Re-conceiving Quality:
Political Economy and the Rise of Hedonic Price Indexes

Thomas A. Stapleford
University of Notre Dame
tstaplef@nd.edu

History of Political Economy Workshop
Revised: September 8, 2010

Published with minor modifications in History of Political Economy, 43 (supplement, 2011): 309-328

ABSTRACT
Prior to the 1960s most American economists rejected hedonic techniques as a solution to the problem of quality change in price indexes. I argue that behind that judgment lay a deeper conceptual divide over how best to define and assess product quality: through expert testing or through market price differentials. Most American economists working on price indexes at the time had ties to the U.S. consumer movement, which emphasized consumer ignorance and promoted expert analysis as the only reliable guide to product quality. During the postwar era, these ties began to dissolve, and as younger economists more readily accepted the market as an arbiter of quality, they likewise saw the econometric analysis of prices and product characteristics as a logical and unproblematic tool for handling quality change in price indexes.
Introduction
Measuring changes in the value of money is an essential step for most applications of economic theory to temporal processes. Typically, that change is defined as the inverse of a price index (rising prices equals a fall in the value of money); and accordingly, price indexes are fundamental tools for applied economics. Though the calculation of these indexes involves many thorny conceptual and methodological problems (see Stapleford 2009 for one overview), the most prominent and easily recognizable is that of quality change: how should price indexes account for the often dramatic shifts in physical characteristics and performance of goods over time? How can one talk meaningfully about price changes when goods themselves are no longer the same? Today, most price index theorists regard quality adjustment as an econometric issue best addressed through what are known as “hedonic” techniques (Triplett 2006).

Hedonic price indexes use regression analysis to calculate relationships between price differentials and changes in the characteristics of goods. (Relevant characteristics are determined by their correlation with price differentials; for an item like refrigerators, these characteristics might include capacity, energy efficiency, brand names, or specific features.) From these relationships, economists can calculate hypothetical prices for novel combinations of characteristics and thereby compare the actual price of an existing product with the estimated price of a similar configuration in an earlier period. In principle, this process prevents changes in the quality of goods from affecting price indexes.

Agricultural economists first applied regression analysis to price and quality data during the 1920s, but they did not incorporate the results into price indexes (Colwell and Dilmore 1999; Banzhaf 2006, 22-23). That step came in 1938, when Andrew T. Court gave a paper at a joint meeting of the American Statistical Association and the Econometric Society describing a quality-adjusted price index for automobiles that Court called a “hedonic” index (Court 1939). Court’s ideas
attracted little attention until 1961, however, when University of Chicago economist Zvi Griliches created a new hedonic price index as part of a review of federal price statistics by the National Bureau of Economic Research (NBER; Griliches 1961). Unlike Court’s paper, Griliches’ analysis sparked an explosion of research in hedonic techniques (see Griliches 1971, 3-4).

This summary history poses an obvious puzzle: Why did most economists of the 1940s and 1950s ignore Court’s work, whereas Griliches’ later paper led to a rash of similar studies? The answer surely depends in part on their publication venues: Court’s paper, though presented at a major conference, was published in a more obscure volume, whereas Griliches’ work appeared in a major, well-publicized study from the National Bureau of Economic Research. Nonetheless, Court’s work was not unknown to economists interested in price indexes. According to Court, the inspiration for his hedonic analysis came from the Chief Statistician at the U.S. Bureau of Labor Statistics (BLS), Sydney W. Wilcox. Not only did Wilcox read “early versions” of the paper (Court 1939, 99), but other key BLS staff members cited Court’s work several years later, thereby illustrating their familiarity his analysis (Williams and Hoover 1946, 360). Nonetheless, the BLS did not pursue the topic. Indeed, although quality change became one of the most serious problems facing BLS price indexes during and after the Second World War, the agency did not experiment with Court’s methods, nor did other economists suggest such an approach. In fact, even after Griliches’ paper appeared in the 1961 NBER report, the BLS expressed skepticism about hedonic techniques (U.S. Congress. Joint Economic Committee 1961, 589).

These facts suggest that the early inattention to hedonic techniques reflected more than simple ignorance. Indeed, I argue that a conceptual divide separated Court and later advocates of hedonic analysis from most American economists who worked on price indexes in the 1930s and 1940s, especially those in the BLS. In part, this split arose from the way in which the regression analysis of price and quality data was packaged with a neoclassical interpretation of retail price
indexes as “constant utility” or “constant welfare” indexes. That connection began with Court’s decision to label his results as “hedonic” price indexes because of their alleged foundation in consumer utility (Court 1939, 107), and it was reiterated in the early 1960s by Griliches (Adelman and Griliches 1961). In the United States, however, this association with neoclassical theory would initially be a hindrance, since the economists with the greatest influence over government price statistics through mid-century had close ties to institutional economics and correspondingly serious reservations about the neoclassical approach (Stapleford 2009; Stapleford, forthcoming).

Nonetheless, the early inattention to hedonic analysis also reflected differing ideas about quality that transcended debates over neoclassical theory per se. 1

We can characterize the two main approaches as a knowledge-based definition of quality and a market-based definition. The market-based approach grounds quality in observable consumer preferences. It assumes that price differentials in a specific category of goods (e.g., automobiles) reflect relative consumer preferences and thus provide a quantitative guide to consumer perceptions. Such perceptions are, in turn, presumed to be the only valid basis for economists to assess product quality. In general terms, the market-based approach underlies the adoption of hedonic price indexes: correlating price differentials with changes in the characteristics of goods will reveal the features that best define the quality of those goods.

By contrast, the knowledge-based approach differentiates consumer perceptions from an (allegedly) more accurate assessment of quality through intensive, expert analysis. Such expert study is believed to reveal the full range of an item’s features (including its long-term performance), all of which collectively constitute its “quality.” This perspective on quality is akin to that of product-testing services such as Consumer Reports -- a telling comparison, as we will see -- a vision in which expert study provides a detailed quality evaluation for a range of products. In practice, these evaluations rarely match price differentials exactly. (If they did, there would be no need for
independent product testing). The knowledge-based approach thus shifts the focus from consumer behavior to the availability of information. In principle, if a deep knowledge of consumer goods was thoroughly disseminated throughout the population, then the knowledge-based view would collapse to the market-based version. Adherents to the knowledge-based approach, of course, believe that such knowledge is not widely available and thus that consumer preferences are often grounded in relative ignorance.

These two conceptions of quality reflect different epistemological priorities. The knowledge-based approach, for example, purports to provide a more accurate assessment of quality, but it struggles to assign a monetary value to the quality variations it reveals and remains vulnerable to the critique that the traits valued by its experts are not those valued by consumers more broadly. Yet I argue that the historical appearance of these two definitions of quality also reflect attention to different aspects of political economy. The knowledge-based conception arose most clearly among economists with ties to the American consumer movement of the interwar years, a movement that sought to protect consumers from predatory retailers and manufacturers who profited from consumer ignorance or deceptive marketing strategies. Not only did the consumer movement have direct ties to the BLS, but the movement’s view of consumer behavior also resonated with important aspects of institutional economics, such as its reliance on behaviorist psychology and its emphasis on evaluating the structure of markets.

Andrew Court’s work on hedonic price indexes emerged from a different set of concerns, namely his desire to defend the automobile industry from charges of monopolistic “price administration” by highlighting how dramatic product innovation (presumably spurred through competition) had led to a substantial fall in “real” prices for automobiles. Likewise, Griliches’ 1961 paper and subsequent hedonic studies appeared in a context where many economists (including Griliches himself) were concerned about quantifying the value of innovation for purposes such as
estimating economic growth. Tacitly adopting a producer-based perspective, in which consumer preferences were both an objective source of quality evaluations and the most meaningful measure of true (i.e., profit-making) product innovation, these economists readily accepted the market-based conception of quality.

The rise of hedonic price indexes in American economics therefore involved more than the diffusion of a neutral set of econometric tools. It required a fundamental shift in intuitive assumptions about product quality among American economists and a related shift in their pragmatic concerns, away from consumer protection and towards quantifying innovation. Econometrics and political economy were thus intertwined in important, albeit subterranean, ways.

**The Consumer Movement and Knowledge-Based Quality**

If we define the consumer movement as the explicit self-organization of citizens based on their roles as consumers in a market economy, then we can conveniently date the beginning of the consumer movement in the United States to formation of local Consumer Leagues in the 1890s, which banded together in 1899 to form the National Consumer League (NCL). Although the NCL concentrated on using consumer pressure to reform working conditions among retailers and manufacturers (Storrs 2000), its establishment corresponded to the growth of broader concerns about the potential abuses that could arise once the production of goods became increasingly divorced from the sites where they would be sold. These fears culminated in the 1906 passage of the Pure Food and Drug Act and the Meat Inspection Act.

The rapid expansion of mass-market consumer goods in the 1920s -- including complex and novel appliances such as radios, vacuum cleaners, washing machines, and electric or gas refrigerators -- brought a different focus to the consumer movement, which soon found a more durable and extensive institutional base in a range of new organizations. The crystallization of this
transformation came with the 1927 publication of *Your Money’s Worth* by Stuart Chase and Frederick Schlink. Described by Robert S. Lynd as the “Uncle Tom’s Cabin” of the consumer movement, *Your Money’s Worth* detailed misleading advertising and product labeling while asserting that prices did not provide a reliable guide to quality. Although Schlink and Chase suggested that any ultimate solution depended upon regulation and product standards, Schlink took the intermediate step of founding a private product-testing service, Consumers’ Research, whose subscriber base rapidly expanded to 42,000 during its first five years. In 1935, a bitter strike split the organization and led to the creation of Consumers’ Union, which soon became the most-successful private product-testing agency in the United States and the publisher of *Consumer Reports* (Mayer 1989; Glickman 2001; Jacobs 2005, 89-90, 103).

Alongside these private efforts, many consumer advocates pushed for greater government regulation in standards and product labeling. Given the attention to “underconsumption” and to allegedly dysfunctional mass-distribution systems during the Great Depression, these calls found a sympathetic hearing in the Roosevelt administration. Not only were many consumer advocates scattered throughout New Deal agencies, but there were multiple attempts over the next decade to establish an institutional basis for consumer interests within the government itself. Thus the National Recovery Administration included a Consumer Advisory Board; the Agriculture Adjustment Administration created a Consumers’ Council; Roosevelt established a Consumer Division in the Department of Labor; and the Office of Price Administration formed a Consumer Division and, later, a volunteer Consumer Advisory Board. Behind these projects lay a large, interlocking network of primarily female-led organizations committed to pro-consumer lobbying and grassroots action, including the League of Women Shoppers, the General Federation of Women’s Clubs, the League of Women Voters, the Consumers’ National Federation, and the American Home Economics Association. These groups pushed repeatedly for expanded oversight,
product standards, and labeling regulations in various forums: the industry codes of the National Recovery Administration, Congressional legislation such as the Food, Drug, and Cosmetic Act of 1938, the hearings of the Temporary National Economic Committee in 1939, and the work of the Office of Price Administration and War Production Board during the Second World War (Jacobs 2005, 114, 124-125, 134-135, 168-170, 205-209, 214-215; Storrs 2006).

The ties between the BLS and the interwar consumer movement are best illustrated by Faith M. Williams, who served as chief of the bureau’s Cost-of-Living Division from 1934 through the late 1940s. Williams received her doctorate in economics under Henry Seager at Columbia University in 1924, but her interest in consumer economics began when she joined Robert and Helen Lynd’s study of *Middletown* (1929), where she analyzed living standards and changes in real income in Muncie, Indiana over the previous thirty years. The experience led to a position teaching courses on consumption economics at Cornell University, as well as a new research focus on household consumption. Her two published essays from this period reflect her deep concern for the “purchasing problems of the household buyer,” who (in Williams’ depiction) faced both outright fraud and the difficult task of “judging the relative durability, suitability, and economy of various types of merchandise” in the face of inadequate information. The only solution, Williams argued, was consumer education based on “scientific facts” developed through “impartial research on consumers’ goods” (Williams 1928, 203; Williams 1929, 725).

Williams herself was actively involved in realizing this vision. Beginning in 1928, she served as an advisor to the American Standards Association as it created voluntary standards for home appliances. In 1933, she organized a study group on “consumers’ problems” for the Washington, D.C., branch of the American Association of University Women (AAUW) -- which featured presentations from consumer advocates such as Frederick Schlink -- and in 1934 she became chairman of an AAUW committee dedicated to consumer issues. In turn, this position led to her
appointment as an AAUW representative to the National Consumer-Retailer Relations Council (which aimed at voluntary improvement of labeling for consumer goods) and to the American Standards Association. Less visibly, but equally telling, she was an active supporter of the League of Women Shoppers (LWS), a vociferous left-wing consumer group.²

Not surprisingly, these experiences shaped Williams’ views on quality and the approach that her division adopted for the U.S. cost-of-living index (forerunner of the U.S. Consumer Price Index). According to an internal review from 1965, BLS treatment of quality during the previous three decades had been characterized by an emphasis on “performance,” “serviceability,” or what Williams and her colleague and successor, Ethel D. Hoover, called “value-in-use” (Hoover and Webb 1965, 19; Williams and Hoover 1946, 356). These concepts, of course, matched the view of product quality within the consumer movement and in turn allowed the BLS to benefit from the success of that movement. For example, the BLS ordered its field agents to collect prices on goods of similar quality from one time-period to the next, and thus accuracy depended upon finding detailed information about the serviceability, or at least the “physical characteristics” of retail goods - - the very kind of information that the consumer movement sought. Appropriately, a 1946 survey of quality assessment in the BLS Consumer Price Index written by Williams and Hoover opened with a lengthy celebration of the ways in which labeling and standards regulation over the previous twenty years had eased the path for bureau field agents, who could now rely on standardized labeling and grading for many products (Williams and Hoover 1946, 354-356).

Naturally the situation was not perfect. While food was highly-regulated, Williams and Hoover lamented that “quality information in the textile field lags far behind” and was “still in an elementary stage” for home appliances. Those weaknesses necessitated extensive training for field agents, whose skill at recognizing subtle changes in materials or manufacturing techniques in textiles quickly surpassed not only the abilities of consumers but even the knowledge of the buyers
for retail stores themselves (Williams and Hoover 1946, 356, 364). Here was the perfect exemplar of
the knowledge-based approach to quality: trained experts discerning characteristics to which
consumers and salespeople alike were largely oblivious.

Other BLS procedures likewise demonstrated the agency’s reliance on the knowledge-based
approach. For example, when an item in the index disappeared from store shelves or ceased to be a
volume seller, field agents tried to find a substitute that matched the original quality specifications.
In such cases, the prices of the original (from the previous time period) and substitute (from the
current period) were then compared to create the index. At times, the bureau acknowledged, there
could be a substantial difference in the price lines of the two items, but this price differential was not
taken to indicate a distinction in quality (as the market-based approach would imply) because both
items fit the specifications (Hoover 1961, 1179; cf. Hoover and Webb 1965, 28).

When the substitute fell outside the original specifications but had been available in the
previous period, the bureau would “link” the new item into the index through the chain index
method. This technique prevented any price difference between the two goods from affecting the
index, on the rationale that the price differential was offset by the quality change. Williams was
uneasy with this procedure; as she admitted, the bureau did not always know whether the
“compensation” of the price differential truly matched the quality variation. Tellingly, she did not
justify the technique by arguing that price differentials reflected relative consumer valuations (the
market-based approach); instead, she suggested that within the bureau’s calculations, a price rise
implied a reduction in quantity purchased, and thus that the higher (or lower) price of a substitute
might be offset by increased (decreased) durability (Williams and Hoover 1946, 357-358).

The most troubling problems arose when new products directly replaced older models, as
occurred frequently among durable goods (e.g., automobiles) and as happened on a widespread basis
during the Second World War, when rationing and price controls prompted manufacturers to rapidly
replace older product lines. Here, too, the bureau’s reliance on a knowledge-based view of quality was apparent. Whenever possible, Ethel Hoover explained in 1961, the bureau attempted to adjust the price of the new item to compensate for its increased quality. First, BLS staff would identify specific changes that “fall within the definition of quality change” (in terms of performance or serviceability); next, the agency would assign a value to these alterations based on current retail price differentials or production costs (Hoover 1961, 1182-1183). Superficially, this process may seem similar to the market-based approach, but note that product quality is assessed here by comparing an item to a list of quality specifications that are assumed to indicate performance or serviceability; retail price differentials are used only to estimate the value of an already-recognized quality difference and may be replaced by other data (such as production costs). As discussed above, there might be (and often were) substantial price differences between goods that all fell within a given specification range; nonetheless, those differences were not understood to be signs of parallel variations in quality.

Inevitably, the bureau’s procedures for durable goods required subjective judgments, and the relevant data was often highly limited or simply unavailable. During the Second World War, for instance, the BLS faced extensive criticism over its failure to account sufficiently for extensive quality deterioration in consumer products (Banzhaf 2001, 352-358; Stapleford 2009, 193-196). The staff explained, however, that they had little choice: having consulted numerous experts both within and outside the government for help devising “a plan for measuring quality deterioration statistically,” the agency found the task impossible. “These experts reported that one could count on the fingers of one hand the consumers’ goods for which there were tests of general serviceability which would yield statistical results and which could be combined with price data” (U.S. Bureau of Labor Statistics 1945, 178). The best solution, the BLS decided, was simply to acknowledge that their price index had unavoidable limitations. Williams came to a similar conclusion about many of
the peacetime changes in durable goods; as she and Hoover declared, it would be impossible “to prepare price indexes for consumers’ goods which follow goods of identical serviceability over long periods of time,” since for most product replacements, “no one will take the time to produce an exact measure of the extent of the increase in value in use to the consumer” (Williams and Hoover 1946, 369). Knowledge was the ultimate judge of quality, and knowledge was limited.

BLS staff members were not the only economists who shared this knowledge-based view of quality during the interwar period. Most notably, reliance on 1920s psychology taught institutional economists that people were guided by subconscious desires, inherited drives, and learned behavior patterns (Rutherford 2000, 295-296)—all of which would make consumers dubious guides to product quality, especially in the face of any kind of structural inequities. Since institutional economists (such as Rexford Tugwell, Mordecai Ezekiel, or Walton Hamilton) and their sympathetic allies (such as Gardiner Means and Paul Douglas) were important members of the New Deal, it is not surprising that prominent New Deal economists were heavily involved in the consumer movement. For example, Tugwell led the Roosevelt administration’s first campaign to update the Food and Drug Act (with the early version dubbed the “Tugwell” bill), while Hamilton, Means, and Douglas were all members of the Consumer Advisory Board of the National Recovery Administration (Jacobs 2005, 114, 123-125; Rutherford 2005, 235-236).

Equally important were the connections that many male New Deal economists had to the female-led consumer movement through their wives, who were often skilled economists and influential members of the New Deal themselves. For instance, Caroline Ware (spouse of Gardiner Means) was deeply involved in pro-consumer initiatives during the New Deal and Second World War, as was Mary Dublin Keyserling (spouse of Leon Keyserling and executive director of the NCL from 1938-1941). Many other wives were also prominent members of the consumer movement, including Lucille Ezekiel (president of the Washington, D.C., chapter of the LWS), Emily Taft
Douglas, and Eveline Burns (an expert on social security and the spouse of Arthur R. Burns) (Storrs 2006).

For price indexes, the most important connection was that of Wesley C. Mitchell, who wrote an influential study of price indexes for the BLS in 1915 (Mitchell 1915) and later led a major review of the BLS cost-of-living index during the Second World War (Mitchell, Kuznets et al. 1945). Mitchell’s sympathy with the consumer movement is evident in his 1912 essay, “The Backwards Art of Spending Money,” in which he noted that since housewives lack “expert knowledge of the qualities” of consumer goods, they are forced “to judge quality by price, or to depend upon the interested assurances of advertisers and shopkeepers” -- a clearly disadvantaged position. Ideally, he argued, consumers would be assisted by a “trained corps” of experts, with each member “giving his whole working day to the buying or testing” of various goods (Mitchell 1912, 271-272). Though Mitchell’s own research moved away from consumption economics per se, his concern for the consumer remained strong: in the late 1920s, he worked with consumer advocate Robert Lynd to promote research on consumption from within the Social Science Research Council, and, along with Rexford Tugwell, he became an early sponsor of Frederick Schlink’s product testing service, Consumers’ Research (Smith 1979-80, 99-101; Jacobs 2005, 90).

Mitchell’s affiliation with the consumers’ movement also shaped his view of quality adjustments in price indexes. When labor unions publicly attacked the BLS over alleged deficiencies in its cost-of-living index during the Second World War (including the failure to account sufficiently for quality deterioration), Mitchell was appointed with Simon Kuznets and consumption economist Margaret Reid to provide an independent analysis of the BLS index. The committee report took an appropriately complex view of “quality,” dividing it into two components: “performance or serviceability” and what we might call aesthetics (“the color, form, flavor, texture, or other characteristic that will give the greatest pleasure per dollar spent”). Performance or serviceability
proved to be most important for the pragmatic task of adjusting a price index. Though, like the BLS, the committee lamented the lack of basic performance tests, it nonetheless made “crude guesses” about the value of quality deterioration that led consumers to purchase greater quantities of goods (due, for instance, to reduced durability) (Mitchell, Kuznets et al. 1945, 277-279, 295, 333).

Aesthetic values, on the other hand, were more troublesome, and indeed the explicit attention to aesthetics highlighted a limitation in the knowledge-based approach: could expert testing truly quantify the value of style? The committee was doubtful (e.g., Mitchell, Kuznets et al. 1945, 259, 277). Instead, the subjective basis of aesthetics pointed towards a market-based approach where estimated value would be derived “from people’s willingness to pay certain prices in a situation where informed choice is possible” (Mitchell, Kuznets et al. 1945, 277). Still, the phrase “informed choice” was crucial qualification, and the committee tellingly emphasized it in another passage about market valuation (Mitchell, Kuznets et al. 1945, 273). Ultimately, for the Mitchell committee, the BLS, and many interwar economists, quality could be determined only by knowledgeable judges.

**Hedonic Indexes and the Quantification of Innovation**

Whereas the knowledge-based approach to quality emerged from the nexus of consumer protection, product testing, standardization, and consumer regulation, Andrew Court’s development of hedonic indexes was spurred by very different concerns. Court’s paper appeared in a slim volume titled *The Dynamics of Automobile Demand*, which was published by General Motors (General Motors Corporation 1939) and could easily be mistaken for an industrial study aimed at improving automobile pricing and forecasting. In fact it was not: it was a major salvo in what had become a crucial topic for New Deal political economy—the debate over “administered prices.”

The administered prices thesis was the brainchild of New Deal economist Gardiner Means, who developed the idea in a confidential, 1935 memo for the Secretary of Agriculture which was
then “commandeered” (Means’ term) by the Senate and published that same year. Basically, Means argued that many crucial industrial sectors featured a small number of producers who controlled large segments of the market and thus could freely choose to cut production rather than prices when they faced falling demand. During recessions these sectors laid-off large numbers of workers and cut capital investment, which deepened the economic collapse while also preventing the downward adjustment in prices and wages necessary for stabilization and recovery. Remedying the situation would require breaking up the dominant firms (which Means rejected because of the resulting inefficiencies) or instituting some kind of collective control over prices and production by owners, workers, consumers, and the state (Means 1935; Means 1936; Means 1940).

Naturally, free-market advocates and corporations quickly responded to Means’ assertions, and among the latter, General Motors (GM) led the way. GM economist Rufus Tucker published an early journal article critiquing Means (Tucker 1938), and GM hired private consultants, Charles F. Roos and Victor von Szeliski of the Institute for Applied Econometrics, to study automobile demand in order to undermine Means’ analysis of automotive markets. Roos and Szeliski reported their findings at the same 1938 conference (conveniently held in Detroit) where Court also described his hedonic study of auto prices. Court himself was an economist for the Automobile Manufacturers Association of America; he would subsequently be hired by GM. Both works were published in *The Dynamics of Automobile Demand*, framed by a closing analysis from GM economist Stephen DuBrul, who emphasized how the studies undercut claims about “administered” prices.

On the demand side, DuBrul argued that the combination of industry cost-structures and automobile demand patterns meant that firms which cut prices significantly would be unable to recoup their costs through increased sales. Court’s contribution was to show that the automobile price index used by Means (from the BLS wholesale price index) made absolutely no adjustment for quality change and was hence unreliable. Whereas the BLS index showed a price rise of 45% in the
decade after 1925, Court’s hedonic index showed a fall of roughly 50% (General Motors Corporation 1939, 123-139, 111).

As we have seen, Court’s approach was not immediately accepted. To GM’s credit, its published volume also included a critique of Court’s paper from the 1938 conference by Louis Bean, an economist with the Agricultural Adjustment Administration. Bean noted that Court had ignored how consumers’ expectations changed with technological advances (for more on this issue, see Stapleford 2009, 316-317, 324-329); moreover, he worried that the “multiple correlation” techniques required for Court’s analysis would provide fragile results (General Motors Corporation 1939, 118-119). Equally important, Court’s analysis of market prices did not match the conception of “quality” inherent in the then-dominant, knowledge-based perspective. When Faith Williams and Ethel Hoover discussed quality adjustments for durable goods in 1946, they mentioned Court’s work but concluded that there was still no way to quantify “changes in the ‘value in use’ of the passenger automobile,” in part because economists lacked the necessary data from expert testing, such as “a consolidated efficiency rating for each type of car,” or data on “comfort” and “durability” (Williams and Hoover 1946, 360).

If government economists lacked motivation to develop Court’s analysis further, so too did the automobile industry, at least initially. The onset of war mobilization quickly diluted anti-trust investigations and the administered prices debate: the Roosevelt administration now needed the cooperation of corporate America (Brinkley 1996, 175-200). Although prices rose rapidly after the end of price controls in 1946, they stabilized or fell at the end of the decade, and the United States was soon involved in another major conflict (the Korean War) that once again suppressed anti-trust agitation.

By the mid-1950s, however, both inflation and monopolistic practices were returning to the forefront of national politics. By the late 1950s, after repeated battles with the Eisenhower
administration’s Federal Trade Commission, Senator Estes Kefauver (D-Tennessee) launched a major, six-year investigation of “administered prices” within the Senate Antitrust and Monopoly Committee that focused on steel (a perennial antitrust target), bread bakeries, automobiles, and (especially) pharmaceuticals. Almost simultaneously, the congressional Joint Economic Committee (JEC) -- which was worried about statistics that showed a slowdown in economic expansion and rising prices -- embarked on a two-year study of economic growth and inflation in which the administered prices debate gained a thorough airing and the JEC pressed economists to tell them how to boost growth (McMannon 1997; Stapleford 2009, 305-308).

Overall, the hearings repeated themes (and participants) from the debates of the late 1930s, but complaints about inadequate statistics now found a new prominence. Several economists argued that existing macroeconomic data systematically understated growth and overstated inflation because of their inability to capture the full effects of innovation, especially in the form of new products and extensive quality improvement (Stapleford 2009, 308-310). Accordingly, a JEC staff report based on the hearings recommended that the government “improve the design of…price indexes so that they would more accurately reflect quality and productivity changes and the introduction of new products” (U.S. Congress. Joint Economic Committee 1959, 109).

It was in this context that the U.S. Bureau of the Budget commissioned the NBER to review federal price statistics, in turn leading to Zvi Griliches’ revival of hedonic price indexes. The NBER chose University of Chicago economist George Stigler to lead its review; Griliches (then at Chicago) was not a member of the committee itself but contributed his work as a staff research paper. Not only did Griliches resurrect Court’s hedonic approach, he chose the very same product for his study: automobiles. The precise motivation for this choice is unclear (though the availability of data and the common citation of automobiles as exemplars of quality change may have been key determinants), but it is evident that the NBER committee was aware of the renewed debates over administered
prices, including the critiques of the automobile industry. Griliches referred to the hearings of the Kefauver anti-trust committee in his paper (e.g., Griliches 1961, 192-195), and when Stigler later testified before the same committee, he cited another staff paper from the NBER review in his critique of the administered prices thesis (Stigler 1963, 265-269; for more on the sharp conflict between Stigler and Gardiner Means over administered prices, see Lee 1999).

Of course, most hedonic studies that followed Griliches’ work had no ties (even indirectly) to the arguments over administered prices or to anti-trust issues. Rather, the key point is that a broader set of debates about economic growth and inflation in the late 1950s (including debates about administered prices) focused attention on the need to quantify the value of innovation, especially in the complex durable goods that featured prominently in the postwar economy. (Thus hedonic studies in the 1960s tended to cover items such as tractors, diesel engines, electrical goods, washing machines, refrigerators, computers, houses, and, of course, automobiles). But this was precisely the domain where expert testing data was most limited, where new models replaced old versions with little overlap, and hence where the BLS had previously accepted the need for imprecision. Attention to quantifying technological innovation in the postwar economy thus highlighted the weakest aspects of the knowledge-based approach, positioning hedonic analysis as a far more attractive solution.

**The Triumph of the Market-Based View**

By the 1960s, therefore, hedonic analysis was the best technique for a particular problem—quantifying innovation in complex durable goods—that had become increasingly salient. (Indeed, it would receive new attention from the late 1970s into the 1990s during debates about reduced productivity growth.) Nonetheless, this success does not explain why hedonic techniques became the dominant approach to quality change overall, nor why the market-based conception of quality
supplanted the knowledge-based version. Conceivably, after all, the uncritical reliance on market
demands that characterized hedonic techniques might have left them as valuable but flawed tools
within a broader approach to quality change based on the knowledge-based perspective.

To exemplify this possibility, consider the BLS reaction to the 1961 NBER report that
included Griliches’ initial paper. In 1965, Ethel Hoover and a BLS colleague, Laura Mae Webb,
engaged in a lengthy, unpublished analysis of the concepts behind the agency’s Consumer Price Index.
Hoover and Webb noted that BLS “experiments with multiple regression equations for some
household appliances” had led to “promising” results. Nonetheless, the agency remained committed
to “performance” as the basis for quality analysis, and indeed the report suggested that if
“performance evaluation” could be extended, then “market prices as a basis of [quality] evaluation
should then be discontinued.” As an example, Hoover and Webb described how muslin sheets
performed equally well as “decorated percale sheets” on “laboratory tests” of durability, and thus
both should be treated as equivalent in quality despite the substantially higher price of decorated
percale (Hoover and Webb 1965, 19-21, 27-28).

If the “promising” results of hedonic analysis alone were not sufficient to overthrow the
knowledge-based approach, then perhaps the rationale lies in the growing dominance of neoclassical
economics in the postwar era (Morgan and Rutherford 1998). Undoubtedly, labeling regression
analysis of prices and characteristics as “hedonic” positioned it as the appropriate approach to
quality change for neoclassical economists. Yet the link between hedonic techniques and neoclassical
microeconomics was by no means clear, and even Griliches later acknowledged that hedonic indexes
did not have “an unambiguous welfare interpretation” (Ohta and Griliches 1975, 326; Banzhaf
2001). Moreover, nothing in neoclassical theory per se forces economists to assume that consumers
have adequate access to appropriate information about products. Neoclassical theory, in other
words, is not intrinsically bound to the market-based conception of quality.
To understand the demise of the knowledge-based approach (and thus the sweeping success of hedonic price indexes), I think we must turn to the erosion of the ties between economics and the consumer movement in America. A full account of this transformation would require another essay, but we can highlight at least three factors. First, somewhat paradoxically, the success of the interwar consumer movement meant that a substantial amount of information about product quality was now available to consumers both through standardized labeling and fee-based services such as Consumer Reports. This availability made it easier to incorporate quality into theories of the “economics of information” as pioneered by George Stigler: presumably, a rational consumer would expend both time and money to search for information about quality insofar as the benefits exceed the costs. In this respect, consumer ignorance about quality ceased to be an active problem for economists, since in general terms it could be included within standard economic theory (Stigler 1961). Quality information, ironically, also became a resource for hedonic analysis, which required data on product characteristics for regression analysis: for example, Robert J. Gordon’s major hedonic study of durable goods drew substantially on studies from Consumer Reports (Gordon 1990).

Second, the collapse of home economics as a reputable scholarly discipline in the postwar era proved to be a crippling blow to ties between economists and the consumer movement. Home economics had been the primary academic home for product testing and evaluation of consumer goods; moreover, it had supported female economists and created a unique institutional base for a female-led version of consumption economics with close links to the consumer movement, including women such as Hazel Kyrk, Elizabeth Hoyt, Margaret Reid, and, of course, Faith Williams. By the 1960s, this institutional base had disappeared.

Third, by the late 1940s, right-wing efforts to tie the 1930s consumer movement to the Communist Party (CP) had taken a devastating toll. Many members of the interwar consumer movement—especially those who pushed for greater government regulation and oversight—were
also part of the broader “Popular Front” of the late 1930s (which included CP affiliates), and some consumer advocates were CP members. Beginning with the Dies committee investigations in the 1930s, business groups and right-wing activists used these connections to undercut consumer activism in the federal government. By the end of the Second World War, the most politically-active, grassroots consumer organizations such as the NCL or the LWS had crumbled after repeated anti-communist attacks. Moreover, government officials who had been involved with the consumer movement were hounded by veiled or explicit charges of communism. Caroline Ware, for example, was investigated by the FBI for several decades and found it impossible to land a permanent government position (Storrs 2006).

In general, the most important technical contributions to the literature on quality change in price indexes during the last three decades of the twentieth century came from economists focused on analyzing growth and productivity in technologically innovative contexts (Stapleford 2009, 331-332). By Griliches’ own account, for example, his pursuit of hedonic indexes developed primarily from his interest in “the measurement of productivity and technological change” (Griliches 1964, 382; cf. Banzhaf 2001). The effective use of hedonic indexes has not been confined to high-technology areas, of course: the earliest and perhaps the most consequential adoption of hedonic techniques came in real estate economics, including housing price indexes (e.g., U.S. General Accounting Office 1981). Yet the crucial point is that few (if any) of the economists working in these areas had substantial ties to the later consumer advocacy movement.

It may seem ironic that the rise of hedonic price indexes, wherein quality is defined strictly through empirical study of consumer preferences, would be associated with a break between economists and the consumer movement. Yet, as I suggested in the introduction, although a focus on consumer preferences seems to valorize consumers (they, not self-appointed experts, are the only meaningful judges of quality), it also resonates with a producer-oriented perspective. For producers,
the ability to charge a higher price is ultimately the most meaningful measure of quality innovation in retail products. For those who share the interwar consumer movement’s skepticism about the average person’s access to detailed product knowledge at the moment of purchase, quality change remains a more ambiguous process.
Notes

1 In this respect my view contrasts with Spencer Banzhaf’s (2001) emphasis on the continuity between hedonic analysis and older approaches to quality (e.g., that both treat quality change primarily as repackaging of characteristics). Our accounts are not incompatible, however: Banzhaf is studying the process for quality-change adjustments (repackaging) whereas I am focused on definitions of “quality.”


3 The link between hedonic indexes and microeconomics was strengthened by Kelvin Lancaster’s 1971 reformulation of consumer demand theory in terms of the “characteristics” of goods; see Triplett 2006 for details. That connection is implicit in the description of hedonic indexes given earlier.

4 Stigler makes several suggestive comments in this vein at the end of his article, though he also states that “quality has not been successfully specified by economics” (224).

5 Gordon did not rely on the group’s rankings of products but on the physical details provided in the product descriptions.

6 The full account of this network has yet to be written, but for a summary analysis, see Stapleford 2007, 422-424.
References


