultural uses.

TI: Modelling the Effects of Airport Noise on Residential Housing Markets: A Case Study of Winnipeg International Airport

AU: Levesque,-Terrence-J.

SO: Journal-of-Transport-Economics-and-Policy; 28(2), May 1994, pages 199-210.

AB: This hedonic price study of the effect of airport noise on property prices uncovers relationships with the number of events that affect a location, and the mean and variance of the loudness of the events. The results suggest that hedonic price models that include cumulative energy noise measures, such as the Noise Exposure Forecast, do not perform as well as models that use the number and loudness of aircraft noise incidents. Furthermore, Box-Cox estimates of the

empirical price function reject the usual specifications found in previous literature.

TI: The Environmental Economic Impact of Woodland: A Two-Stage Hedonic Price Model of the Amenity Value of Forestry in Britain

AU: Garrod,-Guy; Willis,-Ken

SO: Applied-Economics; 24(7), July 1992, pages 715-28.

TI: The Opportunity Cost of Coastal Land-Use Controls: An Empirical Analysis

AU: Parsons,-George-R.; Wu,-Yangru

SO: Land-Economics; 67(3), August 1991, pages 308-16.

AB: Coastal land-use controls that limit new residential development on land adjacent to water have three principle efficiency effects: gain in aesthetics and clean water, loss of residential proximity to the coast, and loss of amenities at inland locations. Using hedonic price analysis of housing with data from a county on the Chesapeake Bay where controls were introduced, the authors estimate the opportunity cost of the second efficiency effect--displaced residential development. They predict the number of houses displaced due to controls and multiply that by the implicit value of coastal access amenities from the hedonic to estimate the loss.

TI: Hedonic Price Functions for Muti-product Timber Sales in Southern Ontario

AU: Prescott,-D.-M.; Puttock,-G.-D.

SO: Canadian-Journal-of-Agricultural-Economics; 38(2), July 1990, pages 333-44.

TI: Aircraft Noise and Residential Property Values Adjacent to Manchester International Airport

AU: Pennington,-G.; Topham,-N.; Ward,-R.

SO: Journal-of-Transport-Economics-and-Policy; 24(1), January 1990, pages 49-59.

AB: This paper examines the possible effects of aircraft noise nuisance on the market values of residential properties in the vicinity of Manchester International Airport. A hedonic price equation is estimated using a dataset on nearly 3,500 house sales in the Stockport era, covering the year 1985/86, provided by the Halifax Building Society. Initial results suggest a negative effect roughly in line with previous studies. However, when a more complete model is applied which incorporates the ACORN neighborhood classification scheme developed and applied by CACI Market Analysis, this negative effect is reduced to a level of practical and statistical insignificance.

TI: Hedonic Price Estimation of Variable Urban Air Quality

AU: Murdoch,-James-C.; Thayer,-Mark-A.

SO: Journal-of-Environmental-Economics-and-Management; 15(2), June 1988, pages 143-46.

AU: Bartik,-Timothy-J.

SO: Land-Economics; 64(2), May 1988, pages 72-83.

AB: This article develops ex ante measures of the benefits of large amenity improvements. A commonly-used bene fit measure, the willingness to pay of housing consumers for the amenity improvement at their original location, is shown to underestimate benefits because it overlooks adjustments by housing consumers and landlords. The article also derives an upper bound to benefits: the pr operty value increases

predicted by an original hedonic function. The article argues that this upper bound will often be the best feasible approximation to the true efficiency benefits of amenity improvements.

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TI: Average Derivative Estimation of Hedonic Price Models

AU: Lee,-Junsoo; Kwak,-Seung-Jun; List,-John-A.

SO: Environmental-and-Resource-Economics; 16(1), May 2000, pages 81-91.

AB: Conventional parametric techniques for estimating hedonic price models require a correct functional form. In this paper, we side-step this parametric shortcoming by estimating a hedonic price model using average derivative estimation (ADE). This semiparametric approach produces robust estimates of the marginal effects without assuming a specific functional form a priori. In our application of the model to a unique data set on Korean home prices, ADE produced estimates consistent with prior expectations, providing initial evidence that the model may represent a viable alternative when using the hedonic approach.

TI: Valuing Air Quality with Hedonic and Discrete Choice Models

AU: Palmquist,-Raymond-B.; Israngkura,-Adis

SO: American-Journal-of-Agricultural-Economics; 81(5), 1999, pages 1128-33.

TI: Valuation of Landmass Degradation Using Fuzzy Hedonic Method: A Case Study of National Capital Region

AU: Paliwal,-Rakesh, et-al.

SO: Environmental-and-Resource-Economics; 14(4), December 1999, pages 519-43.

AB: A Hedonic model to determine the revealed willingness to pay for landmass of different suitability classes, based on landmass functional characteristics obtained through subjective assessments, is developed for the National Capital Region in India. The inherent non-specificity involved in subjective evaluation is minimized using fuzzy logic based regression technique. The proposed fuzzy regression involves regression using central values of triangular fuzzy number and minimization of non-specificity using linear programming. The revealed willingness-to-pay for landmass of different suitability classes is used for valuation of disbenefits due to urban expansion on landmass of different agricultural suitability classes in National Capital Territory of Delhi. Appropriate pricing policies to prevent the future inappropriate landuse practices are developed using the landmass valuation.

TI: Measuring Amenity Benefits from Farmland: Hedonic Pricing vs. Contingent Valuation

AU: Ready,-Richard-C.; Berger,-Mark-C.; Blomquist,-Glenn-C.

SO: Growth-and-Change; 28(4), Fall 1997, pages 438-58.

AB: The amenity value to Kentucky residents from horse farm land was estimated using both the contingent valuation method and the hedonic pricing method. The hedonic pricing model included both the housing and labor markets. A value function estimated from dichotomous choice contingent valuation responses showed that the value of a change in the level of the horse farm amenity was sensitive to the size of the change, with no evidence of value that is independent of the size of the change. The two methods generated estimates of the external benefits from horse farm land that were within 20 percent of each other.

TI: Searching for the Correct Benefit Estimate: Empirical Evidence for an Alternative Perspective

AU: Shabman,-Leonard; Stephenson,-Kurt

SO: Land-Economics; 72(4), November 1996, pages 433-49.

AB: This paper contrasts the results of the contingent valuation, hedonic price, and property damages avoided valuation techniques. Each technique was used to estimate the value of flood risk reduction from the construction of a flood control project. Voting behavior in a referendum called specifically for the provision of the project was used to further interpret the results from the three valuation studies. Substantial differences were found between the estimates. In explaining these differences, an alternative perspective on the current debate over the validity and accuracy of nonmarket value estimates is offered.

TI: Can We Measure the Economic Value of Environmental Amenities?

AU: Smith,-V.-Kerry

SO: Southern-Economic-Journal; 56(4), April 1990, pages 856-78.

AB: This paper reviews the conceptual basis for valuing environmental amenities and discusses travel cost recreation demand and hedonic property value models as strategies that rely on observed choice to measure use values for environmental resources. The growing importance of measuring nonuse values is noted because people experience satisfaction from environmental resources without actually using them. Nonuse values do not require a choice, so measuring them requires analyzing other behavioral indicators: conversation and the adaptations people make as they learn. Recent advances are described in using surveys as conversational sources of information about people's values within a contingent valuation framework.

TI: An Empirical Investigation into the Performance of Ellickson's Random Bidding Model, with an Application to Air Quality Valuation  
AU: Chattopadhyay, -Sudip  
SO: Journal-of-Urban-Economics; 43(2), March 1998, pages 292-314.  
AB: This paper compares B. Ellickson's (1981) random bidding model to the standard hedonic model in estimating benefits due to marginal and nonmarginal changes in housing attributes. Using data on the Chicago housing market, the paper shows that the benefit estimates obtained using the two models are very close. In addition, various categorizations based on household characteristics are tested in the case of the random bidding model. The study shows that the effect of categorization on the overall benefit estimates are negligible. Moreover, the results from the random bidding model reveal that increased income leads to greater demand for environmental quality. (c) 1998 Academic Press

Taylor, L. O., and V. K. Smith (2000) "Environmental amenities as a source of market power," *Land Economics*, 76 (4), 550-568.  
Abstract: Site-specific environmental amenities can provide a source of product-differentiating market power. Using estimates from hedonic-price equations and residual-demand models, our analysis recovers firm-specific estimates of price markups as measures of market power, and uses these markups to estimate the implied marginal value for access to coastal beaches. The application involves rental price and occupancy data for several thousand beach properties along a portion of the North Carolina coastline during the 1987 to 1992 rental seasons.

Pendleton, L., and R. Mendelsohn (2000) "Estimating recreation preferences using hedonic travel cost and random utility models," *Environmental & Resource Economics*, 17 (1), 89-108.  
Abstract: Over the last decade, several authors have questioned the validity of the hedonic travel cost model, arguing instead that the random utility model is a superior method for valuing recreational site attributes. This paper demonstrates that the two methods emanate from a similar utility theoretic framework; yet in practice these methods differ in the assumptions made in their application. Constraining the underlying utility functions to be consistent, both models are applied to the valuation of recreational site attributes in the Southeastern United States. The way in which each method estimates preferences for site attributes is shown to depend critically on the method and the functional form of the underlying utility function.

Gayer, T., J. T. Hamilton, and W. K. Viscusi (2000) "Private values of risk tradeoffs at superfund sites: Housing market evidence on learning about risk," *Review of Economics and Statistics*, 82 (3), 439-451.  
Abstract: This paper incorporates a Bayesian learning model into a hedonic framework to estimate the value that residents place on avoiding cancer risks from hazardous-waste sites. We show that residents are willing to pay to avoid cancer risks from Superfund sites before the U.S. Environmental Protection Agency (EPA) releases its assessment (known as the Remedial Investigation) of the site. Residents' willingness to pay to avoid risks actually decreases after the release of the Remedial Investigation, suggesting that the information lowers the perceived levels of risk. This estimated willingness to pay implies a statistical value of cancer similar to the value-of-life estimates in labor market studies.

Zabel, J. E., and K. A. Kiel (2000) "Estimating the demand for air quality in four US cities," *Land Economics*, 76 (2), 174-194.  
Abstract: An analysis of the demand for air quality in four MSAs in the United States is presented using the American Housing Survey data from 1974-1991, the Decennial U.S. Censuses, and the EPA Aerometric Information Retrieval System. The marginal prices of air quality are obtained from parameter estimates for the pollution variables in a hedonic house price model, and the marginal willingness to pay (inverse demand) equations for air quality are estimated using these prices. In two of the four (inverse) demand for air quality equations, the own-good coefficient is negative and significant, while the income coefficient is positive and significant.

Michael, H. J., K. J. Boyle, and R. Bouchard (2000) "Does the measurement of environmental quality affect implicit prices estimated from hedonic models?," *Land Economics*, 76 (2), 283-298.  
Abstract: Hedonic property value models are often used to derive point estimates for identifying the relationship between environmental quality and property prices. The measurement of the environmental quality variable is often selected based on convenience, but variables reflecting different perceptions about environmental quality may result in implicit prices that vary substantially. This case study derives implicit prices for nine measures of water clarity using hedonic property value models of lakefront properties in Maine. Results show that water clarity variables based on different perceptions may result in differences in implicit prices large enough to potentially affect policy decisions.

Shanmugam, K. R. (2000) "Valuations of life and injury risks - Empirical evidence from India," *Environmental & Resource Economics*, 16 (4), 379-389.  
Abstract: A research on valuing risks to life and health in the context of a developing country is practically non-existent. This study provides the first estimated values of life and health, using data from India. These values can aid policy makers, international agencies and researchers in evaluating health projects in developing nations. They can also be used to carry out comparisons with values obtained for developed countries.

Gayer, T. (2000) "Neighborhood demographics and the distribution of hazardous waste risks: An instrumental variables estimation," *Journal of Regulatory Economics*, 17 (2), 131-155.  
Abstract: This paper examines whether the marginal price of risk reduction varies by the demographic characteristics of neighborhoods. Using an instrumental-variables approach to control for the two-way relationship between housing prices and environmental risk, the paper finds that the marginal valuation of risk reduction is higher in high-education and high-income neighborhoods. The results also suggest that environmental risks are greater in neighborhoods with low-priced houses and in neighborhoods with low levels of collective action, suggesting that polluters consider these characteristics when making their siting decisions.

Mahan, B. L., S. Polasky, and R. M. Adams (2000) "Valuing urban wetlands: A property price approach," *Land Economics*, 76 (1), 100-113.

Abstract: This study estimates the value of wetland amenities in the Portland, Oregon, metropolitan area using the hedonic property price model. Residential housing and wetland data are used to relate the sales price of a property to structural characteristics, neighborhood attributes, and amenities of wetlands and other environmental characteristics. Measures of interest are distance to and size of wetlands, including distance to four different wetland types; open water, emergent vegetation, scrub-shrub, and forested. Other environmental variables include proximity to parks, lakes, streams, and rivers. Results indicate that wetlands influence the value of residential property and that wetlands influence property values differently than other amenities. Increasing the size of the nearest wetland to a residence by one acre increased the residence's value by \$24. Similarly, reducing the distance to nearest wetland by 1,000 feet increased the value by \$436. Home values were not influenced by wetland type. (JEL Q25).

Le Goffe, P. (2000) "Hedonic pricing of agriculture and forestry externalities," *Environmental & Resource Economics*, 15 (4), 397-401. Abstract: In this study, the hedonic price method was used to identify and monetarize some of the external effects of agricultural and silvicultural activities. We examined the renting price of rural self-catering cottages, or gites. Intensive livestock farming caused the renting-price of gites to decrease, whereas permanent grassland had the opposite effect.

Leggett, C. G., and N. E. Bockstael (2000) "Evidence of the effects of water quality on residential land prices," *Journal of Environmental Economics and Management*, 39 (2), 121-144. Abstract: We use hedonic techniques to show that water quality has a significant effect on property values along the Chesapeake Bay. We calculate the potential benefits from an illustrative (but limited) water quality improvement, and we calculate an upper bound to the benefits from a more widespread improvement. Many environmental hedonic studies have almost entirely ignored the potential for omitted variables bias-the possibility that pollution sources, in addition to emitting undesirable substances, are likely to be unpleasant neighbors. We discuss the implications of this oversight, and we provide an application that addresses this potential problem. (C) 2000 Academic Press.

Palmquist, R. B., and A. Israngkura (1999) "Valuing air quality with hedonic and discrete choice models," *American Journal of Agricultural Economics*, 81 (5), 1128-1133.

Chattopadhyay, S. (2000) "The effectiveness of McFaddens's nested logit model in valuing amenity improvement," *Regional Science and Urban Economics*, 30 (1), 23-43. Abstract: The paper presents an application of the nested legit model to a large, Chicago housing data set, with the goal of valuing environmental amenities. Four alternative hierarchical nestings based on dwelling, neighborhood, and city attributes are considered, and a sampling rule satisfying McFadden's uniform conditioning property is adopted. The benefit estimates of dwelling and city attributes are found to be less sensitive, while those of neighborhood attributes are found to be more sensitive to alternative nesting strategies. The

effects of household demographics on parameter estimates generally conform to standard notions. A comparison of the model with the standard two-step hedonic model reveals that the benefit estimates are consistently lower in the case of the former. (C) 2000 Elsevier Science B.V. All rights reserved.

Nimon, W., and J. Beghin (1999) "Are eco-labels valuable? Evidence from the apparel industry," *American Journal of Agricultural Economics*, 81 (4), 801-811.

Abstract: Using apparel catalog data from the United States, we estimate hedonic price functions to identify market valuation of environmental attributes of apparel goods. We identify a significant and robust premium for the organic fibers embodied in the apparel goods. We also find a discount for the "no-dye" label. We do not, however, find any evidence of a premium for environment-friendly dyes. We further investigate the pricing behavior of apparel suppliers for potential heterogeneous pricing of the organic-fiber attribute and find no evidence of different premia across firms.

Faux, J., and G. M. Perry (1999) "Estimating irrigation water value using hedonic price analysis: A case study in Malheur County, Oregon," *Land Economics*, 75 (3), 440-452.

Abstract: Hedonic price analysis is applied to agricultural land sales to reveal the implicit market price of water in irrigation. This provides price information, otherwise absent, which can facilitate reallocation of water supplies to meet growing demands. The failure to include available information on soil quality, an important determinant of agricultural land value, results in erroneous conclusions. Joint testing of heteroskedasticity and functional form is demonstrated. The value of irrigation water in this location is estimated at \$9 for an acre-foot on the least productive land irrigated, and up to \$44 per acre-foot on the most productive land. (JEL Q15).

Wilson, M. A., and S. R. Carpenter (1999) "Economic valuation of freshwater ecosystem services in the United States: 1971-1997," *Ecological Applications*, 9 (3), 772-783.

Abstract: The purpose of this paper is to provide ecologists and resource managers with a sense of where the economic science of ecosystem valuation has come from and where it might go in the future. To accomplish this, the paper provides a comprehensive synthesis of peer-reviewed economic data on surface freshwater ecosystems in the United States and examines major accomplishments and gaps in the literature. Economic value has been assigned to nonmarket goods and services provided by surface freshwater systems in the United States by 30 published, refereed articles in the scientific literature from 1971 to 1997. These studies have used variations of three approaches for a quantitative assessment of economic value: travel cost methods, hedonic pricing methods, and contingent valuation methods. To determine the economic value of nonmarket ecosystem goods and services, each method focuses on a different aspect of social benefit associated with lakes, streams, rivers, and wetlands. Valuation methodologies work from different underlying assumptions while possessing unique limitations and uncertainties. Dollar benefit estimates derived for nonmarket freshwater ecosystem goods and services from these studies tend to be specific to a particular method, ecosystem, and socioeconomic circumstance. Creative interdisciplinary research is

needed on the quantitative measurement of surface freshwater ecosystem goods and service values, the relation of these values to key limnological variates, and communication of limnological insights to the public and social scientists in ways that facilitate and improve future management acid research.

Dale, L., et al. (1999) "Do property values rebound from environmental stigmas? Evidence from Dallas," *Land Economics*, 75 (2), 311-326.  
Abstract: The Dallas area housing market is examined before, during, and after the closure and cleanup of a 50-year-old lead smelter, west of downtown Dallas, using a pooled time series and cross-sectional data set that covered all single-family homes sold through the multiple-listing service from 1979 through 1995- over 200,000 observations. Consistent with the existing literature, property values around the smelter were lower before the cleanup. However, after the cleanup, the prices consistently rebounded across all neighborhood types, although the areas that were nearest and poorest did so more slowly. (JEL Q20).

Pendleton, L. (1999) "Reconsidering the hedonic vs. RUM debate in the valuation of recreational environmental amenities," *Resource and Energy Economics*, 21 (2), 167-189.  
Abstract: Two revealed preference methods have emerged as the primary tools for valuing the environmental amenities of recreational resources: the hedonic travel cost method and the random utility method. While both methods are now widely applied, considerable debate still exists over the appropriateness of each method. This paper examines this debate in the literature and shows that much of the contention over the methods results from the improper application of the models or misinterpretations of the theory that underlies the models. Both models are shown to possess strengths and weaknesses that are important determinants of their effectiveness as valuation tools. (C) 1999 Elsevier Science B.V. All rights reserved. JEL classification: C25; Q23; Q26.

Chattopadhyay, S. (1999) "Estimating the demand for air quality: New evidence based on the Chicago housing market," *Land Economics*, 75 (1), 22-38.  
Abstract: This paper combines a new, large household-level data set with the two-stage hedonic-estimation technique to derive new estimates of willingness to pay (WTP) for reduced air pollution. The WTP estimates are found robust against functional-form specification. Marginal WTP estimates for a reduction in particulate matter (PM-10) are found to be quite comparable with some previous estimates. Benefits of nonmarginal changes exhibit consistently higher monetary returns in the case of PM-10 than in the case of SO<sub>2</sub>, signifying that households dislike particulate pollution more than they do sulfur. (JEL Q25).

Klůvankova, T. (1998) "Valuation of national parks in transitional economies," *Ekonomicky Casopis*, 46 (5), 671-694.  
Abstract: Most environmental assets are defined as public goods. Market failure in estimating market price for environmental goods can give the impression that they have little value or are unimportant relative to market prices, thus most environmental values can be lost. The main idea of this paper is to show that economic values of environmental and

resource services can give valuable information supporting resource and environmental management decisions.

The first part of: the paper explain difficulties in understanding the issue of environmental evaluation from the point of view of economics and the environment. Secondly it explores the theory concerned with valuation of non - market goods, stressing different approaches to measuring environmental values. Special attention is paid to the discussion on the theory of value, especially on non use values, e.g. intrinsic, bequest, philanthropic values of the environment. The paper also addresses the most critical problems in decision making and nature protection under the transitional economy of the Slovak Republic. Decision-making in pre-1989 Command and Control (CAC) regimes in Central and Eastern Europe was done by political representation and based on ideological or political principles, rather than economic characteristics.

Environmental decision-making was generally limited to a supplement of land use - planning documentation with very low influence in the decision-making process. The key element missing in the former command and control approach to decision-making is consensus building and public involvement Political changes in 1989 and the economic transformation have resulted in a radical change in environmental policy in the Slovak Republic. The major accomplishment in the legal field today is a well-developed legislative framework in environmental decision-making. On the other hand, implementation and law enforcement is still inadequate. Citizens as individuals are not very active in environmental decision-making. Generally, there is a lack of interest in public matters and apathy towards getting involved in community life. Information is not transparent or accessible, either for the public or for non-governmental organisations or research institutions. Decisions are usually based on administrative principles without sufficient involvement of all interested parties. Any involvement of the public or other interested parties occurs in the late phases of the planning process when the detailed proposal already exists and it is too late to initiate meaningful change. Nature protection in the Slovak Republic is under the responsibility of the Ministry of Environment. The key piece of legislation in the field of nature protection is the Act on Nature and Landscape Protection, according to which the protection of nature is the fundamental priority within the protected areas., "Preservation of biodiversity, conservation and rational use of natural resources, and optimisation of land use" is one of the five priorities of the State Environmental Policy.

The following most crucial problems can be summarised: Private property and economic interests versus nature protection After the political changes in 1989, property seized by the socialistic government in 1948 was returned to previous owners. Since all national parks (NPs) in Slovakia were created after 1948, much of the land within the parks is now privately-owned. However, the Nature Protection Act provides that the state will compensate private land owners for economic losses associated with any hindrance of their ability to use their property for economic gain but has not been realised yet. In order to generate economic profit within the shortest time period money generating activities e.g. timber, intensive tourism with the resulting emphasis on natural resource exploitation and over land-use, are provided. Competence in decision making process Under the present decision-making structure, NPs serves as an advisory body to the state administration.

Most decisions affecting national parks are made by state administration and municipalities where most first hand knowledge and the needs of local communities are concentrated, but where also private interests of local stakeholders are more visible. Hence professional experience and skills concentrated within the NPs cannot be fully applied and their competence is limited to assistance with illegal constructions within the park or other radical activities, instead of active management of the park tied to sustainable land use.

The major part of the paper focus on the description of the most common methods used in valuation of environmental values, focusing on traditional economic methods based on such real market observations as hedonic prices, opportunity costs, travel costs methods, as well as hypothetical market egg., contingent valuation, etc. Special attention is paid to the description of methods of complex environmental valuation, applicable directly for decision- making process (positional analysis). Finally, possibilities for the application of methods of environmental valuation under transitional economies are discussed in the conclusion. However research in valuation of environmental entities is a relatively undeveloped field in the Slovak Republic. Thus, my hopes are that this paper will help make these methods fully operational tools in policy and administrative decision-making.

Pendleton, L. H., and R. Mendelsohn (1998) "Estimating the economic impact of climate change on the freshwater sportsfisheries of the Northeastern US," *Land Economics*, 74 (4), 483-496.  
Abstract: This study links models of global climate circulation, ecology, and economic valuation (hedonic travel cost and random utility models) to value the impact of global warming on freshwater sportfishing in the northeastern United States. An origin- specific linear random utility model (RUM) is introduced. The results of the RUM are shown to be comparable to those of a hedonic travel cost model. A doubling of atmospheric carbon dioxide is predicted to generate between a \$4.6 million loss and a \$20.5 million net benefit for the Northeast, depending on the climate scenario.

Kim, C. W., T. Phipps, and L. Anselin (1998) "Measuring the benefits of air quality improvement: A spatial hedonic approach," *American Journal of Agricultural Economics*, 80 (5), 1183-1183.

Leggett, C., and N. Bockstael (1998) "Evaluating the benefits of reductions in fecal coliform bacteria levels: A water quality hedonic," *American Journal of Agricultural Economics*, 80 (5), 1198-1198.

Hite, D. (1998) "Information and bargaining in markets for environmental quality," *Land Economics*, 74 (3), 303-316.  
Abstract: This paper explores the role of information on residential real estate prices. Housing transactions from 1990 formed the sample frame for surveying home buyers on their knowledge of local environmental disamenities, both at the time their homes were purchased, and when the survey was conducted. Of particular interest was home buyers' knowledge of nearby landfill sites. Because of clustering of survey responses, a sample selection model that combines transaction data with 1990 census micro data was used. The results suggest that home buyers are poorly informed about disamenities, and that those who are informed bid down the price of a home.

Spahr, Ronald W.; Sunderman, Mark A., "Property Tax Inequities on Ranch and Farm Properties," *Land Economics*; 74(3), August 1998, pages 374-89. Abstract: Previous studies have investigated residential real property tax inequity; however, little work exists regarding inequity in agricultural property taxation. This may result from agricultural land in most states being taxed based on differential assessment. In Wyoming, agricultural land is assessed on productive value, even though some lands sell for considerably more than productive value. Due to the presence of nonproductive features, these farms or ranches receive substantial tax subsidies. This study investigates horizontal, vertical, and market property tax inequity found on agricultural land in Wyoming. Through hedonic modeling, it is found that considerable agricultural property tax inequity exists.

Craig, Lee A.; Palmquist, Raymond B.; Weiss, Thomas, "Transportation Improvements and Land Values in the Antebellum United States: A Hedonic Approach," *Journal of Real Estate Finance and Economics*; 16(2), March 1998, pages 173-89.

Abstract: We offer county level estimates of the effect of water and rail access on the value of antebellum farms. Employing a hedonic model, we find that in 1850 average farm values in counties with access to a canal or navigable river were \$2.68 per acre greater than counties without such access and \$1.80 greater with rail access. In 1860 the figures were \$3.75 for a canal or river access and \$1.35 for rail. With average farm size around two hundred acres and per capita national income roughly \$150 during the decade, we conclude that on average transportation access yielded substantial economic gains.

Liu, Jin Tan; Sheu, Ji Tian, "Perceived Risk and Wage Compensation: An Empirical Study of Petrochemical Workers in Taiwan. (In Japanese. With English summary.)," *Academia Economic Papers*; 26(1), March 1998, pages 51-69.

Abstract: This paper examines the relationship between wages and health risks in petrochemical firms in Taiwan. We compare workers' wages to their perceived job risks, including nonfatal accident risks and chronic disease risks. The results indicate that workers in risky jobs do, *ceteris paribus*, receive extra wage compensation. The value of disabling injury derived from a hedonic wage function, is NT\$225,000 in 1995 dollars. We also find a positive relationship between quitting intentions and perceived job risk.

Kniesner, Thomas J. (Reviewer), "Review of: Safety first: Technology, labor, and business in the building of American work safety 1870-1939," *Journal of Economic Literature*; 36(2), June 1998, pages 980-981.

Book: Aldrich, Mark. *Safety first: Technology, labor, and business in the building of American work safety 1870-1939*. Baltimore and London: Johns Hopkins University Press, 1997. [ISBN: 0 8018 5405 9] Colwell,

Peter F.; Munneke, Henry J.; Trefzger, Joseph W., "Chicago's Office Market: Price Indices, Location and Time," *Real Estate Economics*; 26(1), Spring 1998, pages 83-106.

Abstract: Conventional wisdom holds that overbuilding and high vacancy, coupled with curtailed tax benefits, have led to reduced office property values since the late 1980s. Yet assertions that office real

estate values fell between the mid 1980s and mid 1990s are not supported everywhere by convincing evidence. This study offers a hedonic analysis of Chicago area office properties that sold from 1986 through 1993. Whereas earlier office market studies generally have been based on rents, this study focuses on variation in actual sale prices (although the prices were not adjusted for financing differences). The transaction based index estimated here does not support the existence of a nominal office property price level decline beginning in the mid to late 1980s. In fact, the results show an upward trend in office property values after 1986, with nominal declines in office market price levels occurring only in the latter portion of the study period.

Benson, Earl D. et al., "Pricing Residential Amenities: The Value of a View," *Journal of Real Estate Finance and Economics*; 16(1), January 1998, pages 55-73.

Abstract: This study provides estimates of the value of the view amenity in single family residential real estate markets. A focus on Bellingham, Washington, a city with a variety of views, including ocean, lake, and mountain, allows for differentiation of the view amenity by both type and quality. Results from a hedonic model estimated for several recent years suggest that depending on the particular view, willingness to pay for this amenity is quite high. The highest quality ocean views are found to increase the market price of an otherwise comparable home by almost 60%; the lowest quality ocean views are found to add about 8%. For ocean views of all quality levels, the value of a view is found to vary inversely with distance from the water.

Gatzlaff, Dean H.; Haurin, Donald R., "Sample Selection and Biases in Local House Value Indices," *Journal of Urban Economics*; 43(2), March 1998, pages 199-222.

Abstract: Analysis of cross sectional or intertemporal variations in house values among localities requires reliable house value indices. However, prior studies applying the hedonic method to transaction data have reported price series that may be biased. This paper investigates a possible cause of bias and uses a censored regression technique extended to an intertemporal model to derive an unbiased index. The authors apply their method to 1971-91 data from the Miami, Florida, MSA and find evidence in time varying amounts of bias. The authors' results suggest that prior studies using the hedonic method and samples consisting only of sold houses have understated the intertemporal variability of house prices.

Chattopadhyay, Sudip, "An Empirical Investigation into the Performance of Ellickson's Random Bidding Model, with an Application to Air Quality Valuation," *Journal of Urban Economics*; 43(2), March 1998, pages 292-314.

Abstract: This paper compares B. Ellickson's (1981) random bidding model to the standard hedonic model in estimating benefits due to marginal and nonmarginal changes in housing attributes. Using data on the Chicago housing market, the paper shows that the benefit estimates obtained using the two models are very close. In addition, various categorizations based on household characteristics are tested in the case of the random bidding model. The study shows that the effect of categorization on the overall benefit estimates are negligible.

Moreover, the results from the random bidding model reveal that increased income leads to greater demand for environmental quality.

Palmquist, Raymond B.; Roka, Fritz M.; Vukina, Tomislav, "Hog Operations, Environmental Effects, and Residential Property Values," *Land Economics*; 73(1), February 1997, 114-24.

Abstract: A hedonic study of rural residential house sales in southeastern North Carolina was conducted to determine the effect of large scale hog operations on surrounding property values. An index of hog manure production at different distances from the houses was developed. It was found that proximity caused a statistically significant reduction in house prices of up to 9 percent depending on the number of hogs and their distance from the house. The effect on the price of a house from opening a new operation depended on the number of hogs already in the area.

Beron, Kurt J. et al., "An Analysis of the Housing Market before and after the 1989 Loma Prieta Earthquake," *Land Economics*; 73(1), February 1997, 101-13.

Abstract: Residential housing sales data from the San Francisco Bay area are merged with earthquake hazard measures, geologic measures, neighborhood quality measures, and community characteristics in order to estimate the hedonic price of earthquake risk before and after the October 17, 1989, Loma Prieta earthquake. The estimates suggest that the hedonic price fell after the earthquake, indicating that consumers had initially overestimated the earthquake hazard. This suggests that information about earthquake risks is imperfect and that some efficiency may be realized by devoting more resources to earthquake risk communication.

Dickie, Mark; Delorme, Charles D., Jr.; Humphreys, Jeffrey M., "Hedonic Prices, Goods Specific Effects and Functional Form: Inferences from Cross Section Time Series Data," *Applied Economics*; 29(2), February 1997, 239-49.

Gegax, Douglas; Stanley, Linda R., "Validating Conjoint and Hedonic Preference Measures: Evidence from Valuing Reductions in Risk," *Quarterly Journal of Business and Economics*; 36(2), Spring 1997, 31-54. Abstract: Economists and marketers have relied on different estimation methods for measuring consumer preferences. We attempt, first, to show that a marketing tool, conjoint analysis can be useful for economists in situations where hedonic estimation fails. Second, we examine convergent and theoretical validity of conjoint measures. We apply conjoint analysis to measuring workers' preferences for on the job risk. Using survey data, we obtain marginal value of safety (MVS) estimates using hedonic and conjoint techniques for four job types. The lack of a significant difference between the hedonic and conjoint MVS estimates supports convergent validity. Theoretical validity is supported because the utility function estimated from the conjoint data conforms to expectations derived from theory. The failure of hedonics to produce MVS estimates in low risk/nonunionized jobs combined with the support of conjoint validity suggest that conjoint analysis may be superior in assessing the MVS in all job types.

Delgado, Miguel A.; Kniesner, Thomas J., "Count Data Models with Variance of Unknown Forms: An Application to a Hedonic Model of Worker Absenteeism," *Review of Economics and Statistics*; 79(1), February 1997, 41-49.

Abstract: The authors examine an econometric model of counts of worker absences due to illness in a sluggishly adjusting hedonic labor market. They compare three estimators that parameterize the conditional variance least squares, Poisson, and negative binomial pseudo maximum likelihood to generalized least squares (GLS) using nonparametric estimates of the conditional variance. The authors' data support the hedonic absenteeism model. Semiparametric GLS coefficients are similar in sign, magnitude, and statistical significance to coefficients where the mean and variance of the errors are specified ex ante. In their data, coefficient estimates are sensitive to a regressor list but not to the econometric technique, including correcting for possible heteroskedasticity of unknown form.

Pace, R. Kelley; Gilley, Otis W., "Using the Spatial Configuration of the Data to Improve Estimation," *Journal of Real Estate Finance and Economics*; 14(3), May 1997, 333-40.

Abstract: Using the well known Harrison and Rubinfeld (1978) hedonic pricing data, this manuscript demonstrates the substantial benefits obtained by modeling the spatial dependence of the errors. Specifically, the estimated errors on the to OLS. The spatial autoregression corrects predicted values by a nonparametric estimate of the error on nearby observations and thus mimics the behavior of appraisers. The spatial autoregression, by formally incorporating the areal configuration of the data to increase predictive accuracy and estimation efficiency, has great potential in real estate empirical work.

Tiwari, Piyush; Parikh, Jyoti, "Demand for Housing in the Bombay Metropolitan Region," *Journal of Policy Modeling*; 19(3), June 1997, 295-321.

Abstract: We estimate the demand function of housing for Bombay Metropolitan Region in a two step econometric analysis. The first step estimates the hedonic price index for different regions in Bombay, and in the second step the demand for housing is estimated as a function of economic and household characteristics. The results indicate that housing demand is inelastic with respect to income and price. The income elasticities for owners and tenants are around 0.33 and 0.38, respectively, while the price elasticities are 0.21 and 0.75, respectively, for owners and tenants. We also estimate income and price elasticities for different income classes. The paper concludes with policy prescriptions.

Ready, Richard C.; Berger, Mark C.; Blomquist, Glenn C., "Measuring Amenity Benefits from Farmland: Hedonic Pricing vs. Contingent Valuation," *Growth and Change*; 28(4), Fall 1997, 438-58.

Abstract: The amenity value to Kentucky residents from horse farm land was estimated using both the contingent valuation method and the hedonic pricing method. The hedonic pricing model included both the housing and labor markets. A value function estimated from dichotomous choice contingent valuation responses showed that the value of a change in the level of the horse farm amenity was sensitive to the size of the

change, with no evidence of value that is independent of the size of the change. The two methods generated estimates of the external benefits from horse farm land that were within 20 percent of each other.

Goodman, Allen C.; Thibodeau, Thomas G., "Dwelling Age Related Heteroskedasticity in Hedonic House Price Equations: An Extension," *Journal of Housing Research*; 8(2), 1997, 299-317.

Abstract: In an earlier article, we used an iterative generalized least squares procedure with an explicit model for the residential variance to examine whether the residual variance in hedonic house price equations is systematically related to dwelling age. We related transaction price to dwelling size, dwelling age, and period of sale. Our model (using data for 8,476 sales of single family homes in Dallas during 1984 and 1985) explained more than 80 percent of the variance in the logarithm of prices. This article extends our earlier work. First, we incorporate additional structural characteristics into the hedonic specification. Second, we control for neighborhood characteristics by using elementary school boundaries to define submarkets, and we examine submarket heteroskedasticity for single family homes sold between the fourth quarter of 1991 and the first quarter of 1993. We find compelling evidence of dwelling age related heteroskedasticity for half the submarkets examined and for all areas combined.

Jensen, Mark J.; Leven, Charles L., "Quality of Life Central Cities and Suburbs," *Annals of Regional Science*; 31(4), September 1997, 431-49.

Abstract: This study shows that there has been a statistically significant shift in the quality of life (QOL) in central cities of the 25 largest metro areas relative to their suburbs since 1980. This follows actual improvement of central cities in the '50s, followed by steady degradation in the '60s and '70s. These conclusions are based on a statistical analysis of key variables derived from a revealed preference conception of QOL. This is an important methodological advance, since relevant variables for directly constructing hedonic measures of QOL normally are unavailable for central cities. The basic Census data used in the analysis also indicate that the observed "turnaround" is evident without respect to size of metro area within the set of 25 largest and without respect to region of the country.

Ireland, Thomas R.; Johnson, Walter D.; Taylor, Paul C., "Economic Science and Hedonic Damage Analysis in Light of Daubert V. Merrell Dow," *Journal of Forensic Economics*; 10(2), Spring Summer 1997, 139-56.

Abstract: The 1993 landmark United States Supreme Court decision in *Daubert V. Merrell Dow* set out specific criteria for admission of expert testimony. A crucial question for economists raised by the decision is how damage analysis by new rules. To the extent that the courts have applied *Daubert* to decisions on the admissibility of economic testimony in the three years since *Daubert*, it has been almost exclusively in the area of "hedonic damages." In a number of cases, courts have ruled that "hedonic damage" testimony does not meet the requirements of the *Daubert* decision. Only one has contained even an inference of probable acceptance of "hedonic damages." This paper reviews the cases individually and examines the rationales by which the courts have denied admissibility to "hedonic damage" testimony in an attempt to garner insight into the potential impact of *Daubert* on testimony by economic experts.

Aguirre, Antonio; de Faria, Diomira M. C. P., "A utilizacao de "precos hedonicos" na avaliacao social de projetos." (With English summary.), *Revista Brasileira de Economia*; 51(3), July Sept. 1997, 391-411.

Abstract: This paper discusses the so called hedonic prices . A review of the literature is provided together with an application in the area of social project evaluation. The particular case studied refers to the evaluation of the benefits generated by an investment project in the city of Sao Paulo, The specification and the estimation of the uniequational hedonic regression model are discussed. The Box and Cox transformation is used to select the "best form of the relation. After estimation, the coefficients are interpreted in the light of the hedonic price theory, and the results are discussed.

Hoyt, William H.; Rosenthal, Stuart S., "Household Location and Tiebout: Do Families Sort According to Preferences for Locational Amenities?," *Journal of Urban Economics*; 42(2), September 1997, 159-78.

Abstract: If households sort efficiently across locations, then at a given location families receive the same marginal benefit from the locational amenities. The authors test for such sorting by imposing cross equation restrictions on hedonic regressions that difference away location versus house specific effects. Estimates are obtained using a unique subset of the American Housing Survey in which adjacent housing units are grouped together and observed in both 1985 and 1989. Rejection of the cross equation restrictions unambiguously implies an inefficient sorting of households. In contrast, the data support the cross equation restrictions, which is a necessary but not sufficient condition for efficient sorting.

Cragg, Michael; Kahn, Matthew, "New Estimates of Climate Demand: Evidence from Location Choice," *Journal of Urban Economics*; 42(2), September 1997, 261-84.

Abstract: The authors develop and apply to Census data a new method for estimating climate demand. The method is useful for ranking quality of life based upon a willingness to pay criterion. Their two major findings are that the willingness to pay quality of life index is correlated with the hedonic approach's ranking but that the migration approach generates much larger estimates of willingness to pay for a more moderate climate. This finding is relevant for evaluating the economic impact of global warming.

Crane, Randall; Daniere, Amrita; Harwood, Stacy, "The Contribution of Environmental Amenities to Low Income Housing: A Comparative Study of Bangkok and Jakarta," *Urban Studies*; 34(9), August 1997, 1495-1512.

Abstract: Central and local governments and their creditors are increasingly interested in cost recovery for public services. These strategies have two aims increasing revenues and making a better connection between benefits received and consumer bills. This paper estimates a hedonic model for household level data in a rare contrast of slums in two Asian mega cities to provide comparative information about how the poor value environmental amenities and basic frastructure access. The results suggest that slum housing prices do reflect differentials in public service access and that rough estimates of the value of access can be cheaply and usefully obtained for planning purposes.

Clark, David E.; Herrin, William E., "Historical Preservation Districts and Home Sale Prices: Evidence from the Sacramento Housing Market," *Review of Regional Studies*; 27(1), Summer 1997, 29-48.

Abstract: During the past two decades, cities have turned increasingly to historic preservation of residential and commercial property as a method to help revive declining metropolitan areas. Sacramento, California, established historical preservation districts in an attempt to protect and maintain older structures while simultaneously increasing their value. Historic preservation, however, imposes strict rules on property owners that make property improvement more expensive than it otherwise would be. This paper uses hedonic price theory on a sample of residential properties in Sacramento to test whether positive externalities resulting from an historic preservation designation outweigh the potential negative impact of a cumbersome set of rules. The findings suggest that an historic preservation designation has a net positive impact on property values in four of the six preservation districts in the sample.

Liu, Jin Tan; Hammitt, James K.; Liu, Jin Long, "Estimated Hedonic Wage Function and Value of Life in a Developing Country," *Economics Letters*; 57(3), December 1997, 353-58.

Abstract: This paper reports the first study of compensating wage differentials for work related fatalities in a developing country. Using data from the 1982-1986 Taiwan labor surveys, statistically significant compensating wage differentials are found. The implied value of life is US \$413,000 (corrected for selectivity bias) and US \$461,000 (uncorrected) in 1990 dollars.

Wooldridge, Jeffrey M., "Estimating Systems of Equations with Different Instruments for Different Equations," *Journal of Econometrics*; 74(2), October 1996, 387-405.

Abstract: For applications where different instruments are required for different equations, this paper offers a relatively primitive set of assumptions under which the nonlinear three stage least squares estimator is the asymptotically efficient generalized method of moments estimator. These conditions can be verified for a general class of panel data models under reasonable assumptions about the dynamics in the model. On the other hand, the three stage least square estimator is necessarily inefficient for models such as hedonic price systems and for certain simultaneous equations models with measurement error or omitted variables in some equations.

Gat, Daniel, "A Compact Hedonic Model of the Greater Tel Aviv Housing Market," *Journal of Real Estate Literature*; 4(2), July 1996, 163-72.

Abstract: Hedonic models have been used extensively in the economic analysis of multiattribute products in general, with housing as an especially favored focus. Hedonic housing models have two major ends: (1) to explore the relative importance and explanatory power of various housing attributes and (2) to assess the value of specific housing units in the absence of actual market transactions. This paper is of the first type. While complete data are never available, researchers have tended to look for more, rather than fewer, explanatory variables. Taking advantage of a previously computed socioeconomic index (SEI) of neighborhoods, this research proposes a minimal data set of just two predictor variables. Greater Tel Aviv recent housing prices are regressed onto two locational variables: the first, SEI, is used as a proxy for neighborhood quality, and the second represents employment

accessibility. Taken together, the two attributes explain nearly three quarters of the spatial price variation.

Boulding, William; Purohit, Devavrat, "The Price of Safety," *Journal of Consumer Research*; 23(1), June 1996, 12-25.

Abstract: This article presents a simple economic model to assess consumers' valuation of safety features. In particular, we model the benefit from safety as the reduction in the probability of death and the associated economic value of this reduction. We then apply this theoretical model to investigate market valuation of antilock brakes and airbags via the specification and estimation of a hedonic price equation. Results indicate that consumers behave in a manner consistent with the economic model we develop.

Kawawaki, Yasuo; Ota, Mitsuru, "The Influence of the Great Hanshin Awaji Earthquake on the Local Housing Market," *Review of Urban and Regional Development Studies*; 8(2), July 1996, 220-33.

Abstract: The Great Hanshin Awaji Earthquake destroyed a huge number of houses and caused housing problems in the disaster area. This paper investigates the influence of the earthquake on the related housing market, mainly in terms of changes in house prices and housing rents, and analyzes the mechanism of the changes. Empirical results by hedonic analyses indicate the influences are different between house prices and housing rents and also between the disaster district and the surrounding area. Those differences are explained by the factors of the earthquake that would affect the housing market, such as decrease in income, diversity of damage among the districts and others.

Englin, Jeffrey, "Estimating the Amenity Value of Rainfall," *Annals of Regional Science*; 30(3), September 1996, 273-83.

Abstract: The amenity value of two measures of rainfall are investigated in this study: long term average annual rainfall and the variation in rainfall within the year. Estimates of the economic value of rainfall and variation in rainfall are found using the hedonic property value technique. The results indicate that rainfall is an attribute for which the distribution as well as the average annual level is important. Home buyers prefer less annual rainfall, but, holding annual rainfall constant, buyers will also pay more for greater seasonal variation in rainfall.

Dorfman, Jeffrey H.; Keeler, Andrew G.; Kriesel, Warren, "Valuing Risk Reducing Interventions with Hedonic Models: The Case of Erosion Protection," *Journal of Agricultural and Resource Economics*; 21(1), July 1996, 109-19.

Abstract: This article extends the literature on economic valuation of public interventions that reduce environmental risk. We consider the case where risk reducing interventions have different characteristics than the risk proxies used in hedonic regressions. We then demonstrate the importance of these considerations by re examining an existing analysis of shoreline protection where we estimate risk using a latent variables model. The results show substantially different and arguably more plausible results.

Bejranonda, Somskaow, *An Assessment of the Soil Erosion Impacts on Lakeside Property Values in Ohio: A Hedonic Pricing Method (HPM) Application*, Ohio State University, Ph.D. 1996

Smith, V. Kerry, Estimating economic values for nature: Methods for non market valuation, New Horizons in Environmental Economics series. Cheltenham, U.K.: Elgar; distributed by Ashgate, Brookfield, Vt., 1996. Abstract: Thirty two previously published papers examine measures of the economic values for the services of nature and how those values are constructed from people's choices. Papers focus on overviews of economic theory and econometric methods of environmental valuation; travel cost recreation demand models; hedonic models; household production models; the contingent valuation method; and the agenda of future research on nonmarket valuation. Forrest, David; Glen, John; Ward, Robert, "The Impact of a Light Rail System on the Structure of House Prices: A Hedonic Longitudinal Study," Journal of Transport Economics and Policy; 30(1), January 1996, 15-29.

Hughes, William T., Jr.; Turnbull, Geoffrey K., "Uncertain Neighborhood Effects and Restrictive Covenants," Journal of Urban Economics; 39(2), March 1996, 160-72.

Abstract: This paper provides a theoretical model and empirical analysis of private land use contracts in an urban housing market. One contribution of our analysis lies in the explicit treatment of neighborhood externalities as uncertain processes; the potential resident views the contractual obligation established by deed restrictions as credible commitment by unknown future neighbors to utilize their own property within the defined bounds, thereby reducing the uncertainty or riskiness of future externality effects. Following this view, we present a hedonic valuation model for deed restrictions and neighborhood covenants to tie housing consumption risk theory to the empirical hedonic method. We then use a unique land use contracts data set to test the model implications.

Shabman, Leonard; Stephenson, Kurt, "Searching for the Correct Benefit Estimate: Empirical Evidence for an Alternative Perspective," Land Economics; 72(4), November 1996, 433-49.

Abstract: This paper contrasts the results of the contingent valuation, hedonic price, and property damages avoided valuation techniques. Each technique was used to estimate the value of flood risk reduction from the construction of a flood control project. Voting behavior in a referendum called specifically for the provision of the project was used to further interpret the results from the three valuation studies. Substantial differences were found between the estimates. In explaining these differences, an alternative perspective on the current debate over the validity and accuracy of nonmarket value estimates is offered.

Figueroa B., Eugenio; Rogat C., Jorge; Firinguetti L., Luis, "An Estimation of the Economic Value of an Air Quality Improvement Program in Santiago de Chile," Estudios de Economia; 23(0), Special Issue 1996, 99-114.

Abstract: There is no doubt regarding the negative effects of air pollution on human health, economic property and the environment. The almost five million inhabitants living in Santiago, Chile, are exposed to high levels of air contamination, especially during winter time when the level of pollution is at its worst. In this paper, a hedonic price model is used to first, estimate the effect of air pollution on house prices in Santiago and second, to estimate the willingness to pay (WTP) for a program that reduces air contamination by 50 percent. The data consists of 992 observations containing market prices for houses and

their characteristics. The average WTP for the air quality improvement program was estimated in \$567,000 (US \$1,626), and the aggregated WTP for Santiago in almost 600 billion pesos (US \$1.7 billion).

Michalland, Beatrice, "Evaluation de la fonction de demande en eau d'irrigation et application de la methode des prix hedonistes." (Evaluation of Irrigation Water Demand and Application of the Hedonic Price Method. With English summary.), Cahiers d'Economie et Sociologie Rurales; 0(39 40), 1996, 199-222.

Abstract: The article gives more attention to the hedonic method, which has not yet been used in France to estimate the irrigation water demand function. The numerical application presented is based on data from the Midi Pyrenees region (France). Having no access to a large number of complete individual transaction data, we have preferred to work at a "small agro regional" scale, for which we could gather simultaneously information on the agricultural land market, agronomic potentialities, space organization, irrigation practices.

Le Goffe, Philippe, "La methode des prix hedonistes: Principes et application a l'evaluation des biens environnementaux." ("The Hedonic Price Method: Principles and Application to Environmental Goods Valuation." With English summary.), Cahiers d'Economie et Sociologie Rurales; 0(39 40), 1996, 179-98.

Abstract: The estimation of the hedonic price function is constrained by many practical problems as definition of pertinent environmental criteria, consumer perception or expectation of environmental change, market segmentation. In addition, econometric problems should be emphasized: model specification and functional form, multicollinearity. Finally hedonic pricing is limited by methodological constraints, but also by the nature of values to be measured (use value only) and the field of application (mainly urban). However, when applied to assets such as noise or air quality in town areas the methodology may bring satisfying results.

Anglin, Paul M.; Gencay, Ramazan, "Semiparametric Estimation of a Hedonic Price Function," Journal of Applied Econometrics; 11(6), Nov. Dec. 1996, 633-48.

Abstract: Previous work on the preferred specification of hedonic price models usually recommended a Box Cox model. In this paper we note that any parametric model involves implicit restrictions and they can be reduced by using a semiparametric model. We estimate a benchmark parametric model which passes several common specification tests, before showing that a semiparametric model outperforms it significantly. In addition to estimating the model, we compare the predictions of the models by deriving the distribution of the predicted log(price) and then calculating the associated prediction intervals. Our data show that the semiparametric model provides more accurate mean predictions than the benchmark parametric model.

Des Rosiers, Francois; Theriault, Marius, "Rental Amenities and the Stability of Hedonic Prices: A Comparative Analysis of Five Market Segments," Journal of Real Estate Research; 12(1), 1996, 17-36.

Giannias, Dimitrios A., "A Structural Approach to Hedonic Equilibrium Models," Economic Notes; 25(3), 1996, 499-513.

Abstract: Most empirically estimated single equation hedonic functions presume that hedonic prices are dependent only on product

characteristics. This paper employs a partially quadratic utility function and makes price vary linearly with a latent quality index. Equating their Marshallian demands with exogenous supplies then determines the endogenous hedonic price. The reduced form of the price equation implies the weights for the linear quality index. Values of "quality" can then be calculated for a specific product and the demand for quality can be modeled as dependent upon consumer income and characteristics. The model is estimated and the reduced form equations for price and quantity identify the underlying utility parameters, which are subsequently used to calculate the compensating variation with improvements in the air quality of Houston.

Casey, James F.; Vukina, Tomislav; Danielson, Leon E., "The Economic Value of Hiking: Further Considerations of Opportunity Cost of Time in Recreational Demand Models," *Journal of Agricultural and Applied Economics*, 27(2), December 1995, pp. 658-68.

Abstract: The paper tests two alternative specifications for the opportunity cost of time in travel cost models. The standard travel cost survey design is enriched to include a contingent valuation type question about peoples' willingness to accept compensation to forgo a precisely defined recreational experience. It is hypothesized that individually revealed value of time more appropriately reflects the opportunity costs of time associated with a particular aspect of recreation than the wage rate, which measures the trade-off between work and leisure, generally. The results seem to indicate a better overall fit for the models with the elicited value of individual consumer's time than for the models with the more traditional hourly earnings (wage rates). The importance of the correct measurement of the opportunity cost time is illustrated by showing that estimated consumer surpluses based on two different value of time measurements differ significantly.

Lansford, Notie H., Jr.; Jones, Lonnie L., "Marginal Price of Lake Recreation and Aesthetics: An Hedonic Approach," *Journal of Agricultural and Applied Economics*, 27(1), July 1995, pp. 212-23.

Abstract: Efficient allocation of water requires knowledge of water's value in both consumption and nonconsumptive uses. This study estimates the marginal value of water in lake recreational and aesthetic (RA) use. An hedonic price equation (employing the Box-Cox functional form) indicates lake front location, distance to lake, and scenic view are significant RA characteristics of housing Water front properties command a premium price for the private access they offer. Beyond the water front, the marginal RA price falls rapidly with increasing distance, becoming asymptotic to some minimum. Twenty-two percent of housing price is found to be attributable to the RA component.

Kahn, Matthew E., "A Revealed Preference Approach to Ranking City Quality of Life," *Journal of Urban Economics*, 38(2), September 1995, pp. 221-35.

Abstract: This paper presents a new method for ranking city quality of life. The author uses data from the 1980 and the 1990 Census of Population and Housing to rank cities. His approach relaxes the standard 'hedonic' method's assumptions that all city local public goods are observed and that the implicit prices of all skills and apartment attributes are equal across cities. The author finds

that Los Angeles and San Francisco have higher quality of life than Chicago and Houston in both 1980 and 1990. He finds that quality of life in New York City fell during the 1980s.

Shields, Michael P., "Time, Hedonic Migration, and Household Production," *Journal of Regional Science*, 35(1), February 1995, pp. 117-34.

Abstract: A hedonic migration model is developed where regional amenities are viewed as influencing household production within the framework of the new demand theory. The inputs to household production are goods, time, and housing. It is shown that economic growth in the economy as a whole will increase the relative attractiveness of regions that are relatively time-saving in the sense that they have a lower time elasticity of household production. Hence, migration will flow into time-saving regions and housing costs in those regions will rise as real GDP grows.

Landford, Notie H., Jr.; Jones, Lonnie L., "Recreational and Aesthetic Value of Water Using Hedonic Price Analysis," *Journal of Agricultural and Resource Economics*, 20(2), December 1995, pp. 341-55.

Abstract: Historically, water allocation focused on quantities demanded by consumptive uses. As quantity demand grows, efficient allocation among consumptive and nonconsumptive uses becomes more critical. This hedonic approach provides information regarding recreational and aesthetic (RA) value for a central Texas lake. The model indicates several statistically significant RA characteristics of housing; proximity is the most important. Waterfront properties command a premium but marginal RA price falls rapidly with increasing distance. Marginal RA values are estimated for selected water levels and are found to have a lower marginal price per acre-foot than many agricultural uses.

Goodman, Allen C.; Thibodeau, Thomas G., "Age-Related Heteroskedasticity in Hedonic House Price Equations," *Journal of Housing Research*, 6(1), 1995, pp. 25-42.

Abstract: The article examines the relationship between dwelling age and the market value of owner-occupied housing. The article theoretically establishes and empirically verifies that (1) housing depreciation is nonlinear and (2) dwelling age-induced heteroskedasticity is prevalent in hedonic house price equations. The empirical results are obtained with a semilog hedonic house price equation from data on nearly 8,500 transactions of single-family homes in Dallas. Hedonic parameters are estimated with four alternative dwelling age specifications and two iterative generalized least squares estimation procedures that accommodate heteroskedasticity by explicitly modeling the residual variance. Estimated depreciation rates are sensitive to both the dwelling age specification and the estimation procedure. The article establishes the importance of incorporating second-order effects in obtaining accurate point estimates for housing depreciation.

Pace, R. Kelley, "Parametric, Semiparametric, and Nonparametric Estimation of Characteristic Values within Mass Assessment and Hedonic Pricing Models," *Journal of Real Estate Finance and Economics*, 11(3), November 1995, pp. 195-217.

Abstract: Parametric estimators, such as OLS, attain high efficiency for well-specified models. Nonparametric estimators greatly reduce

specification error but at the cost of efficiency. Semiparametric estimators compromise between these dual goals of efficiency and specification error. Semiparametric estimators can assume general forms within classes of functional forms. This paper applies OLS, the kernel nonparametric regression estimator, and the semiparametric estimator of Powell, Stock, and Stoker (1989) to a data set, which should, based on theory and previous empirical work, yield positive coefficients. The semiparametric estimator, on average, displayed the performance most consistent with prior expectations followed by the nonparameter and parametric estimators. In addition, the paper shows how the semiparametric estimator can provide insights into the form of misspecification and suggest data transformations.

Moulton, Brent R., "Interarea Indexes of the Cost of Shelter Using Hedonic Quality Adjustment Techniques," *Journal of Econometrics*, 68(1), July 1995, pp. 181-204.

Abstract: The cost of shelter is the single most important component of interarea differences in the cost-of-living. This paper constructs hedonic interarea indexes of the cost of shelter using a major new source of detailed microdata, the CPI Housing Survey. Identification of the exact location of housing units permits us to control for measured neighborhood characteristics, and variance components models are used to model the effects of unmeasured neighborhood characteristics. Hierarchical models with interarea slope coefficient variation are applied and model performance is evaluated by comparing out-of-sample predictions. The hierarchical approach allows us to pool information from different cities to reduce the variability of the areas' coefficients. A multilateral index number formula is employed in the index-number construction.

Gilley, Otis W.; Pace, R. Kelley, "Improving Hedonic Estimation with an Inequality Restricted Estimator," *Review of Economics and Statistics*, 77(4), November 1995, pp. 609-21.

Abstract: Economists commonly estimate the value of characteristics not traded in explicit markets by hedonic pricing. Unfortunately, these nonexplicitly traded characteristics often display a lack of independent variation or multicollinearity. Often some prior information on the value of these characteristics is available from submarkets. This paper utilizes this type of prior information to circumvent multicollinearity problems in hedonic pricing models using an inequality restricted Bayesian estimator. The authors perform a Monte Carlo experiment and cross-validation analysis to demonstrate the superiority of inequality restricted Bayesian over ordinary least squares at many margins in a variety of situations typically faced in hedonic estimation.

Feenstra, Robert C., "Exact Hedonic Price Indexes," *Review of Economics and Statistics*, 77(4), November 1995, pp. 634-53.

Abstract: Using the marginal value of characteristics, the author shows how to construct bounds on the exact hedonic price index. When prices are above marginal costs, then his bounds still apply but the value of characteristics cannot be measured so easily from a hedonic regression. Since the price-cost markups are an omitted variable, they will bias the coefficients obtained. For a special class of utility functions, the author argues that a linear regression will still provide a measure of the marginal value of characteristics but a log-linear regression will overstate these values.

Hellerstein, Daniel, "Welfare Estimation Using Aggregate and Individual-Observation Models: A Comparison Using Monte Carlo Techniques," *American Journal of Agricultural Economics*, 77(3), August 1995, pp. 620-30.

Abstract: Due to the weak behavioral foundations of aggregate demand models, zonal travel cost models have been largely abandoned in favor of models based on individual observations. However, sample selection difficulties in individual-observation models often require the use of distribution-sensitive limited-dependent variables estimators. In this paper, the author uses Monte Carlo simulations to investigate whether the bias from aggregation is worse than possible bias from these narrowly specified estimators. Somewhat surprisingly, the results indicate that zonal models often outperform the individual-observation models, especially when using an aggregate model that incorporates intrazonal variance of the explanatory variables.

Smith, V. Kerry; Huang, Ju Chin, "Can Markets Value Air Quality? A Meta-analysis of Hedonic Property Value Models," *Journal of Political Economy*, 103(1), February 1995, pp. 209-27.

Abstract: This paper reports the results of a statistical summary of estimates of the marginal willingness to pay for reducing particulate matter from hedonic property value models developed between 1967 and 1988. Results from ordinary least squares and minimum absolute deviation estimators consider the effects of market conditions and the implementation procedures for hedonic models. The interquartile range for these estimated marginal values (measured as a change in asset prices) lies between zero and \$98.52 (in 1982-84 dollars) for a one-unit reduction in total suspended particulates (in micrograms per cubic meter).

Cheshire, Paul, Sheppard, Stephen "On the Price of Land and the Value of Amenities," *Economica*, 62(246), May 1995, pp. 247-67.

Abstract: A house represents not only a bundle of structural characteristics but also a set of location specific characteristics. Adding locational coordinates and site area to other house characteristics makes it possible to estimate a land rent surface as well as the hedonic prices attached to local patterns of land use and other neighborhood characteristics. One can then estimate how the value of such location-specific characteristics are capitalized into land prices. This analysis, illustrated with estimates based on data from two British towns, has a number of wider implications. It generates a more parsimonious method of estimating amenity values. It also reveals likely systematic biases produced by conventional hedonic studies which exclude land and location. Finally, it clarifies the conceptual definition of land and suggests that monocentric models can perform well despite recent criticism.

Fort, Rodney; Rosenman, Robert, "Rethinking the Value of Lost Health," *Journal of Legal Economics*, 5(1), Spring-Summer 1995, pp. 63-73.

Abstract: Loss estimates in wrongful death and personal injury cases remain a controversial issue among forensic economists. One disputed approach is the so-called "hedonic" loss estimates based on estimates of the value of a "statistical life," which tries to separate the value of life from other losses that an injured party suffers. Given the problems with that approach, analysts interested in estimating losses

need alternative methods. This paper discusses the benefits and shortcomings of an alternative, utility theory approach based on first-party valuation of losses, including the lost enjoyment of life, associated with decreased health from personal injury.

Gronberg, Timothy J.; Reed, W. Robert, "Estimating Workers' Marginal Willingness to Pay for Job Attributes Using Duration Data," *Journal of Human Resources*, 29(3), Summer 1994, pp. 911-31.

Abstract: This paper develops and applies a method for estimating workers' marginal willingness to pay for job attributes when workers' job choices are characterized by imperfect information and labor-market search. As an application, this paper analyzes the job durations of white males using data from the National Longitudinal Survey Youth Cohort and the Dictionary of Occupational Titles. Estimates of workers' willingness to pay derived from the job duration model are compared with those derived from an hedonic wage model. Israngkura, Adis, "Environmental Benefit Measures: A Comparison between Hedonic and Discrete Choice Models," North Carolina State University, Ph.D. 1994

Vitaliano, Donald F., Hill, Constance "Agricultural Districts and Farmland Prices," *Journal of Real Estate Finance and Economics*, 8(3), May 1994, pp. 213-23.

Abstract: A hedonic price equation of structureless farmland prices in New York State are fitted to 458 land transactions between 1982-1985. No capitalization is found of the state's Agricultural District farmland preservation program, which combines current-use property taxation with several development-inhibiting features. It is hypothesized that landowners avoid joining the program when it would threaten profits from a development sale, and that those who do participate gain little because agriculture is the highest value use of their land.

Clark, David E.; Nieves, Leslie A., "An Interregional Hedonic Analysis of Noxious Facility Impacts on Local Wages and Property Values," *Journal of Environmental Economics and Management*, 27(3), November 1994, pp. 235-53.

Collins, Alan; Evans, Alec, "Aircraft Noise and Residential Property Values: An Artificial Neural Network Approach," *Journal of Transport Economics and Policy*, 28(2), May 1994, pp. 175-97.

Abstract: The powerful pattern-recognition properties of Artificial Neural Networks (ANNs) are outlined and shown to discriminate the effect of aircraft noise from other value determinants in a study of residential property values adjacent to Manchester International Airport. The varying effects of noise on different property types and neighbourhoods are identified and examined. The results are contrasted with earlier hedonic regression-based studies, particularly that of Pennington Topham and Ward (1990) which was the source of the data analyzed.

Chinloy, Peter; Megbolugbe, Isaac F., "Hedonic Mortgages," *Journal of Housing Research*, 5(1), 1994, pp. 1-21.

Abstract: Just as a hedonic quantity index holds quality constant for a house or other consumer durable, the concept can be applied to a mortgage. A hedonic mortgage holds quality constant across the characteristics of a loan with a dual hedonic yield. Unlike for houses

or consumer durables, the prices in a hedonic mortgage yield are observable directly from derivative securities markets, avoiding the identification problem of distinguishing supply and demand functions. The hedonic mortgage prices the characteristics of the mortgage contract, principally a bond, a default insurance portfolio, and a prepayment insurance portfolio.

Xu, Feng; Mittelhammer, Ron C.; Torell, L. Allen, "Modeling Nonnegativity via Truncated Logistic and Normal Distributions: An Application to Ranch Land Price Analysis," *Journal of Agricultural and Resource Economics*, 19(1), July 1994, pp. 102-14.

Abstract: This study presents an empirical method of modeling the non-negativity of dependent variables using truncated logistic and normal disturbance distributions. The method is applied in estimating a ranch land hedonic price function. Results show that the degree of truncation is significant.

Beach, E. Douglas; Carlson, Gerald A., "A Hedonic Analysis of Herbicides: Do User Safety and Water Quality Matter?," *American Journal of Agricultural Economics*, 75(3), August 1993, pp. 612-23.

Abstract: Farmers may value water quality and user safety characteristics of herbicides as they select among products to obtain weed control. Expenditures per application in the U.S. corn and soybean herbicide markets are explained by several safety characteristics in addition to market and weed control characteristics. The explicit inclusion of safety characteristics in the farm decision model indicates that not all safety aspects of pesticides use are external to farmers. Leaching potential and user toxicity are statistically significant but their elasticities are small relative to broadleaf and grass weed control efficacy.

North, J. H.; Griffin, C. C., "Water Source as a Housing Characteristic: Hedonic Property Valuation and Willingness to Pay for Water," *Water Resources Research*, 29(7), July 1993, pp. 1923-29.

Cropper, Maureen L. et al., "Valuing Product Attributes Using Single Market Data: A Comparison of Hedonic and Discrete Choice Approaches," *Review of Economics and Statistics*, 75(2), May 1993, pp. 225-32.

Abstract: This paper compares, via simulation, the performance of the multinomial logit and hedonic models in estimating consumer preferences for product attributes. The authors ascribe preferences over the attributes of houses to a population of consumers and, by having them bid for a set of houses, calculate equilibrium prices. The resulting data are used to estimate the two models. Coauthors are Leland Deck, Nalin Kishor, and Kenneth E. McConnell.

Arguea, Nestor M.; Hsiao, Cheng, "Econometric Issues of Estimating Hedonic Price Functions: With an Application to the U.S. Market for Automobiles," *Journal of Econometrics*, 56(1-2), March 1993, pp. 243-67.

Abstract: Some econometric issues associated with the characteristics approach to simplify complex market structures where many differentiated products interact to a smaller number of homogeneous attributes are considered. These include the choice of functional form for the hedonic price equation, the data requirement for the identification of market demand and supply of characteristics, and the practical method for selecting characteristics to represent

differentiated products. The implicit market for U.S. automobile demand is analyzed to illustrate the authors' approach.

Smith, V. Kerry; Palmquist, Raymond B., "Temporal Substitution and the Recreational Value of Coastal Amenities," *Resources for the Future, Quality of the Environment Division Discussion Paper: 93-09*, April 1993, pp. 21.

Abstract: This paper uses the three markets (peak, pre, and post season) for weekly rentals of vacation properties along The Outer Banks of North Carolina and the hedonic model to test whether coastal amenities influence the marginal rate of substitution for short term displacement on the timing of recreation trips to the beach. Proximity to the ocean was found to be a significant determinant of temporal substitution between the peak and pre peak seasons with ocean front properties having 1.9 to 4.7 percent smaller discounts for pre season rentals relative to other properties.

Pace, R. Kelley; Gilley, Otis W., "Translating Prior Information across Specifications to Improve Predictive Accuracy," *Journal of Business and Economic Statistics*, 11(3), July 1993, pp. 301-09.

Abstract: Unrestricted nonlinear models typically outperform their simple linear counterparts in the hedonic pricing and mass assessment fields. Economic theory, however, suggests prior information that most naturally applies to the simple linear model. This article examines the consequences of translating this prior information across specifications. The results show that the addition of the prior information improved the ex-sample prediction accuracy over all sample sizes examined. The prior information effectively augments the sample size, thus extending the domain of these models.

Xu, Feng; Mittelhammer, Ron C.; Barkley, Paul W., "Measuring the Contributions of Site Characteristics to the Value of Agricultural Land," *Land Economics*, 69(4), November 1993, pp. 356-69.

Abstract: This study examines the effects of different combinations and qualities of selected site characteristics on the value of agricultural land in six substate regions in the state of Washington. The analysis follows the general hedonic regression form but incorporates nonnegativity constraints on the models. This, coupled with an adaptation of H. Bierens's (1990) conditional moment test, yields consistent results showing (1) land value is a function of site characteristics, (2) land markets in the state of Washington are highly regional, (3) parsimonious empirical models can provide adequate representations of expected land values, and (4) nonnegative truncation is a valuable procedure in hedonic models.

Smith, V. Kerry; Huang, Ju Chin, "Hedonic Models and Air Pollution: Twenty-Five Years and Counting," *Environmental and Resource Economics*, 3(4), August 1993, pp. 381-94.

Pace, R. Kelley, "Nonparametric Methods with Applications to Hedonic Models," *Journal of Real Estate Finance and Economics*, 7(3), November 1993, pp. 185-204.

Abstract: Current real estate statistical valuation involves the estimation of parameters within a posited specification. Such parametric estimation requires judgment concerning model (1) variables; and (2) functional form. In contrast, nonparametric regression

estimation requires attention to (1) but permits greatly reduced attention to (2). Parametric estimators functionally model the parameters and variables affecting  $E(y|x)$  while nonparametric estimators directly model  $pdf(y,x)$  and hence  $E(y|x)$ . This article applies the kernel nonparametric regression estimator to two different data sets and specifications. The article shows the nonparametric estimator outperforms the standard parametric estimator (OLS) across variable transformations and across data subsets differing in quality. In addition, the article reviews properties of nonparametric estimators, presents the history of nonparametric estimators in real estate, and discusses a representation of the kernel estimator as a nonparametric grid method.

Uyeno, Dean; Hamilton, Stanley W.; Biggs, Andrew J. G., "Density of Residential Land Use and the Impact of Airport Noise," *Journal of Transport Economics and Policy*, 27(1), January 1993, pp. 3-18.  
Abstract: Although communities worldwide have shown an increasing concern for the environment, hedonic regression shows little change over time in the relationship of airport noise to the property values of detached dwellings. The effects of noise on the value of multiple-unit residential condominiums and on the value of vacant land are found to be higher than for detached houses and are statistically significant.

Can, Ayse, "Specification and Estimation of Hedonic Housing Price Models," *Regional Science and Urban Economics*, 22(3), September 1992, pp. 453-74.

Abstract: Alternative traditional and spatial autoregressive hedonic urban housing price models are offered corresponding to different conceptualizations of the housing price determination process. Some methodological issues relevant to their estimation are addressed that draw upon recent development from spatial econometrics. These include the selection of the appropriate estimation strategy; the application of diagnostic tests for the detection of spatial dependence and heterogeneity; and the use of robust methods in the presence of heteroskedasticity.

Atkinson, Scott E.; Crocker, Thomas D., "The Exchangeability of Hedonic Property Price Studies," *Journal of Regional Science*, 32(2), May 1992, pp. 169-83.

Abstract: Observations drawn from multiple markets are essential to the construction of indices of housing costs and to measures of demand for housing attributes. It is not evident when multiple markets exist or whether such markets exist for some attributes but not for others. They test for multiple markets by using Bayesian methods to assess the transferability (random exchangeability) of entire hedonic price expressions from one site and time to another, the transferability of hedonic price functions are particular attributes, and the degrees of similarity and hedonic price functions must have in order to be transferable. In the authors' illustrations, price functions for structural housing attributes are generally transferable, prices for neighborhood attributes are not. Therefore, in their illustrations, the desired price indices and demand functions should be estimable for neighborhood attributes, but not for structural ones.

Kask, S. B.; Maani, S. A., "Uncertainty, Information, and Hedonic Pricing," *Land Economics*, 68(2), May 1992, pp. 170-84.

Abstract: The application of the hedonic pricing technique to estimating consumer values of avoiding or incurring the risk of loss from natural hazards has recently appeared in the literature. The probabilistic nature of the hazards evaluated in these studies raise new questions regarding the interpretation of the hedonic prices estimated. The authors present a hedonic price model that accounts for information level and uncertainty when valuing nonmarket goods. A simple set of rules are derived for analyzing hedonic prices for probabilistic nonmarket goods.

Bartik, Timothy J.; Butler, J. S.; Liu, Jin Tan, "Maximum Score Estimates of the Determinants of Residential Mobility: Implications for the Value of Residential Attachment and Neighborhood Amenities," *Journal of Urban Economics*, 32(2), September 1992, pp. 233-56.

Abstract: This paper uses a semiparametric empirical technique (maximum score) to estimate the determinants of the decision of low-income renters to move out of their dwelling. The maximum score estimates prove to be far more precise than probit estimates. The estimates are used to show that low-income residents highly value remaining in their dwelling. In addition, these estimates are used to illustrate an alternative method to measure willingness to pay for neighborhood amenities, which the authors argue to be superior to hedonic-based willingness-to-pay measures.

Dubin, Robin A., "Spatial Autocorrelation and Neighborhood Quality," *Regional Science and Urban Economics*, 22(3), September 1992, pp. 433-52.

Abstract: Although it is intuitively obvious that neighborhood quality and accessibility should affect housing prices, the empirical evidence is weak: Most hedonic estimations show few significant coefficients on the neighborhood and accessibility variables. The lack of empirical support for the capitalization of neighborhood and accessibility effects may stem from the multicentric nature of the city as well as measurement problems with regard to neighborhood quality. In this paper, an alternative approach is taken: Omit all neighborhood and accessibility measures from the set of explanatory variables and instead model the resulting autocorrelation in the error term. Data from Baltimore are used in an empirical example; the results show that this approach provides a very plausible pattern of housing price variation.

Hughes, William T., Jr.; Sirmans, C. F., "Traffic Externalities and Single-Family House Prices," *Journal of Regional Science*, 32(4), November 1992, pp. 487-500.

Abstract: This study is the first to lend empirical support to the common belief that traffic intensity affects property values. Using a standard hedonic pricing model, this paper investigates the price effects on housing of traffic within a neighborhood. Results using data on single-family housing transactions for two different locations in a medium-sized city show a substantial negative price effect of traffic externalities. The magnitude of the effect is shown to be location specific.

Steinnes, Donald N., "Measuring the Economic Value of Water Quality: The Case of Lakeshore Land," *Annals of Regional Science*, 26(2), June 1992, pp. 171-76.

Abstract: The valuation of water quality has proved difficult for economists using hedonic methods. This study, by employing a sample of lakes and considering only land values, is able to overcome many methodological and empirical problems inherent in previous studies. One objective measure of water quality, secchi disc reading, is found to be significant for various alternative specifications of the hedonic model. As explained, however, the results suggest that economic value may be attached to a perceived, rather than actual, measure of water quality. This raises fundamental questions as to how economists and natural scientists can work together to formulate public policy regarding water quality.

Kim, Sunwoong, "Search, Hedonic Prices and Housing Demand," *Review of Economics and Statistics*, 74(3), August 1992, pp. 503-08.

Abstract: The conventional model of the housing market does not take into account the search process for a suitable housing unit. Based on a dynamic search theory, this paper develops and estimates a truncated regression model of the rental housing market with stochastic and unobserved truncation points. The author's model provides a joint estimation of the hedonic price and the reservation rent equations. The results turn out to be superior to the ordinary least squares estimates of either the traditional housing demand function or the hedonic price equation.

Craig, Steven G.; Kohlhase, Janet E.; Papell, David H., "Chaos Theory and Microeconomics: An Application to Model Specification and Hedonic Estimation," *Review of Economics and Statistics*, 73(2), May 1991, pp. 208-15.

Abstract: This paper is the first to apply the theory of deterministic chaos to a microeconomic problem. Previous applications of chaos theory to time-series data, while successful in uncovering nonlinearities, have not provided guidelines for resolving uncovered misspecification problems. In contrast, the authors show that a modified test statistic from chaos theory is an extremely valuable tool in microeconomic model specification because it shows when excluded information is correlated with included information. This test, applied to hedonic estimation of marginal housing prices, is able to distinguish among alternative regression specifications and assists in discovering a parsimonious specification devoid of nonlinear effects.

Pogodzinski, J. M.; Sass, Tim R., "Zoning and Hedonic Housing Price Models," *Journal of Housing Economics*, 1(3), September 1991, pp. 271-92.

Parsons, George R.; Wu, Yangru, "The Opportunity Cost of Coastal Land-Use Controls: An Empirical Analysis," *Land Economics*, 67(3), August 1991, pp. 308-16.

Abstract: Coastal land-use controls that limit new residential development on land adjacent to water have three principle efficiency effects: gain in aesthetics and clean water, loss of residential proximity to the coast, and loss of amenities at inland locations. Using hedonic price analysis of housing with data from a county on the Chesapeake Bay where controls were introduced, the authors estimate the opportunity cost of the second efficiency effect--displaced residential development. They predict the number of houses displaced due to

controls and multiply that by the implicit value of coastal access amenities from the hedonic to estimate the loss.

Freeman, A. Myrick, III, "Indirect Methods for Valuing Changes in Environmental Risks with Nonexpected Utility Preferences," *Journal of Risk and Uncertainty*, 4(2), April 1991, pp. 153-65.

Abstract: Theoretical models for estimating individuals' values for sure improvements in environmental quality are well developed. These models can be classified as being based on averting behavior, hedonic prices, or weak complementarity. Some of these models have also been applied to the task of valuing changes in risk based on expected utility theory. This article provides a systematic development of these models for changes in either the probability or the magnitude of an uncertain event and shows that the derived expressions for individual preferences is continuous, convex, and twice differentiable.

Parsons, George R., "Hedonic Prices and Public Goods: An Argument for Weighting Locational Attributes in Hedonic Regressions by Lot Size," *Journal of Urban Economics*, 27(3), May 1990, pp. 308-21.

McConnell, K. E., "Double Counting in Hedonic and Travel Cost Models," *Land Economics*, 66(2), May 1990, pp. 121-27.

Abstract: When the value of access to a natural resource is measured by different methods, double counting sometimes occurs. This paper shows that, when travel cost models and hedonic models are used to measure the value of access, the hedonic estimate includes the travel cost estimate. This result extends to damages from pollution. Both travel cost models and hedonic models can be exploited to measure the damages from pollution in a natural resource, but the hedonic model provides a broader measure that incorporates the travel cost estimate.

Smith, V. Kerry, "Can We Measure the Economic Value of Environmental Amenities?," *Southern Economic Journal*, 56(4), April 1990, pp. 856-78.

Abstract: This paper reviews the conceptual basis for valuing environmental amenities and discusses travel cost recreation demand and hedonic property value models as strategies that rely on observed choice to measure use values for environmental resources. The growing importance of measuring nonuse values is noted because people experience satisfaction from environmental resources without actually using them. Nonuse values do not require a choice, so measuring them requires analyzing other behavioral indicators: conversation and the adaptations people make as they learn. Recent advances are described in using surveys as conversational sources of information about people's values within a contingent valuation framework.

Michaels, R. Gregory; Smith, V. Kerry, "Market Segmentation and Valuing Amenities with Hedonic Models: The Case of Hazardous Waste Sites," *Journal of Urban Economics*, 28(2), September 1990, pp. 223-42.

Holway, James M.; Burby, Raymond J., "The Effects of Floodplain Development Controls on Residential Land Values," *Land Economics*, 66(3), August 1990, pp. 259-71.

Abstract: This paper considers the effect of floodplain management programs on the market for vacant residential land. The authors model the land developers' profit from housing production to illustrate the expected effects of parcel characteristics on land value. The hedonic method is utilized to analyze data on vacant floodplain land parcels

from nine communities that vary by type of flooding, regulatory programs, and geographic location. The authors' results show that zoning floodplains for lower density development, implementing building regulations requiring elevation above the level of the flood, and providing clear local leadership of programs each contribute to lowering floodplain land values.

Clak, David E.; Kahn, James R., "The Two-Stage Hedonic Wage Approach: A Methodology for the Valuation of Environmental Amenities," *Journal of Environmental Economics and Management*, 16(2), March 1989, pp. 106-20.

Palmquist, Raymond B., "Land as a Differentiated Factor of Production: A Hedonic Model and Its Implications for Welfare Measurement," *Land Economics*, 65(1), February 1989, pp. 23-28.

Abstract: The value of a parcel of land as a factor of production is a result of the characteristics the land embodies. This paper develops a model of land markets that considers these characteristics and is based on the behavior of the demanders and suppliers of the services of land. This model provides a basis for estimates of hedonic equations for land and the demands for the characteristics of land. The techniques necessary to use hedonic estimates to measure willingness-to-pay for improvements in land are shown to depend on the nature of the improvement.

Zuehlke, Thomas W., "Transformations to Normality and Selectivity Bias in Hedonic Price Functions," *Journal of Real Estate Finance and Economics*, 2(3), September 1989, pp. 173-80.

Palmquist, Raymond B., "Welfare Measurement for Environmental Improvements Using the Hedonic Model: The Case of Nonparametric Marginal Prices," *Journal of Environmental Economics and Management*, 15(3), September 1988, pp. 297-312.

Pommerehne, Werner W., "Measuring Environmental Benefits: A Comparison of Hedonic Technique and Contingent Valuation," Bos, Dieter; Rose, Manfred; Seidl, Christian, (eds.) *Welfare and efficiency in public economics*. New York; Berlin and Tokyo: Springer, 1988, pp. 363-400.

Cropper, Maureen L.; Deck, Leland B.; McConnell, Kenneth E., "On the Choice of Functional Form for Hedonic Price Functions," *Review of Economics and Statistics*, 70(4), November 1988, pp. 668-75.

Abstract: This study examines how errors in measuring marginal attribute prices vary with the form of the hedonic price function. In simulations, consumers with known utility functions bid for houses with given attributes. Various forms of the hedonic function are estimated using equilibrium housing prices. Errors in estimating marginal attribute prices are calculated by comparing each consumer's equilibrium marginal bid vector with the gradient of the hedonic function. When all attributes are observed, linear and quadratic Box-Cox forms produce lowest mean percentage errors; however, when some attributes are unobserved or are replaced by proxies, linear and linear Box-Cox functions perform best.

Blomquist, Glenn C.; Berger, Mark C.; Hoehn, John P., "New Estimates of Quality of Life in Urban Areas," *American Economic Review*, 78(1), March 1988, pp. 89-107.

Abstract: Implicit markets capture compensation for interurban and interregional differences in amenities and yield differences in housing prices and wages. These pecuniary differences become preference-based weights in a quality-of-life index. Hedonic equations are estimated using micro data from the 1980 Census and assembled county-based amenity data on climatic, environmental, and urban conditions. Ranking of 253 urban counties reveals substantial variation within, as well as among, the 185 urban areas. The quality-of-life differences across counties within one S MSA is almost one-half of the difference between the top- and bottom- ranked counties in the nation.

Bartik, Timothy J., "Measuring the Benefits of Amenity Improvements in Hedonic Price Models," *Land Economics*, 64(2), May 1988, pp. 72-83.  
Abstract: This article develops ex ante measures of the benefits of large amenity improvements. A commonly-used benefit measure, the willingness to pay of housing consumers for the amenity improvement at their original location, is shown to underestimate benefits because it overlooks adjustments by housing consumers and landlords. The article also derives an upper bound to benefits: the property value increases predicted by an original hedonic function. The article argues that this upper bound will often be the best feasible approximation to the true efficiency benefits of amenity improvements.

Murdoch, James C.; Thayer, Mark A., "Hedonic Price Estimation of Variable Urban Air Quality," *Journal of Environmental Economics and Management*, 15(2), June 1988, pp. 143-46.

Kanemoto, Yoshitsugu, "Hedonic Prices and the Benefits of Public Projects," *Econometrica*, 56(4), July 1988, pp. 981-89.  
Abstract: S. Scotchmer has shown that, even if the population is homogeneous, hedonic prices do not correctly measure long-run benefits of a large public project. This paper examines the direction of errors and shows that the use of cross-sectional land rent differentials leads to overestimation of the benefits. The short-run benefits with fixed lot size are also considered.

Jones, Larry E., "The Characteristics Model, Hedonic Prices, and the Clientele Effect," *Journal of Political Economy*, 96(3), June 1988, pp. 551-67.

Abstract: In this paper, the characteristics model of Kelvin Lancaster is reconsidered. It is shown by example that equilibrium prices need not be linearly decomposable. It does follow that equilibrium prices must be a convex function of characteristics, however. Further, it is shown that this fact holds independent of the form of firm competition (e.g., perfect or monopolistic). Finally, the predictions of the theory are discussed in the context of two empirical examples.

Kahn, Shulamit; Lang, Kevin, "Efficient Estimation of Structural Hedonic Systems," *International Economic Review*, 29(1), February 1988, pp. 157-66.

Abstract: In any hedonic system in which consumers purchase a characteristic embodied in a good, consumers with strong tastes for the characteristic are matched with producers with low costs of producing it. This paper demonstrates that, as a result of this matching process, the "exogenous" variables in the supply equation cannot be used as instruments in the demand equation and vice versa. The authors show

that despite the absence of the usual instruments, the system is identified under reasonable orthogonality assumptions. They develop an efficient estimator for the identified system and suggest some specification tests.

Graves, Phil et al., "The Robustness of Hedonic Price Estimation: Urban Air Quality," *Land Economics*, 64(3), August 1988, pp. 220-33.

Abstract: This paper addresses the econometric issues of variable selection, measurement error, functional form, and error distribution in the context of estimating hedonic prices for urban air quality. The empirical magnitudes of the hedonic prices vary substantially, depending on how each issue is addressed. It is recommended that future empirical work investigate the sensitivity of hedonic price estimates to these issues and concentrate on building more detailed and accurate data sets. Coauthors are James C. Murdoch, Mark A. Thayer, and Don Waldman.

Dubin, Robin A., "Estimation of Regression Coefficients in the Presence of Spatially Autocorrelated Error Terms," *Review of Economics and Statistics*, 70(3), August 1988, pp. 466-74.

Abstract: Spatial autocorrelation occurs when population members are related through their geographic location. This paper presents a maximum likelihood procedure for simultaneously estimating the parameters of the correlation function and the regression coefficients. A test for the presence of spatial autocorrelation is also provided. Estimation of an hedonic regression illustrates the technique.

Mendelsohn, Robert, "A Review of Identification of Hedonic Supply and Demand Functions," *Growth and Change*, 18(1), Winter 1987, pp. 82-92.

Epple, Dennis, "Hedonic Prices and Implicit Markets: Estimating Demand and Supply Functions for Differentiated Products," *Journal of Political Economy*, 95(1), February 1987, pp. 59-80.

Crouter, Jan P., "Hedonic Estimation Applied to a Water Rights Market," *Land Economics*, 63(3), August 1987, pp. 259-71.

Abstract: Much of the current literature on water rights is concerned with the efficiency of water allocations where there are legal and institutional constraints on water rights trades. This paper develops a quantitative basis for assessing the efficiency of a water rights market and applies the procedure to 1970 data collected from Weld County, Colorado. The first step is to estimate a hedonic price function for farm parcels in which the parcel price depends on quantities of land, water, and other attributes. Conclusions may then be drawn about the efficiency of a regional water rights market from the functional form of the estimated equation.

McConnell, K. E.; Phipps, T. T., "Identification of Preference Parameters in Hedonic Models: Consumer Demands with Nonlinear Budgets," *Journal of Urban Economics*, 22(1), July 1987, pp. 35-52.

Horowitz, Joel L., "Identification and Stochastic Specification in Rosen's Hedonic Price Model," *Journal of Urban Economics*, 22(2), September 1987, pp. 165-73.

Hoehn, John P.; Berger, Mark C.; Blomquist, Glenn C., "A Hedonic Model of Interregional Wages, Rents, and Amenity Values," *Journal of Regional Science*, 27(4), November 1987, pp. 605-20.

Smith, V. Kerry; Kaoru, Yoshiaki, "The Hedonic Travel Cost Model: A View from the Trenches," *Land Economics*, 63(2), May 1987, pp. 179-92. Abstract: Concern over the theoretical framework underlying the hedonic travel cost (HTC) model's implicit prices (as well as the process of estimating these prices) and the definitions of the quantities of site characteristics "consumed" by recreationists motivated this analysis. This evaluation of the HTC model considers the implication of the definitions of price and quantity measures for both the estimated demands for the characteristics of recreation sites and for the benefit measures based on them. The authors' results contrast with all the published applications of the HTC model. They indicate that application of the model should not be regarded as a routine implementation of a hedonic price function.

Bartik, Timothy J., "Estimating Hedonic Demand Parameters with Single Market Data: The Problems Caused by Unobserved Tastes," *Review of Economics and Statistics*, 69(1), February 1987, pp. 178-80.

Atkinson, Scott E.; Crocker, Thomas D., "A Bayesian Approach to Assessing the Robustness of Hedonic Property," *Journal of Applied Econometrics*, 2(1), January 1987, pp. 27-45.

Bartik, Timothy J., "The Estimation of Demand Parameters in Hedonic Price Models," *Journal of Political Economy*, 95(1), February 1987, pp. 81-88.

Schwartz, Seymour I.; Zorn, Peter M.; Hansen, David E., "Research Design Issues and Pitfalls in Growth Control Studies," *Land Economics*, 62(3), August 1986, pp. 223-33. Abstract: Accurate measurement of the effect of growth control on house prices requires that the research design control for factors other than the growth control program that could affect house prices. This paper draws on a hedonic view of housing markets to examine and compare the merits of several forms of quasiexperimental and statistical controls. The methodological critique is tested empirically, using data from Davis, California (a growth control city) and three comparison cities. The resulting estimates of the growth control effect vary widely among the methods, and in particular, between a theoretically inferior method that is widely used and the preferred method. It is concluded that preferred methods are able to reduce important sources of bias.

Kanemoto, Yoshitsugu; Nakamura, Ryohei, "A New Approach to the Estimation of Structural Equations in Hedonic Models," *Journal of Urban Economics*, 19(2), March 1986, pp. 218-33.

Shonkwiler, J. S.; Reynolds, J. E., "A Note on the Use of Hedonic Price Models in the Analysis of Land Prices at the Urban Fringe," *Land Economics*, 62(1), February 1986, pp. 58-63.

Triplett, Jack E., "The Economic Interpretation of Hedonic Methods," *Survey of Current Business*, 66(1), January 1986, pp. 36-40.

Scotchmer, Suzanne "The Short Run and Long Run Benefits of Environmental Improvement," Harvard Institute for Economic Research Discussion Paper: 1135, February 1985, pp. 30.

Abstract: Beginning with an axiom of separability in willingness to pay for space and amenities, we develop a general technique to evaluate the benefits of nonmarginal improvements to amenities in the short run and the long run. If cross section observations are made on both hedonic prices  $p(a)$  and lot sizes  $s(a, y)$  (where  $y$  is the resident's income), there is sufficient information in hedonic price data to reveal preferences. This is because the hedonic price function  $p(a)$  has two marginal properties.  $dp(a)/da = m_{a^a, s(a, y), u/s(a, y)}$  where  $m_{a^a}$  is the marginal rate of substitution between money and a particular attribute. In addition,  $p(a) = -m_{s^a, s(a, y), u}$ , where  $-m_{s^a}$  is the marginal rate of substitution between money and lot-size on type- $a$  land.

Edmonds, Radcliffe G., Jr., "Some Evidence on the Intertemporal Stability of Hedonic Price Functions," *Land Economics*, 61(4), November 1985, pp. 445-51.

Ozanne, Larry; Malpezzi, Stephen, "The Efficacy of Hedonic Estimation with the Annual Housing Survey: Evidence from the Demand Experiment," *Journal of Economic and Social Measurement*, 13(2), July 1985, pp. 153-72.

Cassel, Eric; Mendelsohn, Robert, "The Choice of Functional Forms for Hedonic Price Equations: Comment," *Journal of Urban Economics*, 18(2), September 1985, pp. 135-42.

Graves, Philip E.; Knapp, Thomas A., "Hedonic Analysis in a Spatial Context: Theoretical Problems in Valuing Location-Specific Amenities," *Economic Record*, 61(175), December 1985, pp. 737-43.

Scotchmer, Suzanne, "Hedonic Prices and Cost-Benefit Analysis," *Journal of Economic Theory*, 37(1), October 1985, pp. 55-75.

Anderson, John E., "On Testing the Convexity of Hedonic Price Functions," *Journal of Urban Economics*, 18(3), November 1985, pp. 334-37.

Frankel, Marvin, "Amenity Changes, Property Values, and Hedonic Prices in a Closed City," *Journal of Environmental Economics and Management*, 12(2), June 1985, pp. 117-31.