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# *THE AMERICAN AUTOMOBILE FRENZY OF THE 1950s*

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# Abstract

A pronounced cycle of car sales in the 1950s is explained in terms of styling competition and consumer preferences. An oligopolistic industry concentrated on non-price competition, and responded to perceived consumer demand for styling and status, with an accelerated product cycle. Demand was shifting from higher price-and-status models, to the feature-loaded high end of 'low-price' models. This suggests a consumer preference for sensual gratification rather than status. But feature competition was eventually constrained by the physical limitations of car size and power, which created a competitive impasse. Upwards feature drift also opened up a gap at the bottom of market. This gap was invaded by imports. Consumer feature fatigue was expressed in buyers' strike in 1958, but Detroit responded nimbly with the new compacts in 1959. There is also evidence that rapid depreciation of new cars, explained by Akerlof in terms of a 'market for lemons' is also found in used cars sold by dealers, and is likely torepresent the value of dealer and warranty services.

# THE AMERICAN AUTOMOBILE FRENZY OF THE 1950S[1]

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# The American Automobile Frenzy of the 1950s

AVNER OFFER

> The test of your generation will not be how well you stood up under adversity, but how well you endured prosperity.
>
> (Robert McNamara, General Manager of the Ford Division; commencement speech at University of Alabama, 29 May 1955)[1]

The American passenger car of the mid-1950s was a marvel: a long, low, powerful, chrome-lashed barge on wheels. This chapter seeks to explain its emergence, its popularity, and its crisis, all in the space of seven years. Peter Mathias pioneered the study of consumer goods industries. This chapter carries his quest across the Atlantic. It examines American car dynamics as part of a larger study of the economic determinants of well-being.[2]

After ten years of short supply, American-made new cars took off with 6.1 million sold in 1953, reached a peak of 7.9 million in 1955, and fell to 4.2 million in 1958, thus completing a short trajectory which remains engraved in American national memory.[3] This study draws on new data for a new interpretation: that supply-side pressure of style competition, and consumer demand for sensual gratification, combined to generate a *frenzy*, defined here, informally, as a quest or a craving that has run out of control. It strives to explain how the 1950s car emerged as the great promise of affluence, and ended up as its first disappointment.

## STYLING COMPETITION

In 1953 the industry was concentrated. The 'Big Three', Chrysler (20 per cent) Ford (25 per cent) and General Motors (45 per cent), together supplied about 90 per cent of all new cars sold in the USA. Their oligopoly was not cosy. Its tensions originated in the 1920s. In response to Henry Ford's simple, cheap, and unchanging Model T, which at one point captured more than 50 per cent of the market, General Motors (GM) began to offer variety, in two forms: first, a hierarchy of models designed 'for every purse and purpose', and secondly, a policy of 'change means

progress', an annual 'face-lift' which relegated older models to stylistic obsolescence.

Annual redesign was a Faustian bargain, which committed the industry to a quest for eternal youth. Buyers could be cruel. Car makers remembered how Chrysler, an innovative newcomer in the 1920s, shot up from 10 per cent to 26 per cent of the market in five years. In 1934, it introduced a streamlined 'Airflow' design with great fanfare, but the novelty did not catch on, and growth stalled. The ordeal quenched the company's spirits for two decades. Ford came from behind and overtook Chrysler, on the strength of a single styling breakthrough, its 1949 model.[4] The chairman of General Motors had written in 1941, 'today the appearance of a motor car is a most important factor in the selling end of the business, perhaps the most important single factor'.[5] By 1954, American car makers regarded styling as 'the most significant factor in creating the desire to buy', and this belief persisted.[6]

Style change was not a trivial undertaking. In the early 1950s, a design took one to two years to finalize, and tooling took another two. Over the model's three-year life cycle, there would be two additional 'face-lifts' (Fig. 12.1). Early on the cost was modest, but competition drove it up. New tooling costs rose from $19 per car in 1952, to $147 in 1957; or from 1.3 per cent to 7.8 per cent of the average wholesale price.[7] In 1957, an entirely new car model was expected to need prior investment in styling, engineering, tools, and launching (but not production facilities) of about 7.1 per cent of planned life-cycle gross revenues.[8] The sequence of style changes is shown in Table 12.1.

Product planners had to anticipate car-buyer preferences three or four years in advance. Some of the smaller companies could not stand the pace. Five 'independent' producers disappeared between 1946 and 1974, and only one (American Motors) remained. Among the Big Three, market shares fluctuated substantially from year to year, in inverse relation to size. The market share coefficient of variation in the 'low-priced' field was 13.3 per cent for Chrysler, 7.8 per cent for Ford, and 6.2 per cent for GM (table 1). Over the industry as a whole fluctuations were greater. For Chrysler, the coefficient of variation over 1946–74 was 24.2 per cent, for Ford it was 12.2 per cent, and even for General Motors, with an average market share of 46 per cent, it was 8.4 per cent.[9] A better measure of risk is the variance of return on assets. Over the period 1954 to 1959, the profit attributed to the Ford car varied almost six times as much as its market share. Motor executives experienced this risk as serious mental strain.[10]

Car use was based firmly on necessity. Ever since the 1920s, American daily life had fragmented geographically, as the territories of home, work, shopping, education, government, and recreation drifted long distances apart, linked together only by a journey behind the wheel of a private car[11] In 1951, 73 per cent of American households owned cars,

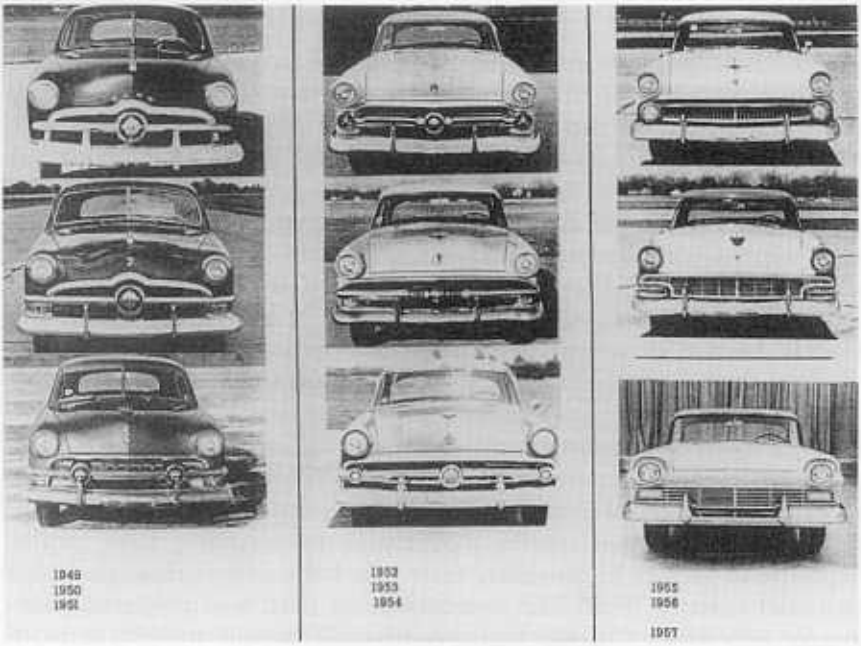


FIG. 12.1. (a) Ford model changes and face-lifts, 1949–1957

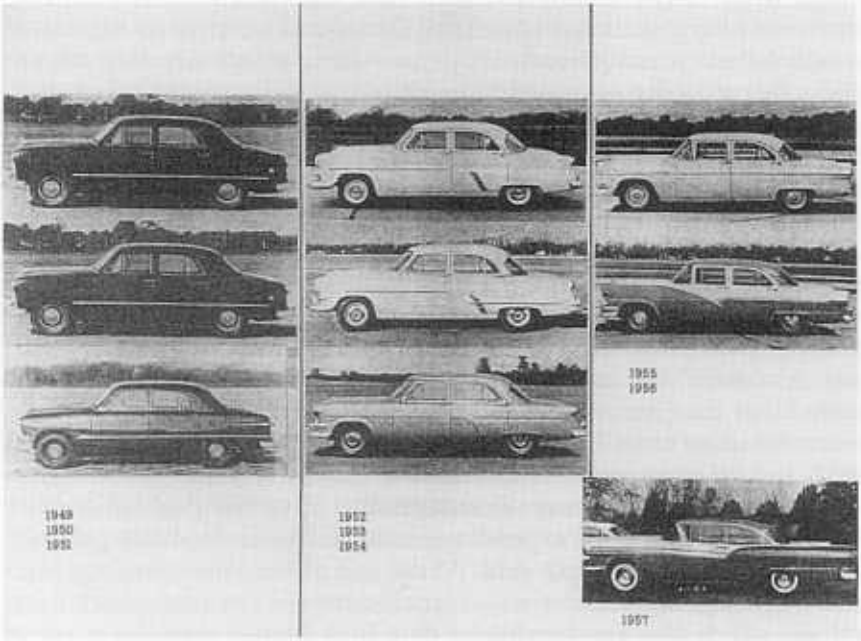


FIG. 12.1. (b) Ford Sedans, 1949–1957, side view

*Source*: Ford Central Marketing Staff, 'Product Philosophy Report', Document 1a. Summer 1957, Walter Ream Papers, AR-88-108159, Ford Industrial Archives.

59 per cent of workers used their cars to travel to work, and 68 per cent of cars were used for this purpose.[12] Eighty-five per cent of inter-city travel was in private cars.[13] Consequently the demand for cars came to reflect the demographics and performance of the whole economy. It was determined by income, new-and used-car prices, existing stocks, interest rates, and consumer demographics. This was understood and applied with some success by manufacturers, guided by academic economists, to predict the demand for cars.[14] But these models of aggregate demand had nothing to say about the market shares of individual makes and models. Market share was determined in the dimly perceived areas of consumer motivation, preferences, and satisfactions.[15]

Big Three strategy was guided by two objectives: to prevail in the product design competition and to contain its risks. Risk was held in check by several different methods. The Big Three avoided competition on price, which could eliminate profits and even drive the weakest out of business.[16] In other words, they strove to maximize joint profits. Exposure to swings in consumer taste was reduced by offering a range of model variants. Ford had twenty-four in 1952, and projected sixty-five for 1959, while Chrysler had seventy-seven models in 1957, and GM eighty-one.[17] Model proliferation was offset, to some extent, by the limited number of underlying body types. GM had only three for its whole range, while Chrysler used only one.[18] The Big Three had identical contracts with the United Auto Workers. Occasionally, company executives would collude to curtail competition, as when they tried to stop corporate stock car racing sponsorship in 1957.[19]

The largest stabilizer of market share was the attachment of consumers to particular brands. In 1953, 69 per cent of owners intended to buy the same make again.[20] Even a giant company like Ford found it difficult to challenge brand loyalty. Despite massive efforts, it never managed to gain mid- or up-market acceptance in proportion to its total market share, and remained confined largely to the 'low-priced' field.

Advertising was more of a risk-containing than a competitive measure, designed primarily to reassure existing owners rather than to capture new ones.[21] Car advertising outlays shot upwards after the shortage period. For the Ford Motor Company as a whole, advertising and sales promotion rose from 1.1 per cent of sales in 1953, up to 2.0 per cent in 1957, and 2.6 per cent in 1958. This is an understatement, since dealers also spent their own money. Dealer product advertising added another 30 per cent to company expenditure, and their own-business publicity no less than another 30 per cent. At the end of the 1950s, the total level of advertising expenditure was approximately 3 per cent of retail car values, which was comparable to or a little higher than the share of advertising in gross national product (GNP).[22] Ford Motor Company's total advertising and promotion expenditure per car (in 1953 prices) was $23 in 1953, rising to $51 in 1957, and $72 in 1958.[23] Ford output was

TABLE 12.1. *Style changes and market shares in the 'low-priced' field, 1954–1959*

| Year | cars sold (m.) | *Chevrolet (GM)* Style change | Market share (%) | Style change | *Ford* Market share (%) | Return on assets (%) | *Plymouth (Chrysler)* Style change | Market share (%) |
|---|---|---|---|---|---|---|---|---|
| 1954 | 3.8 | 1 | 44.06 | 1 | 43.54 | 19.0 | 1 | 12.49 |
| 1955 | 3.9 | 4 | 45.41 | 4 | 37.31 | 28.5 | 4 | 17.28 |
| 1956 | 3.4 | 2 | 44.84 | 1 | 40.72 | 12.4 | 2 | 14.44 |
| 1957 | 3.5 | 3 | 40.04 | 4 | 43.17 | 16.1 | 4 | 16.79 |
| 1958 | 2.6 | 4 | 48.59 | 2 | 35.96 | 5.5 | 1 | 15.45 |
| 1959 | 3.2 | 4 | 44.87 | 4 | 42.25 | 22.3 | 3 | 12.88 |
| coefficient of variation | | | 6.2 | | 7.8 | 46.1 | | 13.3 |

*Notes*: Style change legend:

4 = completely new body shell;
3 = all new sheet metal;
2 = some new sheet metal;
1 = grille, tail lamp, trim changes.

Market share: 'Big Three' excluding other manufacturers.

*Sources*: R. Sherman and C. Hoffer (1971), 'Does Automobile Style Change Payoff?' *Applied Economics*, 3: 153–65; F. G. Secrest, 'Company-Wide Operating Profits and Returns, 1954–1963', 28 Jul. 1960, Attachment B, No. 4. (Ford car only), McNamara papers, AR-66-12:4, Ford Industrial Archives.

weighted towards the low-priced end, so its spending would have been on the low side. Critics of the styling race fussed over advertising as an instrument of consumer manipulation.[24] But advertisers, on the whole, were merely communicators of styling decisions, not their creators.[25]

When it came to competition, one gambit was to steal a march and to shorten the model cycle (Table 12.1). Ford reduced the cycle from four years to three in 1952. In 1953 General Motors, which had been running a three-year cycle, went down to two. After losing leadership to Ford in 1954, Chevrolet was able to produce a winner in 1955. But the gain was short-lived: in 1957 General Motors was wrong-footed by Chrysler, which added soaring fins to its 'Forward Look' models of 1955. In response, GM rushed into a crash revision of its 1959 models. In consequence, the 1958 models were only offered for one year. In the space of one decade, General Motors had shortened its model cycle from three years to one, while Ford had taken it from four years to two.

Sherman and Hoffer have identified the main components of styling change, and have estimated their contribution to market share. Styling changes could increase market share (Table 12.1), but in profit terms, for the mass-produced low-priced makes, investment in styling fell just short of breaking even. For the high-priced makes, Cadillac, Lincoln, and Imperial, styling change incurred very big losses, amounting to tens of millions of dollars.[26] Lincoln, acquired by Ford in the 1920s, had never made a profit, and even combined with Mercury, the mid-priced car,

the joint division made a loss every year between 1956 and 1959.[27] The Big Three styling efforts negated each other and the frenzy of design changes merely allowed them to run faster in order to remain in the same place.

## THE DOMINANCE OF THE STYLISTS

Style could not be quantified, was difficult to explain or even to describe. However constrained by technology and tastes, it remained a matter of creativity and intuition. Paradoxically, a rigid, capital-intensive, tough-minded metal-bashing industry, the largest in the USA, came to depend on its artistic, romantic, 'right brain hemisphere'. More prosaically, styling was fashion competition, and Detroit made a big commitment to marketing. The chief stylists at GM and Ford were not articulate.[28] Their leadership had an oracular quality, with every new design something of a leap in the dark. They were surrounded by mystique, and reported exclusively to the head of the company.[29]

At GM Harley Earl approached the end of a career which stretched back to the 1920s. He controlled a secretive system of studios where designs were sketched up and transformed into full-scale clay models. The adoption of the all-steel body in the late 1930s gave the stylists an exceptional freedom of expression.[30] They experimented with full-scale clay models, in an effort to endow the car with a distinctive 'personality' that would make it recognizable as an individual, but also as a member of a family of ancestors and relatives. A crucial element was the distinctive 'face' of the car, made up of its headlight-eyes and the silver grimace of its grille. The experimental 'Y-Job' of 1936 resonated in the postwar Buicks, with their bulbous curves and chrome-plated 'dollar grin'; it percolated through the whole GM range from the expensive Cadillac to the 'low-price' Chevrolets.[31]

Every decade of cars has its distinctive silhouette. Seen from the back, the 1930s vehicle was a boxy rectangle, standing about as tall as an average man; from the side, it flirted with streamlining, conveyed a strong sense of direction and power, and was mounted by way of a running board. It was black, grey, or metalled green. The car of the mid-1950s was more garishly coloured in reds, blues, salmon, and white, often two-toned, and ornamented with chrome. The average woman could look straight over it and had to stoop to enter. Once seated, she found her knees pushing up, and in the middle rear position, had to straddle a high ridge which contained the driveshaft. In contrast with common views, the 1950s car was not a great deal longer or wider than its predecessors of the 1940s. If it looked longer and sleeker, that was mainly because it had lost up to a foot in height.[32]

'Modern' industrial design was driven by the ideal of bringing form into harmony with function. Modernism was an aesthetic of purity, a rejection of ornament. In the USA, several industrial designers, especially Raymond Loewy, expounded this aesthetic, albeit in adulterated form.[33] In truth, it was an arbitrary ideal, since pressed steel and extruded plastic were quite flexible in comparison with iron and wood.[34] Modern movement austerity never really agreed with American popular taste. Loewy inspired the simple, slab-sided lines of the 1947 Studebaker car, which in turn was the direct progenitor of the pivotal 1949 Ford.[35] But Loewy never worked for the Big Three.

At General Motors, Harley Earl ignored the modern movement. This was not provincial insularity. He visited Europe every year, and had a leading school of modern design on his doorstep.[36] His cars deliberately *separated* form from the transport function: they had oversized curves, non-functional grilles, fake portholes; as a subordinate remembered, in Earl's designs, 'everything was like an overstuffed couch'.[37] In the 1950s he added gaudy colours, soaring fins, and more chrome. In fact, these cars' design was in line with their true function, which was to express a fantasy of affluence, luxury, sensual delight, and power that would make them appeal in the showroom. This aesthetic is no easier for me to put into words than it was for Earl, a man who was notoriously incapable of talking about his designs (or for that matter, of drawing them himself). The basic clue, I think, lies in Earl's early origins as a designer of custom car bodies for the Hollywood élite. His cars strive for a glamour akin to that of the Hollywood movies, in which everyone is rich, handsome, and talented; an ambience echoed in automobile advertising. Earl's aesthetic was original, as distinctively American as jazz. He was a post-modernist before his time, reaching promiscuously for disparate inspirations, an artist whose sculptured steel creations poured in their tens of millions onto streets and highways. Blending well with affluent suburbia and with 'Main Street' at night, the assertive Detroit car was often incongruous in more workaday, or countryside environments. Its natural habitats were the television commercial and the dealer's floor.

The models of 1954–5 had been three years in the making. Appearance-wise, they broke with the simplicity of postwar designs. They were long, low, powerful, colourful. Sales levels were 45 per cent greater than in the two surrounding years, and have challenged econometrics ever since.[38] Chow's model, which predicts new-car sales on the basis of income and price, breaks down for 1955; output rose more than a million units above the predicted level.[39] This confirmed for the stylists that they were on the right track. In laying down their sketches for the next model cycle (1957–8), they specified more of the same.[40]

That these machines expressed a distinctively American conception of motoring is shown by their poor acceptance abroad. In the 1950s the

USA was the largest industrial power, with a big lead in productivity. The car industry had large excess capacity. But demand for American cars overseas was limited. In 1959, the USA imported almost six times as many cars as it exported (which amounted to 116,520 cars, some 2 per cent of its output). In the same year, Germany and Britain exported more than five and seven times that number respectively, around half of their output.[41]

## CONSUMER SATISFACTION

The new-car buyer had to pay a big premium. It cost a great deal more to run a new car than a used one. For an average Ford car in 1957, the first-year cost in depreciation was $735 as against $331 in the second year.[42] Assuming that new car and year-old cars provided transportation of nearly equal quality, what was the premium for? Over and above its value as transport, a new car provided two kinds of satisfaction: it signalled the owner's status, and it provided an increment in sensual gratification. Which of the two was paramount? Customer choices indicate a surprisingly clear-cut preference for sensual over status gratification.

New cars are visible. Early in the model year they form a tiny but very distinctive fraction of the total stock. They are expensive, and thus provide a credible signifier of status. In American society, where competition was acclaimed, and where other signifiers of social rank were weak, car ownership was an effective way of communicating social standing. Robert McNamara recalled, that

> Most product offerings could be readily understood or categorised along a simple vertical price or size and status scale . . . Ford and Chevrolet were at the bottom . . . whether measured by size, price or implied social status. Medium price cars such as Mercury, Buick and Oldsmobile fell in the middle of the scale, and Cadillac and Lincoln were at the top.[43]

Americans understood and accepted the hierarchy of cars.[44] With unlimited money to spend, by far the largest group in one survey (35–41 per cent) said they would purchase a Cadillac.[45] Each particular make had its distinctive 'social image'.[46] Ford market research arranged car models along a sequence which stressed expressive attitudes more than social class. It ran from 'hot rodders', through fast drivers, sporty people, young-minded, show-offs, loud-talkers, economy-minded, and community leaders, to 'dignified people'.[47] A wry advertising man wrote that in comparison with the newly rich lower-upper class, the upper-middle class (i.e. managers and professionals),

> buys for the same driving reasons of prestige and social status, and spends much of its time observing the Joneses and making sure it keeps up with them. It exhibits an unbridled passion for what is new, which leads it to buy and dis-

card things constantly . . . Little or nothing is saved, for the upper middles characteristically live close to the end of their incomes . . . They would never dream of owning a Cadillac before a prior spell with a Buick. The neighbors and friends might think them 'pushy'. Nor would they drive around in an old Ford and run the risk of being thought a failure.[48]

The focus on the upper-middle class is right. Between 1953 and 1960, 49 per cent of new cars were purchased by the top income quintile; this group also tended to buy the more expensive cars, so that it accounted for a great deal more than half of the *value* of new cars. The top two quintiles purchased 73 per cent of new cars.[49] In American society, a new car was largely for the better off, and the ambience of affluence in car advertising is appropriate. It would thus be easy to conclude that cars were bought for social distinction. But that does not follow.

The second motive for new car purchase is the expected increment in sensual gratification. There is pleasure in gleaming paintwork, in the smell of new seats, the thunk of a heavy door, the purr of a willing engine. More subtle pleasures need a poet to celebrate. Here is an ode to a Buick:

> As my foot suggests that you leap in the air with your hips
> of a girl,
> My finger that praises your wheel and announces your
> voices of song,
> Flouncing your skirts, you blueness of joy, you flirt of polite-
> ness,
> You leap, you intelligence, essence of wheelness with silvery
> nose,
> And your platinum clocks of excitement stir like the hairs of
> a fern.[50]

The 1950s models offered a new appearance, for sure, but also new levels of appointment and performance. The most important attribute was a great surge of horsepower. Average horsepower of the four Buick models doubled from 138 in 1952, to 283 in 1958 (Fig. 12.2).[51] Ford increased its horsepower in the same proportion, from 105 to 214.[52]

Only some of the power was absorbed by additional weight. The Buicks increased in weight only by some 10 per cent as power doubled, and that was typical of the average car.[53] The 1950s car followed three other lines of development. One was effort-saving, another the pursuit of sensual optimality, the third enhancement of appearance. Effort-saving devices included power steering, power windows, power brakes, power-adjusted seats, retractable roof, and automatic transmission. Sensual comfort was sought by means of a heater, tinted glass, air-conditioning, radio, and powerful engine options. Appearance was enhanced by white-wall tyres, dual headlamps, two-tone colour schemes, and body-type options (hardtop, convertible).[54] Buyers could choose to specify a more

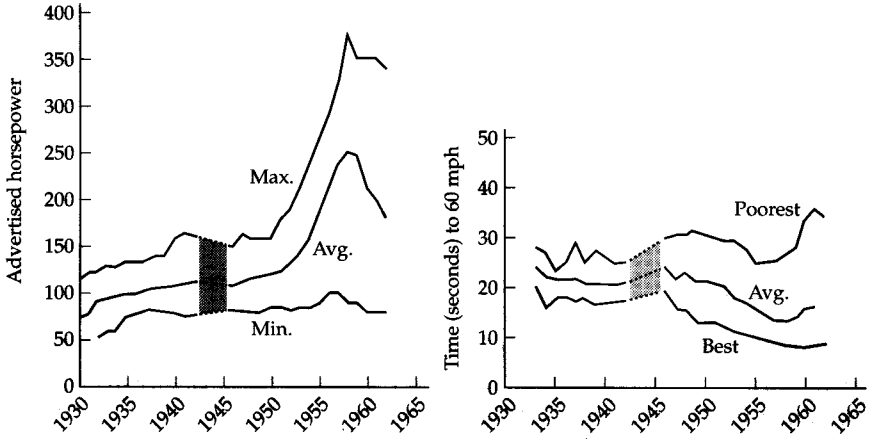


FIG. 12.2. Power and performance indicators, American cars, 1930–1962

*Source*: K. A. Stonex (1962), 'Trends of Vehicle Dimensions and Performance Characteristics', *Society of Automotive Engineers*, No. 539A, June, figs. 7, 1: 2, 4. Reprinted with permission, © Society of Automotive Engineers, Inc.

expensive package of accessories, buy some of them later, or buy a more expensive car which included them as standard.

List prices rose by about a third during the decade. Griliches has estimated that more than 90 per cent of the price rise could be explained by added features.[55] If one accepts this interpretation, then a simple measure of upwards 'feature drift' is to compare an index of the average wholesale price of a Detroit car with the new-car price index of the Bureau of Labor Statistics (BLS), which was derived from the basic 'low-priced' models. The BLS price index may be regarded as a baseline (itself moving upwards) while the average wholesale price may be regarded as a weighted average price, which takes into account the shifting mix of attributes. The two indices moved together from 1950 to 1954; in 1955 the average price jumped to 114 per cent of the BLS index, rising to a peak of 122 per cent in 1957, before falling back to 115 per cent in 1960. This suggests a shift in the product mix towards better-equipped cars up to 1957. Mid-1950s buyers wanted 'more car per car'.[56] This is also shown in Figure 12.3.

Figure 12.3 might suggest that customers, motivated by status, were moving up-market. In fact, the movement was the other way, from the mid-priced makes, into the low-priced category. But *within* the low-priced groups, the shift was from the 'stripped' basic models towards the more highly specified ones. Buyers were moving from the Buicks to the Chevrolets, from the Mercury to the Ford; but buying a more expensive, more highly appointed 'low-priced' model. Both Chevrolet and Ford introduced enhanced model lines alongside the basic ones. In consequence, the share of the mid-priced models declined sharply, from

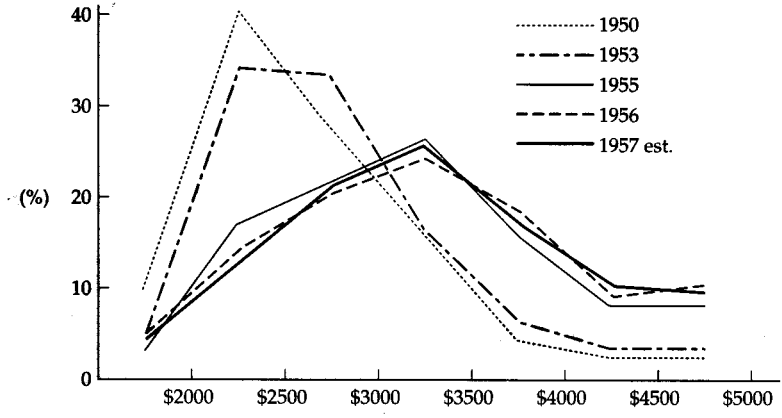


FIG. 12.3. Distribution of new-car expenditures, by price class, 1950–1957

*Note*: Constant 1957 prices, deflated by Bureau of Labor Statistics New Car Retail Price Index.

*Source*: Ford Division Programming, 'Economic Factors Related to Industry Volumes and the Medium Price Market' (14 Sept. 1957), exhibit X, Wright papers, AR-75-15565:23, Ford Industrial Archives.

40 per cent of the market in 1955, down to 22 per cent in 1960. In 1957, the 'low-priced' Detroit cars captured 60 per cent of the car market.[57]

Buyers chose the high-end low-priced car, and not the low-end medium-priced car. The reason was that expensive cars had lost most of their feature advantages over the cheaper ones. A Ford's engine could be as big as a Cadillac's, and its body almost as large (Fig. 12.4). In 1957 Cadillac had no design features that were exclusive to it, and only three trivial items that were not available on the Ford.[58] All that expensive cars could offer now was status, but the buyers' revealed preference was for features.

American cars had become remarkably similar. What was the reason? General Motors, which covered the whole price range, had a strong incentive to differentiate its models clearly. Ford, which made mostly low-priced cars, was not constrained in the same way.[59] It therefore pushed to upgrade its models and this forced Chevrolet, its direct competitor and the largest single brand, to do the same. Within the 1950s Harley Earl form factor (the low, long barge), an upper limit was imposed by road width, and by usable power. The absence of price competition also weakened the manufacturers' incentives to differentiate. Instead, as predicted by an adaptation of Hotelling's spatial theory of monopolistic competition, they crowded onto the same terrain and introduced very similar products. The firms wanted to locate their products 'where the demand is', that is, in the central area of middle-class American taste.[60]

What buyers wanted, it seems, was not personal distinction, not status gratification, but sensual gratification. This was understood by the

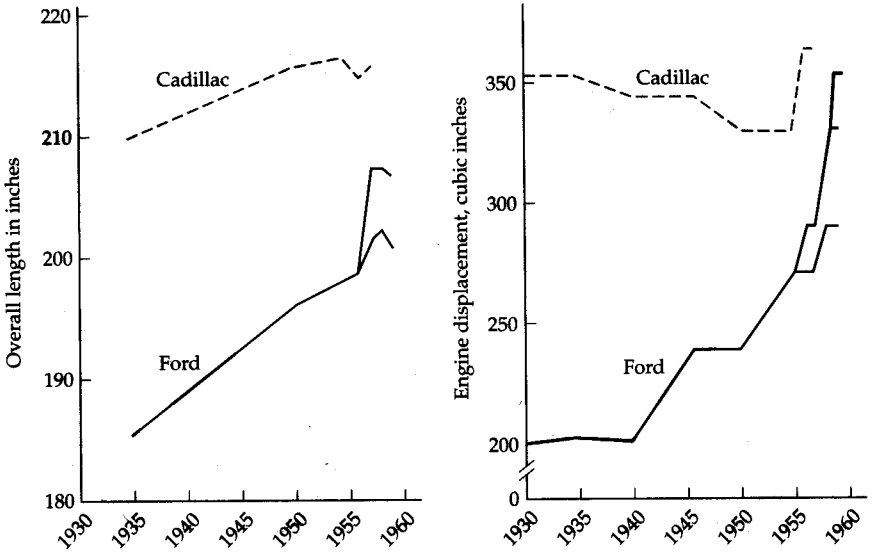


FIG. 12.4. Power and size comparisons, Ford and Cadillac, 1930–1959
*Note*: Eight-cylinder engines except 1930 Ford, which is four-cylinder.
*Source*: Ford Product Planning Office, 'Economy Car Study: Preliminary Report' (15 July 1957), fos. 3–4, AR-94-200777-5, Ford Industrial Archives.

industry: the convergent specification was dubbed 'The Classless Car'.[61] Ford advertised 'A Fine Car at Half the Fine-Car Price'.[62] Unlike the Model T (the previous 'classless car'), its 1950s descendants stressed luxury over utility. But by taking all cars near the top of the feature range, the Big Three were storing up trouble for themselves.

An insight into their problem is provided by Scitovsky's distinction between 'comfort' and 'pleasure'.[63] Each of these states represents a relationship between an input of stimulation and an output of satisfaction. 'Pleasure' is a dynamic state of rising satisfaction. 'Comfort' is an *optimal* state of stimulation, one which cannot be improved upon. Both states are positioned on the 'Wundt curve' (Fig. 12.5), which represents a stylized empirical relation between stimulation and satisfaction.

Now the two states are not commensurate with each other. Comfort stands highest on the hedonic scale, but is not a stable condition. It is satiated quickly by habituation. Pleasure starts lower on the hedonic scale, but can be sustained by periodic infusions of novelty and uncertainty. It is a state of sustained satisfaction, albeit short of climax. Comfort, like a hot bath or the end of a good meal, is an experience of immersion and abandon. Pleasure, in contrast, is a state of restraint, anticipation, and progression. These are two distinct hedonic ideas. 'Comfort' is being, 'pleasure' is becoming.

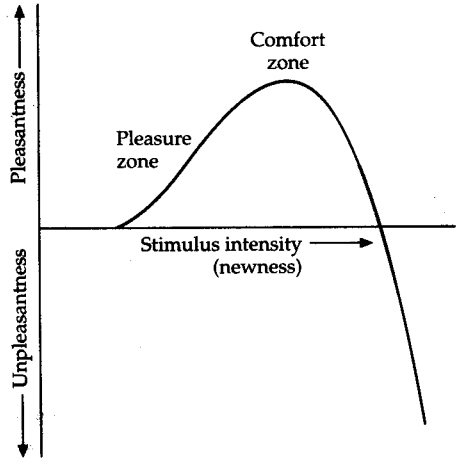


FIG. 12.5. The Wundt Curve

*Source*: Adapted from Tibor Scitovsky (1992), *The Joyless Economy*, rev. edn. (New York), fig. 1: 35.

Faced by the Wundt curve, consumers aimed for 'comfort': 'Every consumer replies that he has more H.P. than he needs, but then he turns right around and buys a car with yet higher H.P', reported the market surveys.[64] Scitovsky suggests that this preference for 'comfort' is pervasive in American culture. The American car was designed primarily for comfort, insulating its driver from the frictions of travel. Its steering, suspension, brakes and noise level were all designed to be 'softer' than European equivalents.[65] Americans opted for automatic transmissions, which were generally shunned in Europe. The logic of 'change means progress' drove competing manufacturers up the Wundt curve. The feature-rich 'classless car' crowded them all into the 'comfort' zone, with nowhere further to go.

It was assumed that General Motors set the norms in styling, and that everyone followed.[66] In fact, styling permitted genuine competition. American Motors refused to join the weight-and-power escalation. Chrysler defied it in 1953 and took a beating the following year. It gambled again in 1957, and shook Detroit with its soaring fins. Chrysler gained three percentage points of market share while GM lost six.

General Motors designers were already too far into the 1958 model designs to allow any changes, but decided on a completely new line for 1959 which took fins to fantastic extremes.[67] For GM designers this was a time of panic. Established routines were short-circuited and designers worked overtime, directly in clay.[68]

[Chrysler] came out with some fins that were a foot and a half over the fender crown lines, and that put fear in the G.M. design staff, so we did wild

fins, rockets, and tubes. I often sat back when all of this was happening and wondered where we would go from there, because that was pretty far out... Recently, I happened to [see] a vehicle on a lawn with a For Sale sign on it. It was the 1959 Chevrolet with the wings and the oriental eye shapes for taillamps, and it is bizarre and gross-looking by today's standards.[69]

Each of the Big Three had scores of model variants. All of them received a face-lift every year. Trucks, tractors, and overseas cars also demanded attention. Each design emerged from an array of false starts. At such a pace of styling change, product planning and approval became a big drain on management effort.[70] At Ford, for example, the three main product approval committees included the very highest executives, together with hordes of advisers, all mulling for hours over the shape of the rear lights. Every week or two they attended a styling extravaganza in which another array of prospective models were presented in life-like painted clay, often with a complement of competitive models.[71] The archive boxes are full of glossy photographs, with endless permutations of indifferent design. A Ford stylist remembered the 'horrendous experience' of feverish proliferation, which 'proved taxing to the design office'.[72] A junior designer at GM recalled those years,

It wasn't design; it was very superficial, fashion-oriented activity... It is such a transitory kind of industry. When you know that everything is going to be replaced in three years, it is hard to take what you are doing seriously. And we weren't building good products either. I mean that was the era of the '59 Chevrolet... They were constantly searching. It wasn't for something pure or elegant. It was for something attention-getting, unique, and distinctive. But distinctive didn't have to particularly mean quality. It just had to be different. So, in the constant push for something new, it often became bizarre.[73]

Product risk was real, and could make or break careers. In 1955, after years of prudent dithering, the careful procedures of product planning at Ford broke down, and the company rushed into a massive new product programme. A new Edsel division was set up to launch five models straddling the mid-priced field.[74] Edsel was a culmination of the movement for ornamental middle-brow styling excess. It became the biggest casualty of the new-car frenzy, and a byword for folly.[75] Jack Reith, one of Ford's high-flying management 'whiz-kids', led the campaign for its adoption. He also promoted the premium Mercury 'Turnpike Cruiser'. He failed to see the coming crisis of the mid-priced car, and both models were abandoned in 1958, shortly after their launch. Reith, only 45, left the company, and committed suicide shortly afterwards.[76]

Frequent styling played havoc with quality. A complex mechanical system takes time to settle down. The styling lurches of the mid-1950s required substantial redesigns of engines, transmissions, and suspensions. Engineering was an order of magnitude more expensive than styling.[77] Each redesign altered the balance of the system, and introduced

new faults. There was no time for 'learning by doing'. A product planner recalled, 'the engineers want it like they did it last year, because they finally figured out how it worked . . . The stylists, on the other hand in those days, [wanted it] long, low, hot, with fins, looking like it's going eighty miles an hour while it's standing still'.[78]

The Edsel acquired a poor reputation for quality; partly because it was a new design, but also because it rolled down the lines intermixed sparsely with other Ford cars, and workers never had a chance to learn to assemble it properly.[79] Warranty costs were increasing, and quality complaints were rife. Survival rates at nine years old (for all 'low-priced' makes) fell from an average 71.6 per cent for 1951 models, to 52.5 per cent for 1958 models.[80] By 1958 a crisis of confidence in the quality of Detroit cars was in evidence, and in 1959 Ford launched an internal quality campaign. To restore confidence, it extended the warranty in 1960 from three months to a year, and was quickly emulated by the other two.[81]

## CONSUMER EXPERIENCES

Producers followed where new-car buyers seemed to be leading. Feature drift meant that car prices rose faster than income, and faster than prices in general.[82] Buyers paid more for depreciation as car lives shortened. Running costs rose as bigger engines and heavier cars consumed more (and more expensive) high-octane fuel, wore out whitewall tyres, and cost more to repair and insure. Buyers in the mid-1950s surrendered a growing share of their incomes in return for the satisfactions of new-car ownership. Real running costs rose about 9 per cent for a standard low-priced three-year-old Ford car between 1954 and 1959. For the more typical shift from a basic Ford Custom 300 to a high-specification Ford Galaxy, the increase in real running costs over these five years was 31 per cent.[83] If new cars were acquired to signal solvency and status, then cost inflation was the outcome of positional competition. Such competition for positional goods is inherently futile, if everyone ends up paying more to remain in the same *relative* position. If cars were acquired for sensual gratification, that was also bound to disappoint, since there was little scope for improvement in power and size. Frustration eventually broke out in the form of a strong shift in buyer preferences, away from Detroit's high-powered 'classless car', and towards more austere transport.[84] The general contours of this trajectory can be seen in Figure 12.6.

## DEPRECIATION

Depreciation was the largest single cost of ownership. Its patterns reveal a good deal about the logic of new car purchase. This subject is shot through with misunderstanding and it is necessary to correct some

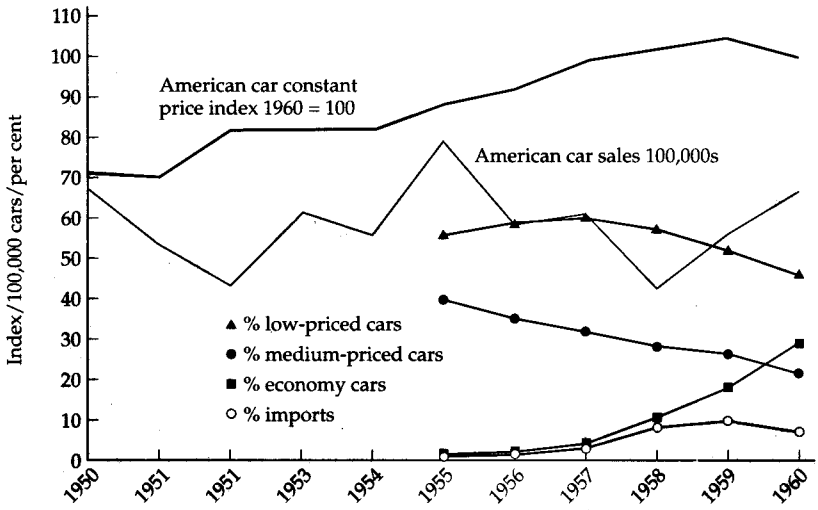


FIG. 12.6. American passenger car market volume and price indicators, 1950–1960

*Sources*: Automobile Manufacturers Association, *Automobile Facts and Figures, 1961 edn.*, 3; R. P. Smith (1975), *Consumer Demand for Cars in the USA* (Cambridge, p. 90; Ford Division Programming, New Passenger Car Registration by Price Class, 'Background Memorandum, 1961 Falcon', 9 Aug. 1960, J. Walter Thompson Review Board, Box 7/13, Duke University.

misconceptions. The starting-point is the fact that cars lose a disproportionate share of their value in the first year. There are two standard interpretations of this initial depreciation. One view is that cars lose value at a constant *rate* per year, that is *exponentially*, for example, 25 per cent or 33 per cent of the value of the previous year. Hence cars would tend to lose much more value, absolutely, in the first year than in subsequent ones.[85] Another view identifies a kink in the depreciation curve during the first year: 'new cars depreciated at almost twice the rate of used cars . . . after the first year cars appeared to depreciate at a constant rate'.[86] There has also been an attempt to reconcile the two approaches by fitting the kinked curve to an exponential one.[87]

There is something odd about this large drop in value during the first year. The attempts to explain it have a contorted feel about them, and require large departures from economic convention. Wykoff posits that new cars are a 'superior good' which commands a special premium for their 'freshness', novelty, and reliability, while Smith treats new and used cars as belonging to quite separate markets.[88] Well known is Akerlof's view (not supported by any evidence) that almost-new used cars are more likely to be 'lemons', that is, are not representative of the underlying population of assets, because only poorer quality units are sold. The immediate loss of value associated with new cars is the

discount required by buyers to compensate for asymmetric information with the sellers.[89]

In fact, it is possible to explain the course of used-car prices more simply. The error arises from the neglect of transaction costs. Wykoff assumes that cars are sold with negligible transaction costs, and this is implicit in other work.[90] This is a curious assumption to make when comparable numbers of people worked to sell cars as to make them.[91]

Every car has two prices: the retail price, and the dealer purchase (or 'wholesale') price. This applies to new cars and to used cars. There is a substantial margin between the two prices. When a buyer acquires a new car, she pays the retail price. Thereafter, its value to her is its selling price, the 'wholesale' price. Depreciation in the first year includes the dealer mark-up, and in subsequent years, if the car is not resold, it does not. When buying a car, one pays for the transport services of the car, and for the dealer's distribution services as well. In subsequent years, one pays only for the transport services. If this interpretation is correct, then two findings can be predicted: first, that used cars purchased at retail will also show a similar drop in value to wholesale as new cars and secondly, that depreciation will be exponential along both wholesale prices and retail prices, and will be of approximately the same magnitude, regardless of which one is used.

The test is large enough for us to have some confidence in its results.[92] It is carried out on the thirty-six models of the Ford Division, and on the nineteen models of the mid-priced Buick Division over a period of nine years, giving 302 depreciation observations, each comprising of four prices.[93] Two methods are used. The *vintage method* measures depreciation of 1957-model-year cars over the four *subsequent* years. The *cross-section method* measures the depreciation of models of the *previous* four vintages *in* 1957. In the first series, the prices are deflated by a retail price index. The second test does not require deflation, since all prices are observed at the same time. There is a margin of error since in both cases prices will be also influenced by 'hedonic' changes in quality, and by several other variables which are not pertinent here. Nevertheless, the results are clear-cut and robust.

The predictions are confirmed in Table 12.2. The bottom left cells indicate that retail to wholesale depreciation was approximately 41 per cent a year for cars of *all* ages, and that price depreciation *without* dealer mark-ups was strikingly smaller. Wholesale to wholesale, depreciation was about 28 per cent a year; retail to retail, about 23 per cent a year (this suggests, by the way, that dealer mark-ups increase their share with the age of the car). The means are all significantly different at the 1 per cent level. Much of the variance arises from features that are specific to a model or a particular year. For individual makes and for particular years, the series are even more robust.

TABLE 12.2. *Average depreciation over time, Detroit cars 1953–1961* (Fractional loss of previous year's value)

| 1957 Vintage | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Year* | 1958 | | | 1959 | | | 1960 | | | 1961 | | |
| | ret.–who. | who.–who. | ret.–ret. | ret.–who. | who.–who. | ret.–ret. | ret.–who. | who.–who. | ret.–ret. | ret.–who. | who.–who. | ret.–ret. |
| *Model* | | | | | | | | | | | | |
| All Ford (36 models) | | | | | | | | | | | | |
| Depreciation | 0.34 | 0.25 | 0.18 | 0.36 | 0.20 | 0.17 | 0.37 | 0.19 | 0.18 | 0.60 | 0.48 | 0.42 |
| S.d. | 0.04 | 0.04 | 0.03 | 0.04 | 0.03 | 0.03 | 0.04 | 0.02 | 0.02 | 0.05 | 0.05 | 0.05 |
| Coeff. var. | 11.1 | 17.2 | 18.7 | 11.7 | 17.0 | 15.8 | 9.5 | 11.4 | 12.2 | 8.7 | 10.7 | 12.0 |
| All Buick (19 models) | | | | | | | | | | | | |
| depreciation | 0.37 | 0.28 | 0.24 | 0.36 | 0.23 | 0.20 | 0.39 | 0.24 | 0.20 | 0.56 | 0.43 | 0.38 |
| s.d. | 0.04 | 0.05 | 0.06 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.03 |
| coeff.var. | 12.1 | 18.0 | 25.7 | 4.5 | 6.2 | 6.4 | 4.7 | 6.5 | 4.7 | 3.6 | 4.3 | 6.7 |
| Ford 'Custom' (8 bottom-of-line models) | | | | | | | | | | | | |
| Depreciation | 0.38 | 0.26 | 0.21 | 0.40 | 0.23 | 0.19 | 0.41 | 0.21 | 0.19 | 0.64 | 0.51 | 0.46 |
| s.d. | 0.02 | 0.05 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| coeff.var. | 4.0 | 21.2 | 4.7 | 4.0 | 4.5 | 7.1 | 2.5 | 6.2 | 5.8 | 1.1 | 1.9 | 1.9 |

| 1957 cross-section | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Vintage* | 1956 | | | 1955 | | | 1954 | | | 1953 | | |
| Ford 'Custom' (10 bottom-of-line models) | | | | | | | | | | | | |
| depreciation | 0.36 | 0.27 | 0.19 | 0.43 | 0.28 | 0.24 | 0.43 | 0.28 | 0.23 | 0.44 | 0.19 | 0.19 |
| s.d. | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.08 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 |
| coeff.var. | 4.5 | 6.7 | 6.6 | 4.6 | 6.3 | 6.1 | 18.3 | 8.5 | 8.6 | 4.7 | 6.2 | 3.3 |
| n | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 7 | 7 | 7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Buick | | | | | | | | | | | | |
| depreciation | 0.29 | 0.19 | 0.15 | 0.35 | 0.23 | 0.21 | 0.39 | 0.26 | 0.23 | 0.49 | 0.35 | 0.29 |
| s.d. | 0.05 | 0.05 | 0.06 | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 |
| coeff.var. | 15.5 | 26.4 | 39.9 | 7.6 | 14.3 | 12.9 | 3.8 | 4.6 | 6.7 | 2.6 | 3.4 | 4.3 |
| n | 16 | 16 | 16 | 14 | 14 | 14 | 10 | 10 | 10 | 5 | 5 | 5 |
| Ford & Buick | 1st Year | | | 2nd Year | | | 3rd Year | | | 4th Year | | |
| depreciation | 0.34 | 0.25 | 0.19 | 0.37 | 0.23 | 0.19 | 0.39 | 0.22 | 0.20 | 0.57 | 0.43 | 0.38 |
| s.d. | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.04 | 0.04 | 0.03 | 0.07 | 0.10 | 0.08 |
| coeff.var. | 13.8 | 21.4 | 28.2 | 11.1 | 16.6 | 16.8 | 11.1 | 18.0 | 14.2 | 12.0 | 22.7 | 22.2 |
| n | 81 | 81 | 81 | 79 | 79 | 79 | 75 | 75 | 75 | 67 | 67 | 67 |
| All years | ret.–who. | who.–who. | ret.–ret. | | | | | | | | | |
| depreciation | 0.41 | 0.28 | 0.23 | | | | | | | | | |
| s.d. | 0.10 | 0.10 | 0.09 | | | | | | | | | |
| coeff.var. | 24.3 | 36.7 | 39.5 | | | | | | | | | |
| n | 302 | 302 | 302 | | | | | | | | | |

*Notes*:
See Appendix 12.1 for details; ret. = retail; who. = wholesale.

| z-Test: Two Sample for Means | 1st year ret.–who. | 2–4th year ret.–who. |
|---|---|---|
| Mean | 0.33845 | 0.434007 |
| Observations | 81 | 221 |
| Hypothesized Mean Difference | | 0 |
| z | | 7.366677 |
| P(Z<=z) one-tail | | 8.82E-14 |
| z Critical one-tail | | 1.644853 |
| P(Z<=z) two-tail | | 4.41E-14 |
| z Critical two-tail | | 1.959961 |

*Source*: National Automobile Dealers Association, *Official Used Car Guide*, Eastern edn., Jan.-Feb. edns.

Hence, we can reconcile all the divergent findings with a simple explanation. The car is a normal durable good providing a stream of services. The findings of constant-rate depreciation are easily explained: they are derived from samples of retail prices only. The alternative finding of a kinked depreciation curve is also explained: in the first year prices move from retail (new) to wholesale (used).[94] The price of the car in the showroom incorporates the dealer's distribution services. When the buyer takes possession, she pays the dealer mark-up and the car immediately loses that dealer-service element of its value. Now it may be that a good deal of the value of that service for the buyer is derived from the dealer's accountability. But in that case the same service is provided by used car dealers, and Akerlof's lemon effect is not restricted to new cars. The used-car buyer also suffered a comparable loss when he bought from a dealer. The significance test in Table 12.2 indicates that retail–wholesale depreciation was even higher in the case of older cars.

For new-car buyers, the most financially prudent course was to keep the car for as long as the savings on dealer mark-ups were greater than the additional cost of repairs. The Ford Motor Company calculated this optimal period as five to six years from new.[95] To buy a new car every year cost 26 per cent more in annual running costs than to keep it for three years.[96] In terms of depreciation, the consumer's choice was not between buying a a new or a used car. Both will have lost the same proportion of their value in a year. Rather the choice is whether to buy at all, and pay a dealer mark-up, or to postpone purchase, in which case depreciation will be about one-third lower. The manufacturer's task is to make the new car enticing enough for the buyer to incur the dealer mark-up and the big loss of economic value in the first year. In 1955 new-car buyers were responding to the enticement and replacing their cars well-short of the optimum delay, after an average of four years and five months.[97]

This was facilitated by much easier credit after 1953. The proportion of cars sold for cash fell from 40 per cent in 1953 to 33 per cent in 1959, while the length of the standard contract increased gradually from twelve and twenty-four months to thirty-six months.[98] Auto-finance loans were paid for on fixed balance terms, so the extension of the period of payment, while helping to keep monthly payments in check, meant a considerable increase in total finance costs. By 1958, about 10–11 per cent of the running cost of a standard car was for finance. Since depreciation was only about 45–50 per cent of these costs, this suggests real interest payments of more than 20 per cent a year, at a time when inflation was 2–3 per cent.[99] In their impatience to buy, borrowers assumed greater risks. Between 1953 and 1957, repossessions by GMAC, the biggest finance company, increased sixfold.[100]

Finally, as they increased in size, some of Detroit's larger cars began to break the bounds of the envelopes designed to hold them. Cadillacs took up two parking-meter spaces.[101] Many cars were too large for home garages built between the wars. And some were getting too wide for the roads. Several states began to legislate a maximum width for cars in 1958.[102]

## THE BACKLASH

In late 1957 the tide began to turn away from Detroit. In 1958 the sales of Detroit cars slumped. About two million new-car buyers either postponed their purchases, or chose imported cars. There are three interpretations. The first is that an economic downturn depressed sales; the second is that there had been a shift of tastes among new-car buyers; the third is that tastes had not changed, but that producers had taken buyers too far up the Wundt curve.

Intellectuals were first to argue the futility of the styling and horsepower competition which offended against the 'modern movement' principle of austerity. An early shot was fired by the designer Raymond Loewy, who described the new models in 1955 as 'a jukebox on wheels'.[103] Walter Teague, a modern-movement purist, wrote that 'this Roman orgy of obsolescence merchandising must come to an end'.[104] Other writers picked up their pens shortly afterwards.[105] They took the styling race for a symptom of deeper malaise, and warned that the public was being conned into overconsumption. Some of these works were read by the few, others achieved nationwide fame: Vance Packard followed *The Hidden Persuaders* of 1957 with *The Waste Makers* of 1960. J. K. Galbraith published *The Affluent Society* in 1958. Congress also picked up a ground swell of unease, and launched a series of investigations into the car industry.[106]

In their different ways, these writers questioned the rationality of the feature race. S. I. Hayakawa, a Berkeley linguist, argued that the American male was uncertain of his virility and that the car industry had decided, 'Let's give them great big cars, glittering all over and pointed at the ends, with 275 h.p. under the hood, so that they can feel like men!'[107] Whatever one thinks of this interpretation (which is given credence by some car advertising), Hayakawa perceived that the pursuit of sensual gratification was affecting the shape of the product. But in a car-based society, most car uses were mundane. 'Gull-Wing fenders, Swept-Wing styling, with Turbo-Flash performance . . . For what? For Father to commute seventeen miles to work . . . For Mother to drop Chrissie off at dancing school, stopping at the supermarket and the public library on the way back'.[108]

TABLE 12.3. *Ford unsolicited correspondence, January 1958–October 1959*

| Topic | Total | Per cent |
|---|---|---|
| Small car<br>Includes requests to build a smaller car and revive models 'A' and 'T' | 513 | 32.4 |
| Styling and package<br>Cars are too low, have too much chrome, difficult to get into, and other styling complaints | 445 | 28.1 |
| Economy of operation<br>Purchase price, gasoline consumption, and repair cost complaints | 218 | 13.8 |
| Horsepower | 67 | 4.2 |
| Other | 340 | 21.5 |
| Total letters received | 1,583 | 100.0 |

*Source*: Unsolicited Correspondence reports, 1958–60; Breech Papers, AR-65-71:43, Unsolicited Correspondence Summary No. 16, 1959, Ford Industrial Archives.

Congressional hearings are replete with displeasure. A survey of the Automotive Finance Association, whose members were in the business of car credit, and thus well tuned to consumer tastes, produced responses such as these: 'The present cars have too many gadgets and are too big. The American public today will buy a small sturdy car with less gingerbread and less horsepower'.[109]

Hundreds of letters arrived at the Ford Motor Company, complaining of over-design and excess features (Table 12.3). The company issued internal reports, monitoring the letters and providing excerpts. One stock complaint was that cars had grown too large and powerful. The company was urged to dust off the jigs of the Model A (first introduced in 1927), and even the ancient Model T. The company compiled a digest. The following letter is not untypical:

> The car manufacturers got too greedy; you kept making the cars longer and more expensive to drive, turning out defective cars by the thousands and designing them for the inconvenience of the potential customer until you killed the goose that laid the golden egg. You are not giving people good value for their money and it is beginning to show and I for one, am forced away from your car which has made me sad.[110]

What is more significant, customers began to vote with their money. In 1957 the car manufacturers looked forward to another boom year like 1955. It was generally assumed that that 'the buyers of 1955 models, who had completed their payments, would again return to the market for a new car'.[111] The market had weakened in 1956 and 1957, but GM

was coming out with new models. Demographics and economics were promising. Instead, buyers stayed at home. New car purchases fell to 4.2 million, the lowest since the end of the Korean war.

1958 was a recession year. Real GNP declined by 0.8 per cent. This recession is a convenient explanation for the collapse of the new-car market. But what was the cause? From the economy to the new-car market, or perhaps the other way? The decline in car output ($12.4 billion) was larger than the decline in GNP ($11.9 billion). Assuming growth at the 1957 level, the decline in car output in 1958 would still account for one-third of the loss of output, net of any multiplier.[112] Politicians said that Detroit design had turned the customers off, while Detroit leaders called upon customers to buy the country out of recession, and lobbied politicians to reduce the federal excise tax on cars.[113]

But not all of the new car market was depressed. Ever since 1956 a new market sector had been opening up. As Detroit moved its wares upmarket along the feature curve and the Wundt curve, it left a gap at the bottom. This did not remain vacant for long. From 1956 the small car segment began to grow rapidly. It was filled mostly by imported cars from Europe dominated by Volkswagen. The share of imports rose exponentially, from 1 per cent in 1955, 2 per cent in 1956, 4 per cent in 1957, and 10.5 per cent in 1958. The domestic 'compact car' producer, American Motors, doubled its sales between 1957 and 1958. It added insult to injury with an advertising campaign which described its competitors' vehicles as 'gas guzzlers' that 'rob you blind'.[114]

In 1958 the spell of styling shattered. Perfection could no longer be perfected. Having promised emotional consummation through comfort and power, Detroit had nothing new to offer and its efforts to do so were increasingly desperate. About one-third of potential buyers were not enticed to pay the new-car premium and postponed their purchases. The average time new cars were held rose from four years and five months in 1955, to five years and three months between 1957 and 1959.[115]

The luxury of the American 'classless cars', the high-specification Fords, Chevrolets, Plymouths, and some of the cheaper mid-priced models, had been purchased at a cost. These cars no longer offered genuine 'distinction' to their owners.[116] Their styling had filtered down into the lower end of the middle classes, and at second-hand, to working-class owners too. The smart people were now 'Cold Rods', their watchword 'it gets me there and it gets me back'. Only the 'peasants' still cared for the finned Family Car.[117] Those who rejected Detroit designs could communicate it by means of the car they drove. Sixty per cent of Volkswagen owners had been to college (compared with 13 per cent in the general population) and they were younger and wealthier than the average Ford and Chevrolet buyer.[118] Ford market research had discovered in 1956 and 1957 that:

A substantial number of economy car buyers have well above average education as well as relatively high income. They appear well able to calculate the true cost of owning and operating a car, and by logical reasoning have decided to purchase a small economy car. These people have established their social positions (education, job, etc.) and are immune to the 'cheap' stigma associated with economy cars in the minds of some people . . .

Rather than display one's importance and success by buying the largest, most powerful and most expensive car possible, a segment of small economy car buyers appear to be demonstrating their shrewdness by purchasing a unique, small, foreign and economical car. These buyers are proud of their exhibited economy and shrewdness.[119]

Detroit's leaders were not always comfortable with the rule of the stylist. The concept of a basic car appealed to them. Ford had a small-car study every year since the war. It had actually set up a small-car division in 1946, but scrapped the project when there seemed to be no demand. So did GM and Chrysler.[120]

The problem was simple: buyers expected to *pay* less for a small car, but a small car could not be *made* for much less. The President of GM stated, 'When you reduce the size of a car, you take value out faster than you can reduce cost'. A small car would also eat into the market share of more profitable models. The independents posed no threat, owing to their higher costs.[121] In 1953 Chrysler gambled on a smaller form factor, and eventually suffered a big loss in market share. At Ford small-car studies continued. The Big Three were honest when they said that they only provided what customers wanted.[122] But then, perhaps not entirely. After all, Chrysler still found more than a million buyers for its cars in 1953, although they were smaller *and* more expensive than the competition. Likewise, Nash (American Motors) sold 137,000 cars in the same year, mostly of its compact Rambler model, although it was 15 per cent more expensive than the basic Ford.[123]

What forced the hand of the Big Three was Volkswagen's success. The German company already had economies of scale in its European markets, and much lower labour costs. Hence, unlike American 'independents', it could sell a small car in the USA at prices much below the cheapest of the Big Three. Moreover, as demand for the Volkswagen (VW) soared beyond supply (and also owing to its cheaper initial price), it depreciated at almost half the rate of the basic Ford car. Total VW running costs (for a new car over three years) were 60 per cent of those of a basic Ford car, and one-third less even than a second-hand Ford purchased when two years old. Imports were costing Ford $16 million in profits in 1957, and threatened to take $40 million by 1960.[124]

Once this threat crystallized, the Big Three acted quickly. Ford Division placed a cogent proposal before top management in July 1957, with astute economic and social analysis, and full-size vehicle mock-ups. An

urgent programme ensued which brought a 'compact' car, the Falcon, into the showrooms in October 1959.[125] GM and Chrysler delivered at the same time. Experience with short model cycles allowed Detroit to respond very nimbly to a perceived shift in consumer preferences.

When the new Detroit compact cars were introduced in 1959–60, the recession had long been over, but the cars were nevertheless an enormous hit. The Falcon (with its sister the Comet) sold about 630,000 in 1960. Its planning volume in 1957 had been 160,000.[126] Altogether, the 'small-car category' (imports and domestic 'compact cars') captured about 20 per cent of the market by 1960 (Fig. 12.6), and new-car buyers opened their wallets once again. This popular acceptance is the final clue that the crisis of 1958 was not due to the recession of that year, but indicated a revulsion in consumer tastes, a prudential retreat from the top of the Wundt curve.

## CONCLUSION

Styling competition may be regarded as a non-co-operative reponse to the oligopoly problem of maximizing profit. Without it, cars could have cost less. The cost of model changes, said a Ford economist, 'reflects the struggle between the automobile companies to get customers by changing the product from year to year and trying to get an increase in the volume of business'.[127] A co-operative solution of infrequent model changes would have lowered the cost of new vehicles significantly. From an economic point of view, this failure to co-operate was counter-productive. The price elasticity of demand for cars was estimated variously at the time at about –1.2 to –1.5.[128] A 5 per cent decline in price (made possible by styling restraint) would have increased demand by about 6 to 8 per cent. A method of keeping novelty without costly face-lifting was suggested to Ford by its economic adviser: 'develop attractive yet conspicuous monograms . . . which identify the model-year of each car'.[129]

The leader of economy car development at Ford was Robert McNamara. Product planning had destroyed Reith; it made McNamara. The tightly reasoned strategy papers which he initiated are in a different class of quality to the wishful thinking behind the Edsel. An ex-professor at Harvard, a man of austere ethics, a temperamental rationalist, he shared the intelligentsia's disdain for the products of the styling race, and strove to bring it under control. The compact Falcon was his proud achievement. For once, Ford broke out of its customer base and cornered a big share of a new market: 59 per cent of Big Three compacts, and 42 per cent of US compacts overall.[130] In 1958 he went a step further and launched a project for a smaller car, code-named 'Cardinal', to compete head to head with Volkswagen, a 'world car' to be produced jointly in the USA and Europe.[131]

There is a long letter in his files from Martin Marshall, a Harvard Business School teacher, which McNamara annotated profusely. Marshall criticized Detroit marketing on lines already pursued in this chapter. Instead of homogeneous demand, he wrote, Detroit should look to *segment* the market. This would give consumer much wider choice, without the worry about instant obsolescence. The analysis echoes Hayakawa:

> consumers gradually have discovered that they misjudged or overemphasised the automobile's role in their lives. Its chief purpose is still functional, but the size and power and the gadgetry of most 1956, 1957 and 1958 cars is quite out of line with the consumer's real functional needs ... The overemphasis on fashion has got to the point where most consumers can't keep in fashion—their pocketbook won't allow annual purchases of the latest Detroit product. Now the fashion, at least in certain quarters, is to have a dog-earred Ford station wagon or a foreign-made car which shows to the world the owner's intelligent view of Detroit's merchandising mistakes.

'It seems to me that the industry simply has to get away from the practice of having three principal companies play a guessing game regarding the coming year's fashion', he wrote, and McNamara noted in the margin, 'I entirely agree.'[132] McNamara also retained an offprint from the *Harvard Business Review*, about 'planned obsolescence', which highlighted findings that 64 per cent of business executives felt that too large a part of sales depended on styling and prestige buying.[133]

But much as he detested styling risk, McNamara also understood that most car buyers remained hooked on power and size. In 1958, at a meeting to approve the Falcon compact, he also stated that economy cars remained a minority taste, and that Ford was going to increase the size of its standard models.[134] His other triumph of 1958 was the four-seat Thunderbird, an expensive, heavy, vanity car.

In April 1958 he asked (with a touch of bewilderment):

1. We have eliminated as possible sources of additional buyer appeal in the annual model changes:
   A. Increased acceleration.
   B. Styling changes based on added length, added width, or lower height.
2. In what way may cars be changed to provide added appeal with each new model?
3. What would be the effect of eliminating or minimizing the degree of change in each new model?[135]

In what turned out to be his final statement to the company, he indicated a reversal of policy in the direction of styling restraint and product diversity: more variety with less change.[136]

The new-car frenzy of the 1950s was in some aspects unique to its time. Like first love, it fell into a predetermined pattern, but could never be repeated. Never again would the USA fall so intensely for the new-model motor car as in 1955. This is revealed in the pattern

of within-year depreciation, which was much higher in the 1950s than subsequently.[137] Disillusion was also intense. Styling competition threw American car hierarchies into disarray.[138] Surveys indicated that brand loyalty, the bedrock of market share, had been eroded severely. From a 69 per cent level of loyalty in buying intentions in 1953, it dipped down to 47 per cent by 1960. Ford fared even worse, falling from 73 per cent to 44 per cent.[139] McNamara was also right to see that the majority had not been won away from the large car. After the first flush of success, imports fell back. Engine power increased to new heights in the 'muscle cars' of the late 1960s, with a resurgence of imports for those who rejected horsepower as a form of self-expression.

The pursuit of gratification in automobiles had wider implications. The mood for car-size restraint in 1958 was underscored by an intensified Cold War and the Russian launch of Sputnik. In November 1960 Robert McNamara took a big reduction in wealth and went to Washington as Secretary of State for Defense. It was an sacrifice that his fellow citizens had no desire to emulate. By 1968 McNamara had built up the US military role in Vietnam to such an extent that its economic demands began to threaten the American standard of living. But it was out of the question politically, in 1968, to sacrifice the affluence that big cars stood for, in order to prevail in South-East Asia.[140]

In 1973 the oil crisis appeared to undermine the large-car concept for good. With its extended product cycles, Detroit now took longer to respond. Japan, determined and even more versatile than Europe two decades before, carved out a permanent slice of the American car market; imports rose to a peak of one-third in 1982.[141] But the Japanese are no strangers to the logic of the Wundt curve, and have driven their own cars systematically up-market.

Coming within five years of the end of austerity, the 1958 downturn was the first expression of doubt about affluence as comfort, luxury, and sensual gratification. It can be read as an early stirring of post-material discontent with *mass* consumption, a rejection of the uniformity that it seemed to require, an expression of intelligence, rationality, and prudence in consumption, a quest for more sophisticated forms of distinction and self-expression. It indicated, for the first time in postwar America, that consumption was not a mere quantitative corollary of growth in which affluence is a reliable proxy for satisfaction. Rather, it portended a more dynamic experience of consumption, as a psychic balancing act which oscillates between comfort and pleasure, between gratification and prudence.

## APPENDIX 12.1: SOURCE OF TABLE 12.2

The source is the National Automobile Dealers Association, *Official Used Car Guide*, Eastern edition, which was compiled from actual dealer transaction and

auction sales reports, and issued monthly. This was widely regarded as the most authoritative of used-car guides.[142] Prices are taken from the January or February issues (depending on availability: it is a rare item), chosen as deriving from the first quarter of the model year, which began in October. This quarter was preferred as dealer and factory discounts were likely to be lowest during the first quarter, it maximized the novelty effect on prices, and there was less ambiguity about the precise age of year-old cars.[143] Given this provenance, the *used car prices* can be taken as reliable. One-year-old dealer cars are not 'lemons' by definition, since the price is for cars in good condition and dealers were in a good position to assess quality. The market was not thin, as 5–6 per cent of new cars were sold in less than a year, and another 10–11 per cent after one to two years. For business-owned cars, the percentage sold within the year was much higher.[144]

New-car prices are more problematic. The prices used are suggested retail prices, as quoted in the *Official Used Car Guide*. Actual transaction prices will have varied considerably, all the more so as list prices were not readily available to the public.[145] In practice, from 1954 onwards, list prices were discounted substantially, at a more or less constant level. But there are two items which offset the discount. These were delivery charges, paid on top of the list price, and state taxes, likewise added on top of the bill (the federal tax at 10% of factory wholesale value was included in the list price). A Ford report breaks down prices and costs for the 1958-model Ford Custom 6–300 tudor sedan (the basic Ford car), selling at a list price of $1,977. The dealer discount was almost precisely offset by delivery costs and state taxes to produce an actual transaction price of $1,994. Hence the list price is a good proxy for the actual transaction price.[146] The actual dealer mark-up quoted in that report (12% of the list price, 16.6% of the factory wholesale price) has been applied uniformly to all the list prices to obtain a new car 'wholesale' price. This is simply the list price minus the dealer mark-up. To obtain the manufacturer's factory wholesale prices, federal taxes and freight charges need to be deducted as well.

## NOTES

Thanks are due to the Ford Motor Company for access to its archives; to the Henry Ford Museum at Dearborn, Michigan; to the National Automotive History Library at the Detroit Public Library; to the Association of Motor Manufacturers; and to the American Society of Automotive Engineers. For helpful advice thanks are due to Ian Little, John Muellbauer, James Foreman-Peck, Tim Leunig, and Joy Parr. For dedicated research assistance, thanks to Annie Chan, Harriet Jackson, and Maïa-Laura Ibsen. Special thanks to Darleen Flaherty of Ford Industrial Archives.

1. Ford Industrial Archives (henceforth FIA), AR-20-46: Speeches.
2. See A. Offer (ed.) (1996), *In Pursuit of the Quality of Life* (Oxford).
3. Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, (Detroit), 3. Henceforth output and sales figures are on a calendar-year basis, while the narrative refers to the model year (i.e. 1955 model was

introduced in October 1954). Recent scholarly titles include C. Armi (1988), *The Art of American Car Design: The Profession and Personalities* (University Park, Pa.); D. Gartman (1994), *Auto-Opium: A Social History of American Automobile Design* (London), ch. 6; car-fan volumes like M. Mueller (1994), *Fifties American Cars* (Osceola, Wis.); B. Morris (1993), *Biography of a Buick* (London), is a novel; economic analysis includes F. M. Fisher, Z. Griliches and C. Kaysen (1962), 'The Costs of Automobile Model Changes Since 1949', *Journal of Political Economy*, 70/5, Oct., 433–51, and L. J. White (1971), *The Automobile Industry since 1945* (Cambridge, Mass.); for the cultural impact see F. F. Copolla's film *American Graffiti*. Other references below.

4. Ford, Central Marketing Staff (1957), 'Product Philosophy Report', unpublished report, Walter Ream Papers, FIA, AR-88-108159. This is a book-length text-and-graphics presentation-format document.
5. A. P. Sloan (1941), *Adventures of a White-Collar Man* (New York), 185, cited in Armi, *The Art of American Car Design*, 26.
6. '1957 Ford Car, Introduction, Merchandising Considerations', unpublished, Ford Production Planning Committee no. 128, 2 Dec. 1954, AR-200778-7. The Ford 'Product Philosophy Report' of 1957 (see n. 4 above) stressed 'outstanding victories' which were largely attributed to styling. See also e.g. the memo, Henry Jackson, of J. Walter Thompson (Ford Motor Co. advertising agency) to Walter Elton, 20 Dec. 1957, which invoked styling as a buyer-motivating factor second only to brand loyalty. Review Board 6/11, J. Walter Thompson papers (henceforth JWT), Duke University library; JWT, '1959 Ford Car. Review Board Memorandum', 3 April 1958, fos. 2, 4; Review Board 6/10, JWT papers. Survey evidence is mixed. In 1952 'appearance' was ranked fourth and fifth (on two different measures) as a reason for buying; in 1957, in response to a question of what they liked in new cars compared with the previous year's, the largest group of prospective purchasers (32.5%) selected 'Body Styling'. *Look* Magazine, *National Automobile and Tire Survey* (henceforth *Automotive Survey*) (1957), 21: 27; 16 (1952), 16–17.
7. Fisher *et al.* (1962), 'Costs of Automobile Model Changes', table 3: 440; for wholesale price, see Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 3.
8. $51.1 millions at 160,000 units a year over three years, selling wholesale at $1,485. Ford Product Planning Office, 'Economy Car Report', 13 Nov. 1957, fo. 28. FIA Product Planning Committee, 13 Nov. 1957, AR-94-200777-6. The actual cost turned out to be $104 million, but was spread over much larger sales. On tooling, see White (1971), *Automobile Industry*, 33–41.
9. i.e. one-third of all observations diverged from the mean by *more* than that percentage. White, *Automobile Industry*, 290–306, tables A.1–6 (for 1953–67); *Ward's Automotive Yearbook 1975*, 92, *1980*, 47 (for 1968–74).
10. United States (1 Nov. 1958), *Administered Prices Automobiles Report*, T. Yntema (Vice President for Finance, Ford Motor Company), 79–80.
11. D. J. St Clair (1986), *The Motorisation of American Cities* (New York); W. H. Whyte (ed.) (1958), *The Exploding Metropolis* (Garden City, NY); D. Riesman (1964), 'The Suburban Dislocation' (1957), in —— *Abundance for What and Other Essays* (London), 222–65; J. Walter Thompson and Yale School of

Architecture and Design, 'Interurbia: The Changing Face of America', presentation to Ford Division, 28 June 1957, FIA, J. Wright Papers, AR-75-15565:18.

12. *Automotive Survey*, 15 (Oct. 1951), 10., Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 33, has 65 per cent of families owning cars in 1951. Both are based on surveys.
13. Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 46.
14. United States (1 Nov. 1958), *Administered Prices Automobiles Report*, Senate Subcommittee on Antitrust and Monopoly, 85th Congress, 2nd Sess. [Y4.J8912:P93/8] ch. 6. (henceforth *Administered Prices, Report*).
15. *Administered Prices. Part 6. Automobiles.* Hearings, Senate Subcommittee on Antitrust and Monopoly, 85th Congress, 2nd Sess., Gregory Chow, 30 Apr. 1958, 3183.
16. Price restriction was the ostensible cause of the Senate Hearings. See *Administered Prices*, ch. 3; E. Kefauver (1965), *In a Few Hands: Monopoly Power in America* (Baltimore), 89–93; White, *Automobile Industry*, 109–16; T. F. Bresnahan, 'Competition and Collusion in the American Automobile Industry: The 1955 Price War', *Journal of Industrial Economics*, 35/4, June, 457–82; E. H. Millner and G. E. Hoffer (1989), 'Has Pricing Behaviour in the US Automobile Industry Become More Competitive?' *Applied Economics*, 21: 295–304.
17. In 1957. 'Product Line Comparison, Ford Motor Company 1952 vs. 1959', FIA, Product Planning revised report, 31 Jan. 1957, AR-65-71:43 (1).
18. Ford, 'Product Philosophy Report'.
19. D. Shapley (1993), *Promise and Power: The Life and Times of Robert McNamara* (Boston), 69. Stock cars had standard bodies, but enhanced engines and suspensions.
20. Cars bought new. *Automotive Survey* (1953), 25. Fourteen leading brands, standard deviation 9.5. Another survey, from 1956, found 67.2 per cent brand loyalty in a 1,000 owner sample, *Popular Mechanics* (1956), 'Why Do People Buy the Cars they Do?' *Popular Mechanics*, Feb., 312.
21. e.g. Henry Flower, 'A Study of Motivation: The Role of Advertising in the Purchase of an Automobile', rev. vers. 16 Dec. 1954, esp. fo. 12; JWT, N. Strouse collection, 1/5, Duke University library.
22. Calculated from Ford, Controller's Office, 'Advertising Promotion and Incentives 1953–1960', 10 Nov. 1959, Marketing Committee Meeting, 12 Nov. 1959, AR-65-71:36; Additional data from Controller's Office, 'Industry Summary—1949–1963', 24 Feb. 1964, FIA, Yntema papers, AR-93-204131:2. For advertising and national income, see Economist Intelligence Unit (1962), *Advertising Expenditure 1960* (London), table 4: 30. Compare also White, *Automobile Industry*, 224.
23. Ford, 'Advertising Promotion and Incentives', Marketing Committee Meeting, 12 Nov. 1959, AR-65-71:36; $45 and $65 and $86 if dealer contributions to product advertising are included. The *Administered Prices Report* estimated the manufacturer's cost per car at $75 in 1958, almost precisely the Ford outlay (p. 103).
24. V. Packard (1960), *The Hidden Persuaders* (Harmondsworth), 109–12.

25. Advertisers were kept out of product planning, and were only shown the models about six months before their introduction. See JWT Ford Review Board for 1957 and 1958 models, JWT Review Board 6/11 and 6/12, Duke University library.
26. R. Sherman and G. Hoffer (1971) 'Does Automobile Style Change Payoff?' *Applied Economics*, 3: 153–65.
27. 'Address by Ben D. Mills, 1960 Greenbrier Management Conference', 21 Nov. 1960, Index of Lincoln–Mercury Profits, FIA, McNamara papers, AR-66-12:5.
28. Virgil Exner, at Chrysler, was more articulate, though still opaque. For a typical presentation, see Ford Styling Department, 'Presentation of Two Models of 195X for Ford Division Product Planning Show', 15 Sept. 1954. FIA, AR-200778-7.
29. See Armi, *The Art of American Car Design*; Gartman, *Auto-Opium*; Ford, 'Product Philosophy Report'; and the Edsel Ford oral history project interviews with designers at the Henry Ford Museum, Dearborn, Michigan.
30. On Earl, see S. Bayley (1983), *Harley Earl and the Dream Machine* (London); Armi, *The Art of American Car Design*, ch. 2. Earl's protagonists in the 1950s were George Walker at Ford and Virgil Exner at Chrysler.
31. Ford, 'Product Philosophy Report'; Armi, *The Art of American Car Design*, 28.
32. K. A. Stonex (1962), 'Trends of Vehicle Dimensions and Performances Characteristics', *Society of Automotives Engineers*, No. 539A, June, 8–11. This was based on data collected by General Motors; White, *Automobile Industry*, table 13.2: 217 shows that between 1949 and 1959 the Ford V-8 had grown only 5.7 per cent longer, and 7.1 per cent wider (but 26.8% heavier).
33. A. Schönberger (ed.) (1990), *Raymond Loewy: Pioneer of American Industrial Design* (Munich); see W. D. Teague (1940), *Design This Day: The Technique of Order in the Machine Age* (New York).
34. D. Pye (1964), *The Nature of Design* (London).
35. See D. L. Lewis, M. McCarville and L. Sorensen (1983), *Ford 1903 to 1984* (New York), 139.
36. The Cranbrook Academy of Art which taught Bauhaus-style design is still located in Bloomfield Hills, where the cream of Detroit's executives have their houses.
37. E. Garfinkle, in Armi, *The Art of American Car Design*, 173.
38. Bresnahan, 'Competition and Collusion', 457.
39. 16.3 per cent, more than twice the standard error. G. C. Chow (1960), 'Statistical Demand Functions for Automobiles and Their Use for Forecasting', in A. C. Harberger (ed.), *The Demand for Durable Goods* (Chicago), 169.
40. '1957 Ford Car, Introduction, Merchandising Considerations', unpublished, Ford Production Planning Committee No. 128, 2 Dec. 1954, FIA, AR-200778-7, and 'Presentation of Two Models of 195X for Ford Division Product Planning Show', 15 Sept. 1954, ibid.
41. Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 5, 15.

42. For a new car costing $2,359. Prices corrected for inflation. Calcuated from National Automobile Dealers' Association (NADA), *Official Used Car Guide*, Eastern ed. (Washington, DC), Jan. 1957, Feb. 1958.
43. 'Address by Robert S. McNamara', 1960 Greenbrier Management Conference, 21 Nov. 1960, fo. 17, FIA AR-66-12:5.
44. Social Research Inc. (1953), *Automobiles: What they Mean to Americans* (Chicago).
45. Three income groups. Popular Mechanics, 'Why Do People Buy the Cars they Do?' 312.
46. *Administered Prices, Report*, 98–100.
47. Ford, 'Product Philosophy Report', based on Social Research Inc., *Automobiles: What they Mean to Americans*, and Kenyon and Eckhardt (the Ford Mercury advertising agency) in 1957.
48. J. J. Seldin (1963), *The Golden Fleece: Selling the Good Life to Americans* (New York), 79.
49. Calculated from R. P. Smith (1975), *Consumer Demand for Cars in the USA* (Cambridge), table A. 2: 90. Each quintile as percentage of sum of the quintiles.
50. K. Shapiro (1953), 'Buick', in *Poems, 1940–1953* (New York), 22–3.
51. J. P. Norbye and J. Dunne (1993), *Buick 1946–1978: The Classic Postwar Years* (Osceola, Wis.), appendix 1: 154–5.
52. Excluding an optional 300 hp engine. See NADA, *Official Used Car Guide*, Eastern edn., Jan. 1957: 52; Jan. 1960: 66.
53. Ibid.; and Stonex, 'Trends of Vehicle Dimensions', fig. 18: 9.
54. See e.g. 'Medium-Price Car Buyers Take More Accessories despite Sales Slump', *Ward's Automotive Yearbook*, 20 (1958), 39.
55. Z. Griliches (1971), 'Hedonic Price Indexes for Automobiles: An Econometric Analysis of Quality Change', in —— (ed.), *Price Indexes and Quality Change* (Cambridge, Mass.), table 3.3: 65.
56. T. Yntema, 'Growth in a Changing Market', Greenbrier Management Conference, 22 Nov. 1960, fo. 7, FIA, McNamara Papers, AR-66-12:5.
57. Ford Division Programming, 'New Passenger Registrations by Price Class', June 1960, J. Walter Thompson Creative Review Board, 'Background Memorandum, 1961 Falcon', 9 Aug. 1960, JWT Papers, Review Board 7, Duke University.
58. Ford Division, 'Economy Car Study: Preliminary Report', 15 Jul. 1957, fo. 3, FIA, Product Planning Committee 15 AR-94-200777-5.
59. Robert McNamara, 'General Product Objectives', 10 Feb. 1953, FIA, AR-66-12:9.
60. J. Tirole (1988), *The Theory of Industrial Organization* (Cambridge, Mass.), 286–7. Thanks to Robin Mason for this reference.
61. John T. Benedict, 'Era of "Classless" Car Nears Full Flower', *Automotive News*, 25 Oct. 1955; Ford, 'Product Philosophy Report'.
62. e.g. memorandum to W. Elton, 18 Apr. 1956, JWT Review Board 6/12, Duke University.
63. T. Scitovsky (1992), *The Joyless Economy: The Psychology of Human Satisfaction*, rev. edn. (New York), ch. 4.
64. 'More Horses? Owners say "Nay"', *Automotive News*, 14 Oct. 1954: 2. 'Ford Passenger Car Review Board', 10 Apr. 1957, fo. 1, JWT Ford Review Board, box 6: 12; See *Automotive Survey, 1954*, 21.

65. R. A. Railton and A. O. Sampietro (1949), 'Trends in European Car Design', *Society of Automotive Engineers*, Misc. Paper No. 304, 8–10 Mar. (Detroit).
66. George Romney, *Administered Prices, Hearings*, 29831; *Administered Prices, Report*, 90–2; White, *Automobile Industry*, 206–7.
67. On fins, G. Gammage and S. L. Jones (1974), 'Orgasm in Chrome: The Rise and Fall of the Automobile Tail-Fin', *Journal of Popular Culture*, 8: 132–47.
68. William B. Mitchell (GM stylist), Interview, Aug. 1984, Automotive Design Oral History Project, Edsel B. Ford Design History Center, Henry Ford Museum, Dearborn, Michigan, fos. 25, 57;
69. Irving Rybicki (GM stylist), Interview, 27 June 1985, fo. 48, Automotive Design Oral History Project, Edsel B. Ford Design History Center, Henry Ford Museum, Dearborn, Michigan.
70. C. L. Goyert (Ford product planner), 1985, Interview, 7 Nov. 1985, fos. 48, 57–8, Automotive Design Oral History Project, Edsel B. Ford Design History Center, Henry Ford Museum, Dearborn, Michigan.
71. FIA, Product Planning Committee Minutes, e.g. AR-94-200777-5, 15 July 1957. Committee structure, FIA AR-75-15565:14.
72. Joseph Oros (Ford stylist), Interview, 1985, vol. 1, fos. 71–4, Automotive Design Oral History Project, Edsel B. Ford Design History Center, Henry Ford Museum, Dearborn, Michigan.
73. Gene Garfinkle, in Armi, *The Art of American Car Design*, 173, 181–2.
74. C. G. Warnock (1980), *The Edsel Affair* (Paradise Valley, Ariz), ch. 2, is supported by the insubstantial quality of product-planning staff work in the Ford company records, e.g. Product Planning Committee meeting no. 24, 28 June 1955, AR-94-200778-8.
75. Warnock, *Edsel Affair*, pp. v–x. Edsel has spawned its own literature: J. Brooks (1963), *The Fate of the Edsel and other Business Adventures* (New York). J. G. Deutsch (1976), *Selling the People's Cadillac: The Edsel and Corporate Responsibility* (New Haven).
76. J. A. Byrne (1993), *The Whiz Kids: The Founding Fathers of American Business — and the Legacy they Left Us* (New York), chs. 22, 24.
77. e.g. as estimated for the 1958 Ford Custom 300 Tudor 6, $1 per car for styling, $25 for engineering; for the new Falcon 'compact' car, $4 and $41 respectively, Ford Product Planning Office, 'Economy Car Report', 13 Nov. 1957, fo. 28. FIA Product Planning Committee, 13 Nov. 1957, AR-94-200777-6.
78. Goyert, Oral History, fo. 11.
79. Warnock, *Edsel Affair*, 69–71.
80. Calculated from White, *Automobile Industry*, table 12.3: 197. Arithmetic mean.
81. See e.g. Ben D. Mills to R. McNamara, 14 Mar. 1958; McNamara to Mills, 29 Apr. 1959; McNamara to A. R. Miller, 'Proposed Extension of Warranty and Policy Coverage', 26 Sept. 1960; FIA, McNamara papers, AR-66-12:8; White, *Automobile Industry*, 220.
82. See 'Consumer Price Trends 1953 to 1959', in Ford Division Product Planning Office, 'Cost of Ownership Report', 22 June 1959, Product Planning Committee Meeting, FIA AR-94-2000777-9.
83. Calculated from Ford Division Product Planning Office, 'Cost of Ownership Report', 22 June 1959, Product Planning Committee Meeting, FIA AR-94-2000777-9. Annual running cost assuming 10,000 miles and three years between trade-ins.

84. On positional competition, see F. Hirsch (1976), *Social Limits to Growth* (London); on its futility, see R. H. Frank (1985), *Choosing The Right Pond: Human Behaviour and The Quest for Status* (New York).
85. Chow, 'Statistical Demand Functions', 149–50; M. J. H. Mogridge (1983), *The Car Market: A Study of the Statistics and Dynamics of Supply-Demand Equilibrium* (London), 5–7, 99–103.
86. F. C. Wykoff (1973), 'A User Cost Approach to New Automobile Purchases', *Review of Economic Studies*, 40: 379; see also —— (1970), 'Capital Depreciation in the Post War Period: Automobiles', *Review of Economics and Statistics*, 52, May, 168–72; and —— (1989), 'Economic Depreciation and the User Cost of Business-Leased Automobiles', in D. W. Jorgenson and R. Landau (eds.), *Technology and Capital Formation*, (Cambridge, Mass.), 259–92, for substantial empirical tests.
87. C. R. Hulten and F. C. Wykoff (1996), 'Issues in the Measurement of Economic Depreciation', *Economic Inquiry*, 34, Jan., 16.
88. Wykoff, 'A User Cost Approach to New Automobile Purchases', 388; Smith, *Consumer Demand for Cars in the USA*, 4–5.
89. G. Akerlof (1970), 'The Market for "Lemons": Quality Uncertainty and the Market', *Quarterly Journal of Economics*, 84/3, Aug., 488–500; see Hulten and Wykoff, 'Issues in the Measurement of Economic Depreciation', 18.
90. Wykoff, 'Capital Depreciation', 169. G. C. Chow (1957), *Demand for Automobiles in the United States: A Study in Consumer Durables* (Amsterdam), 102–5.
91. 668,000 worked for dealers (including the proprietors) and 640,000 for manufacturers in 1958. Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 38, 67.
92. A more technical study will be published elsewhere. For some more details, see Appendix 12.I.
93. Retail and wholesale for each year.
94. This is the pattern in Wykoff, 'Economic Depreciation'.
95. Ford, 'Economy Car Study, Preliminary Report' (15 July 1957), 11.
96. Ford, 'Cost of Ownership Report', 22 June 1959, PPC Meeting, FIA AR-94-2000777-9.
97. Calculated from *Automotive Survey, 1955*, 18.
98. United States, *Administered Prices Automobiles, Report* (1 Nov. 1958), ch. 7; Automobile Manufacturers Association (1961), *Automobile Facts and Figures*, 32; *Automotive Survey*, 1960: 50. Average number of monthly payments increased from 26 in 1954, to 32 in 1958. See S. Edmunds to J. O. Wright, 'Credit Terms for Passenger Cars', 1 July 1958, FIA, Wright papers, AR-75-15565:18.
99. Ford, Product Planning Committee, Cost of Ownership Report, 1959. This is about twice as high as Wykoff's estimate in 'Capital Depreciation in the Post-War Period', table 2: 171.
100. *Administered Prices, Report*, table 35: 167.
101. Ibid. 82.
102. R. S. McNamara and W. C. Ford, 'Maximum Vehicle Widths', 21 Nov. 1958, and enclosures, FIA, Ford Product Planning Committee, AR-66-12:9.
103. R. Loewy (1955), 'A Jukebox on Wheels', *Atlantic Monthly*, 195, Apr., 36–8.
104. *Administered Prices Report*, 83.

105. Other remarkable critiques are D. Riesman and E. Larrabee (1964), 'Autos in America', in —— *Abundance for What*; S. I. Hayakawa (1959*b*), 'Sexual Fantasy and the 1957 Car', in —— (ed.), *Our Language and Our World: Selections from ETC.: A Review of General Semantics* (New York), 235–46, J. Keats (1958), *The Insolent Chariots* (Philadelphia and New York).
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