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Better is Better than More: Investigations into Qualitative Growth

Abstract: This paper attempts to offer new insights into the concept of qualitative growth. We argue that *quality* is more than an outlying variable addressed by adding a term (or two) to the utility function and question whether quality is adequately addressed by specialized studies in product differentiation, point-of-sale information asymmetries, consumer preference, and technological innovation. Our core hypothesis is that a general increase in the *quality* of goods and services produced by a country is not only more sustainable than, but can in large measure substitute for, a general increase in the *quantity* of goods produced—which is a popular understanding of "economic growth". In the work of Herman Daly and other ecological economists, qualitative growth, is defined only generally as an increase in the *value* of the economic goods and services produced by a given, and government controlled, amount of throughput. But we get little specific idea about what qualitative growth would actually look like, be like, or feel like—little insight about quality per se. We propose alternative ways to promote an economy-wide shift from quantitative to qualitative growth, but also to limn what "quality" consists in at a usefully abstract level. We suggest, finally, a strategy that looks to modest regulatory interventions together with early education in quality discrimination, improved information about quality in the marketplace, and more effective persuasion as to the economic—indeed *quantitative* economic—benefits of quality growth ("quantitative" inasmuch as ordinary wealth, profits, and wages would grow in a qualitative growth regime). To achieve a turn to qualitative growth with a lighter regulatory hand, we look to insights from the new behavioral economics that suggest that substantial changes in economic behavior can be effected by changes in the "architecture of choice" rather than by limiting or excluding choices.

1. Introduction, and an overview of the argument

A central project of mainstream neoclassical economics for much of the 20th century was to discover, and ultimately promote, the conditions under which market efficiency would maximize economic growth. While accidents of history and geography, advances in technology, the design of institutions and governments, and the nature of human nature are important, from the perspective of mainstream neoclassical economics they are important chiefly insofar as they enhanced or detracted from market efficiency.

For critics from both inside and outside of economics, much remained sidelined by this disciplinary self-circumscription: not just fuzzier normative issues such as product quality and quality-of-life, but issues of equity, social justice, and environmental sustainability, the latter especially in the face of global population increase, mass migrations, and rising living standards.

By the 1980s, economists had embarked upon several new lines of investigation, among them digital financial modeling, economies as complex-adaptive systems and the sub-fields of behavioral, ecological, and evolutionary economics (cf. Davis, 2006). Some of these new lines of investigation were (and are) dedicated to improving economic efficiency and growth in conventional terms. But others sought to extend the range of economics' concerns as a discipline to social and material life generally, this in an effort to answer such questions as: why do some people and places prosper while others do not? What *should* money be able to buy and what not? How do social arrangements affect markets and vice versa? What sorts of education will lead to future prosperity—and what sorts of technologies? And how are we to cope with the mounting distress of the natural environment? It is chiefly with this latter set of questions in mind that this paper foregrounds the idea of *quality*.

We argue that *quality* is more than an outlying variable addressed by adding a term (or two) to the utility function of a mathematical model (which is how it is currently treated, if at all), and question whether quality is adequately addressed by specialized studies in product differentiation, point-of-sale information asymmetries, consumer preference, technological innovation, or management protocols like Total Quality Management. Does

quality represent something deeper and more profound in economic and social relations? Can the "dimensions" of product and service quality (and surely there are several such dimensions) be measured? Can they be quantified and combined at least to the extent of making valid transitive comparisons-of-degree workable, so that if $Q_A \geq Q_B$, and $Q_B \geq Q_C$, then $Q_A \geq Q_C$ over the same dimensions for the same people? This would allow quality, Q, to be built into market and growth models at a basic, supply and demand level, which is where we suspect it belongs.

For this is our hypothesis: that a general increase in the *quality* of goods and services produced by a country is not only more sustainable than, but can in large measure substitute for, a general increase in the *quantity* of goods produced—which is what people generally mean by "economic growth." Especially in advanced economies, moving from a quantity- or quantitative growth ideal to a quality- or qualitative growth ideal, offers the possibility not only of easing wealth inequality, but of easing the stress on the natural environment. Indeed if recessions like the one we have experienced for the past four years are periods of "creative destruction"—times when economies begin transitioning from one set of values and production priorities to another (cf. Schumpeter, 1939; Romer, 1996)—we wonder: might *quality* be the new watchword?

Among economists, Herman Daly stands out for articulating the rationale for qualitative growth (Daly, 1991; Daly and Farley 2004). He has long argued that a quantitatively steady-state economy, which is probably necessary for ecological sustainability, does not preclude a qualitatively growing economy—an economy that, rather than generating ever more goods and services for more people on more land, expands cleanly into other, non-physical, complexity-related dimensions. Daly proposes putting whole national economies on a diet based upon government-imposed caps on industrial throughput (= nonrenewable resource consumption + non-biodegradable waste production, industry by industry), and then relying on the still-very-free market to learn how to become more efficient at producing the same or better goods. On a diet like this, market competition would drive producer ingenuity upward and quantitative materio-energic consumption downward, leaving qualitative improvement the main avenue for growth. Daly's succinct characterization of qualitative growth in market goods and services as "development" (i.e.,

change, evolution, improvement) as distinct from "growth" (i.e., more material output, and bigger size and scale) informs our view, and is generally consonant with the line of argument we develop in this paper.

However, in the work of Daly and some other ecological economists, qualitative growth, is defined only generally as an increase in the *value* of the economic goods and services produced by a given and controlled amount of throughput. .But we get little specific idea about what qualitative growth would actually look like, be like, or feel like—little insight about quality per se. Even if a cap on material throughput were not politically problematic to impose, we would still need to wonder how consumer choice—and producer's responses to those choices—could and would animate continual increases in the value of quality.

In this paper we try, therefore, not only to propose alternative ways to promote an economy-wide shift from quantitative to qualitative growth, but also to limn what "quality" consists in at a usefully abstract level. For in order for any such scheme to work, legislators, producers, and consumers would need to understand more deeply what "quality" *is*, why we should prefer it over quantity, and how it can be measured, produced, appreciated, and accounted for. We will suggest, finally, a strategy that looks to more modest regulatory interventions, but one that turns first, and rather, to early education in quality discrimination, improved information about quality in the marketplace, and more effective persuasion as to the economic—indeed *quantitative* economic—benefits of quality growth for all ("quantitative" inasmuch as ordinary wealth, profits, and wages would grow too). To achieve a turn to qualitative growth with a lighter regulatory hand, we look to insights from the new behavioral economics that suggest that substantial changes in economic behavior can be effected by changes in the "architecture of choice" rather than by limiting or excluding choices.

2. Contemporary Views of Quality

There are two main ways that the qualitative dimensions of marketable goods, services, and experiences (hereinafter simply *goods*) are treated in mainstream neoclassical

economics (MNE). Under the rubric of standard "consumer choice theory," the dominant starting assumption is that markets are markets for goods that are perfect substitutes for each other: i.e. that they are commodities. In older MNE accounts, quality differences within specific classes of goods are treated as cases of "non-price competition." For from this perspective, quality is always *perceived* quality, i.e., subjective, manipulable, relative, minor in effect, and averaged out anyway in the aggregate. Both actual quality differences and advertising are viewed as the ways producers differentiate their products to allow higher prices to be charged. These price premiums may be related to the "pull" of a higher quality product for the price, or the "push" of creative advertising (Leftwich, 1976). Sometimes labeled "monopolistic competition," a firm can set the price of its differentiated product(s) above the prevailing price in the market for similar goods as long it retains its perceived quality or advertising edge (Chamberlain, 1962).

Older literature about non-price or monopolistic competition has little to say about what specific qualities of certain classes of goods, or what "kinds" or "dimensions" of quality across many classes of goods, *merit* different offering prices by the producer and the greater or lesser willingness to pay them by the consumer (von der Fer and Stevik, 1998). Rather than go into the matter directly, attention is devoted to the proposition that quality—like "preference"—is *revealed* post facto, through the observed income elasticity of demand for various goods. The well-known Engel curve, for example, captures the demand response to increases in income, with consumers assumed to be switching to perceived-higher quality goods as their income increases. The basic intuition is that higher quality goods are more costly and desirable; goods can hence be defined as higher quality, or revealed to be of higher quality, if and when and because we see the demand for them increasing strongly with income. But in practice, income elasticity responses do not map so easily to product quality differences within a specific product class. Most studies of Engel curve relationships use very wide good classifications—clothes, food, housing—that do not track the meaningful within-class comparisons and finer classifications that consumers actually make. Take "food:" one part of the elasticity response is attributable to switching from consumption of one sub-class to a different sub-class of goods (from rice 'n beans to steak); another to buying a greater *quantity* of goods of the higher or lower quality (six steaks versus

three steaks a week). Add to this the issue of simple satiation or boredom with a given sub-class of goods (e.g. TV programs, in the class "home entertainment") leading to switching to another, perhaps no better sub-class (e.g. video games), and it becomes difficult to tie income elasticity of demand to quality differences directly.

Bils and Klenow's work attempts to address this deficiency and isolate income and quality associations by deriving "quality Engel curves" from market data for 66 specific classes of consumer durable goods in the U.S. Decomposing consumer expenditure patterns for consumer durables into quality and quantity effects, they conclude that over half of the value of substitutions (56%) for these goods with respect to income is related to consumers purchasing higher quality products within the class, while the remainder (44%) was explained by the purchase of greater quantities of those goods (Bils and Klenow, 2001). These findings advance our line of argument inasmuch as they show, empirically, a strong relationship between income, price and quality in relatively tight classes of generally substitutable goods. For example, households buy better, not just more, mobile phones as their income increases.

We might now be able to provide a partial sketch of what a move toward qualitative growth might look like. For example, in Daly's terminology, qualitative growth in market goods under severe throughput constraints would correspond to a substantial increase in the value of substitutions within a product class resulting from the purchase of higher quality versus greater quantities of a good or service (say, from Bils and Klenow's reported 56% to 90%). Choices under a "Daly regime" would be forced to swing much more strongly to *better* goods rather than *more* of a given quality. In this still-traditional Engel curve analysis, goods remain in a kind of black box, however. We still have little insight into quality itself—into what specifically motivates consumers to feel justified in paying more for products, not just individually, brand X for brand Y, model X for model Y, but, usefully for theory, across and between brands and even classes.

A second MNE tradition attempts to look at this level of detail, i.e., to look inside "commodities" themselves to relate price and consumer choices to specific product or service characteristics. Kevin Lancaster, a pioneer in this more direct study (Lancaster 1966, 1971), observed that goods do not provide utility or satisfaction in and of themselves in unit

fashion, but are valued for the services that they supply to meet specific and usually *multiple* wants or needs. The services supplied are in turn related to specific *characteristics* of the good or service. The value of the modern mobile phone, for example, is in the services it provides: ability to reliably contact others, ability to take pictures or videos, ability to connect to the internet, etc. In Lancaster's approach, different prices for goods in the same class are related to both the number and effectiveness of the various product characteristics. It is easy to see that the "characteristics approach" to consumer demand and price formation more closely reflects the way that individuals make careful purchasing decisions.

The approach is well illustrated by how *Consumer Reports* and a multitude of other product rating services work to advise consumers, and how, in in doing so, they partially report and partially create the very notion of quality, and the demand for it, without (strictly speaking) advertising. *Digital Photography Review* (http://www.dpreview.com) provides an example of how sophisticated such efforts can become. At the other extreme are online ratings based on unanalyzed opinion, like *Yelp* or *Angie's List* or *Amazon*. Expert and research-based services provides a large variety of product evaluations for goods (but very few services). And they generally rate within very tight definitions of product markets or highly substitutable goods. For example, *Consumer Reports* (2010) recently developed rankings for "side-by-side" refrigerators (versus units with freezer on top or on bottom). This type of refrigerator is then ranked according to 6 functional characteristics: temperature performance, energy efficiency, noise, ease of use, capacity of the refrigerator, and capacity of the freezer. Some of these functional measures are simply physical performance measures (energy efficiency, capacity, noise) while others are qualitative judgments by an expert panel (ease of use). The characteristics themselves are often based on surveys of what consumer's value about specific classes of products.

Lancaster's characteristics approach is also used at the economy-wide level to try to separate price increases due to simple inflation from price increases due to qualitative improvement. Economists at the BLS, for example, have developed a system of "hedonic quality adjustments" to the prices of goods in the CPI market basket. At its center is "decompos(ing) the price of a specific consumer product into *implicit* prices for each of its important features and components (Lancaster's characteristics), thereby providing an

estimate of the value for each price-influencing feature and component"—features, components and capabilities the total number of which, in most product classes, goes up every year (Bureau of Labor Statistics, 2000). Using this technique, Paul Liegy of the BLS, for example, offers a detailed appraisal of the quality of seventeen brands of clothes dryers available in the U.S., several of which were demonstrably improved over a period of one year (1999-2000), (Liegy, 2003).

There are more scholarly and sophisticated studies that use hedonic models and the characteristics approach to study price differentiation among rival goods (Moulton and Moses, 1997; Frenkin et al. 1999; Windrom et al 2009). The characteristics that are associated with price variations in empirical studies typically fall under two broader "utilitarian" categories: *functionality* in providing the consumers the services they expect from the product class; and *reliability/durability* defined as the ability to deliver the those services on a consistent basis over the time period the consumer expects the product to last (different for cut flowers and glasses cases). Typically, on the left hand side of the hedonic price equation, is the price for a product in a class of products (side-by-side refrigerators), while on the right hand side are function measures of the class's expected functional or service characteristics (energy efficiency, quietness, etc.), expressed as a rating or score. For higher priced durable goods tested over a period of time, or as derived from historical repair data, some reliability/durability characteristics are considered as independent variables as well. We then expect overall quality scores (Q_i) to correlate positively with their actual market prices (P_i) and are dismayed or delighted when they do not.

The characteristics of products considered in empirical studies of quality are to some extent unique, of course. To consider a group of goods a "class" in the first place is to define that set of characteristics which they have in common, or that we reasonably expect them to have in common if their members are to be considered substitutable for, or rival to, each other. But we have also seen that at one higher level of abstraction, quality characteristics themselves come in "classes." For example, we have functionality and reliability/durability. At this level of abstraction, we would like to speak not of goods' characteristics but of quality's *components*, of which functionality is one and durability/reliability is another. Are

there more?

3. ***The Components of Quality***

Let us now return to the core issue of reducing growth in the *volume* of overall production and consumption by substituting fewer higher-quality goods of various classes for more, lower-quality goods of those same classes.

We begin by asserting that, on balance, higher quality goods are more complex than lower quality ones. At the most fundamental level, which we do not discuss here but do elsewhere (Benedikt and Oden, 2011), *complexity increase* is the key to value creation and to what people actually mean by "qualitatively better." Just as it is difficult to measure the *complexity* of truly complex things directly and objectively on a cardinal scale (usually we must measure it ordinally or comparatively, taking care to count the same internal parsings and/or external behaviors of a finite set of similar phenomena), so the degree of *quality* of a good is difficult to measure on an absolute scale, and for basically the same reasons. This is why quality assessments so often resort to dimensionless scores, like percentages and/or rankings, that apply to similar, on-the-face-of-them substitutable goods. Although there is a natural unit of quality—like information and complexity, it is *bits*—one can rarely attain that level of detail in practice.

Quality comparisons are at root *complexity comparisons,* with greater complexity—not greater volume, length, or weight—usually yielding the judgment "better." This is our claim. Here are some obvious instances of its truth: Consider the telephone circa 1911: a marvelous device. Now consider the *iPhone*, circa 2011: perhaps ten times the functionality, a hundredth the weight, a thousand times the number of discreet manufactured components, and a hundred thousand times the number of person-years of education and training to design it, produce it, and put the infrastructure in place that would give it usefulness. The difference is complexity.

Consider a doctor's office circa 1870: his tools, his prescriptions, his education, and his accounting system. Compare it, as David Warsh (1984) does, to a typical doctor's office a hundred years earlier. Today, the medical profession has blossomed into a hundred

specialties backed by a vast body of research findings and technological aids. Even today's primary-care physician—the figure closest to the general practice doctor of past centuries—has eight or nine years of training and works daily at the nexus of a dense network of information flows from diagnostic information suppliers, drug companies, blood-testing laboratories, insurance companies, Medicare officials, hospitals, her own nursing and accounting staff…and, oh yes, the patients themselves, many of whom have learned about their condition on the Internet.

These stories of the development of higher-quality goods and services can be repeated for many if not most goods and services available today. It is the story of complexity grown large, with more education required both to produce and appreciate them. Computers, movies, cars, even bread have not stopped evolving and diversifying. Each new model/generation builds upon the earlier model/generation, taking the complexity already embodied there for granted and building upon it. Most (but not all) are of higher quality. As noted earlier, BLS's hedonic price adjustments yield the fact, in practice, that almost all later models of goods in the CPI market basket have enumerably more "features" than their earlier model counterparts.

In some cases, though, complexification in one aspect of an industry has resulted in invisible and deleterious simplification in other areas. The technological complexity of modern industrial farming, for example, has caused a considerable simplification of agricultural products and ecological systems. An ear of corn was once the self-reproducing fruit of organically rich topsoil, grown adjacent to and in rotation with other plant species under the watchful eyes of experienced farmers. Corn is now the hybridized (i.e. non-self-reproducing) trucked-from-afar fruit of monoculture, uniform in color and shape, straight-jacketed by strict prescriptions of herbicide and pesticides, grown in depleted soil laced with chemical fertilizers (which are simpler and more repetitive chemical chains than organic topsoil) and watched over by satellite cameras. Compared to the organic complexity of natural topsoil, compared to the microbial, plant, and animal ecology of polyculture, and the accumulated tacit knowledge of farmers, "scientific" industrial agriculture is complexity-reducing.

Every industry, service, and institution has a list of the positive qualities it tries to

realize in its products and processes, and on no one's list except perhaps a wine-maker's would we likely find "complexity." It is, moreover, far-fetched to search for global commensurability; comparing the (quality of the) *handling* of a car, say, with the *taste* of a wine, the *ease of use* of a piece of software or the *warmth* of a blanket. These qualities and a thousand others would seem to be incommensurable in every way, much less devolvable to a single quantity called complexity (or anything else). Does our complexity-based idea of quality run into the same critique that has been leveled at "utility" by philosophers like Elizabeth Anderson (1993, 1997), who argues that no single, valid, universal scale exists along which one could find goods that are *different in kind* to be better or worse than one another?

No, because quality has neither utility's commensurability ambitions nor utility's commensurability problems. Given a modicum of common sense in the application, we can indeed "equate" and compare qualities, as we have seen. As with complexity itself, we compare qualities only within product groups and categories as in the characteristics-based, hedonic pricing approach. Component qualities can be seen to derive from complexity, but from the complexity of different mechanisms at different scales: mechanical linkages, springs, shock-absorbers, and rubber compounds in the case of cars' handling, polyphenols, pectins, alcohol, and acids in the case of wines' taste, number of coding modules, loops, and memory calls in the case of software's speed. In sum, unlike utility, which was posited precisely to validate valuation across goods (and bundles of goods) of quite different kinds, *quality* claims only to work with goods of the same kind, i.e., within product categories and even smaller groupings.

Hedonic price studies together with the quality Engel curve analysis show convincingly that price variations within product classes are strongly related to the two utilitarian component qualities (functionality and durability). We now want to consider and further develop the argument that defining the quality of goods based solely on these utilitarian qualities suppresses the true complexity of products and the potential for discernment and fuller valuation by consumers. For there are other, quite significant qualitative dimensions of goods that are in some sense hidden and/or undervalued in most quality reports, hedonic studies, and by many consumers. We posit a set of seven

components of quality. These all operate at a level of abstraction that allows to us to specify and apply them across a surprisingly wide range of goods, indeed classes of goods. The list includes the utilitarian components above, but also five more. These five might augment or interact with the first two, functionality and reliability/durability, but they have their own value too. It is our contention that recognizing, understanding, and better integrating these additional components of quality, and their associated, class-specific manifestation as/in a good's "characteristics," would on balance promote the substitution of quality for quantity in price-differentiated markets. All seven are complexity-derived, and are thus examinable—to at least one level beyond the obvious—with the insights that complexity theory provides.

The seven components of quality we propose are these:

1. (richness of) *Functionality*
2. *Reliability/durability*
3. *Attention to detail*
4. *Beauty* (or style)
5. *Generosity*
6. *Simplicity*
7. *Ethicality*

It would be easy enough to show that these seven components of quality appear in some form in countless quality-control manuals, manager's checklists, company mission statements, product advertisements, and review magazines. We define them in some detail in Benedikt and Oden (2011). Here, for simplicity of exposition, we offer descriptions in the context mainly of material consumer goods.

1. Functionality. The functionality of a given good provides consumers the need-satisfying services they expect. *Degree* of functionality often requires complexity in design and manufacture. Think of automatic braking systems in cars, which reduce braking distances in wet weather as well as improve cornering behavior. But here we want to highlight *richness* of functionality—i.e., multi-functionality—which is akin to, but also something a bit more than, what is reflected in the length of a typical, *Consumer Reports*-style

list of things a product *does*. For there may be many fine-grained functional characteristics of goods that are not accounted for in reports or studies of quality. Even common single-purpose goods, like sledge-hammers, upon closer scrutiny of their actual, moment-by-moment deployment, offer several areas for functional optimization and connoisseurship: from the distribution and suitability of their weight to their task, to the material, length, curvature, smoothness, and shock-absorbency of their shafts, to the shape and fixity of their heads, to their stability at rest (laid head down). These are things you have to know to look for. Given the motivation, one could study the design of sledgehammers as one does golf clubs.

2. Reliability/Durability. Goods are expected to offer their services over a period of time, usually the longer the better. To this end, products must protect their complexity against entropy's endless raids on their weaker, smaller-scaled parts ("wear and tear"), and against larger random shocks from the outside (accidents and shortages). It's true that, all other things being equal, the more complex a system is, the more prone it is to breakdown. This is one reason some people prefer, say, a can opener without motorized parts to one with gears, hinges, clamps, or a motor. This is why designers of institutions, businesses processes, and new products use safety factors of 2 or 3 in specifying material strengths, deploy backup systems for power and data and so on. Reliability and durability are probably the component qualities easiest to quantify. Newly designed products are tested extensively before being put on the market against checklists of finite length. Once the product is on the market, firms like J.D. Powers and Associates and Consumer Union in the U.S. regularly assess reliability using criteria such as rates of repair and number of consumer complaints, while in the management literature discussion of "quality" usually devolves to "quality control," i.e. reliability in production, i.e., how to reduce errors, variation, discards, and returns. In the marketplace itself, the offering of long warranties by seller-producers are intended to signal confidence in reliability.

3. Attention to detail. Again, this is easy to see as a cause (and then result) of complexity. Whether the good is a material one, like a jacket, or a service, like a haircut, attention to detail decreases the scale of consideration and discernment from feet, say, to millimeters, from minutes, say, to milliseconds, and thus vastly increases the number of

parts at play. One looks at the jacket's stitching, at its "drape" (which is a function of the fabric's micro-scaled weave), at its button holes, at the subtleties of its slopes, padding, lining, and cut; and, of course, one pays attention to the jacket's fit to one's particular body. Or think of the nuances of playing a piece of music instrument well. With attention to detail, the ideal is perfection. But whether or not perfection is achieved, attention to detail also bespeaks *care*—that precious and entirely human "commodity" which is not adequately described as "labor input" and which it is of intrinsic value to command.

4. Beauty. There are few more salient master qualities affecting both production costs and market prices than a good's beauty or 'style.' The trouble is that beauty is as tricky as reliability is straightforward to quantify. Indeed, many would say that treating esthetic qualities analytically is a fool's errand, leading us to hopeless, eye-of-the-beholder subjectivity on the one hand, and blindly-accepted, New-York-Times-says authority on the other. Perhaps this is why *Consumer Reports* has no category called "esthetics." We speculate however (Benedikt and Oden, 2011), that there are some fundamental, complexity-based characteristics of goods that lend them greater or lesser aesthetic value. Rudolph Arnheim's 1971 *Entropy and Art* makes an argument not unlike economist Nicholas Georgescu-Roegen's, that the function of art, and indeed of all productive human activity, is to seek or create harmony and order against the "law of increasing entropy." The fact that symmetry, regularity, clarity, material purity, smoothness, and crystalline or egg-like form are rare in mature ecosystems, makes their consistent production by human beings in the face of dissolution, weathering, and chaos something of a triumph. But the manufacture of beauty is a more complicated matter than seeking/creating order alone, for too much order yields *rigor mortis*. Complexity is the *sine-qua-non* of living systems; complexity is what we want. Complexity increase is the result of almost all evolutionary processes, and it is maximized (to a first approximation) mid-way *between* chaos and order. So while beauty (or style, thought of positively) undoubtedly displays wide cultural variation at the characteristics level, as a component of quality it depends also, and not entirely subjectively, on how a good optimizes the complexity of *our* lives when in contact with it.

5. Generosity. Goods of high quality have about them a margin or aura, a memory, of unbidden generosity. As fine as they appear to us when we first see them or acquire them,

finer-yet is what we discover them to be…revealing, in use, and always casually, qualities or features not mentioned in any advertisement or demanded by any consumer. This part of them is a gift, an unexpected "extra" (Hyde, 2007): the underside of a coffee table is perfectly finished; the inside of a vase looks as good as the outside; software has a valuable feature found only with certain key-combinations; the panes of a new window exceed insulation standards; screws are stainless steel, Allen-headed, and four in number where three, flat-headed, in plain steel would have done; a doctor's office eschews automated call-filtering and uses a nursing-trained receptionist instead (a fact you don't notice 'til you do); a teacher brings in her own books and stays late with a promising student. Opportunities for exceeding expectations are myriad in most goods and services, and they yield rushes of pride to the provider if not, with absolute certainty, equal rushes of pleasure to the recipient. The premise offered here is that, through reputation effects in particular, generosity can translate into value demanded by consumers. Although open to manipulation by expectations,[1] the greater consumers' powers of discernment, the more willing they would be to switching to goods that delivered unexpected extras.

6. Simplicity. Given that one of our fundamental arguments is that (high) quality is typically associated with high complexity, it might seem odd to list simplicity as a key component of quality. This conflict plays out in everyday life: when greater complexity of design and manufacture is required for goods to improve, and when greater complexity in institutional and business arrangements is demanded by every step forward in economic progress, people *en masse* become caught up in an urgent optimization problem: *how best to allocate their finite attention and mental energies* (Lanham, 2006). Put another way: when the complexity of daily life creates stress, and that complexity derives chiefly from very *variety* of goods and activities put before us, then the simplicity of any one good or activity plays to its advantage: it promises us relief, but also that we may move on to enjoy the *other* goods and activities all the sooner.

But this speaks to simplicity's utility as an attractor of attention, not a deliverer of satisfaction or happiness; it does not tell us a how a good, once paid attention to, can give us

1 A good example: Southwest Airlines advertises itself as a no-frills, low-cost carrier, American Airlines as a full-service one. Free peanuts received on a Southwest flight are recieved with delight. Not so on American.

access to the complexity we need to absorb and master. The trick is *leverage*: the ability to control and/or consume complexity that we cannot understand, by means that we can. Simplicity that is highly valued by consumers frequently masks enormous complexity—indeed, *requires* enormous complexity to be packed into and embodied in the final product, not just to give it its capabilities over time, but to make our interaction with it simple, intuitive, at any given time. Complexity must be wrapped in simplicity. Case in point: Apple's *iPhone*. Rival Palm *Pre*'s ad copy was candid: "Filled with technology you'll never have to think about." It's a rule that applies to all technologically developed products.

7. Ethicality. Given the severe and growing problems of social equity and environmental stress in economic and social life, ethicality represents a crucial and relatively new component of quality in the market context. For when ethicality is added to the list of component qualities, a window is opened to all of the complexities involved in making goods healthy, safe, ecologically sustainable, and under labor conditions that are socially just. Every item presently in the marketplace, after all, has a history and a destiny: a history of how it was made and got to be there, and a story of how it will be consumed and be disposed of. Assessing a good's ethicality properly requires that its entire arc or life-cycle be known and critiqued, and that all the harms and benefits along the way be tallied, not just the benefits to its current owner or consumer. Negative externalities abound, as many have noted: noise, chemical pollution, exclusions, and these must be internalized on ethical as well as market efficiency grounds. Best are goods that are made ethically in the first place. Fair-wage labor, honest business practices, foods grown organically, cars made out of recyclable materials, buildings that use renewable energy, natural light, and non-outgassing, low-embodied-energy materials, factories that scrub their own wastes, banks that invest in ethical businesses and so forth. All such goods add complexity to their manufacture; all cost their producers more to design, advertise, monitor, maintain, and dispose of than their cruder, less ethical counterparts.

Our discussion of the seven key components of quality is based on the proposition that goods which aim to be of high quality derive much of the value by going above and beyond their basic utilitarian functions to how they create, maintain, and manage high levels of complexity—their own complexity and that of our lives. Products of high overall quality,

Q, we are saying, are apt to be (1) richly functional, (2) super reliable, (3) attentive to detail, (4) quite beautiful, (5) surprisingly generous, (6) simple to use/understand, and (7) more ethical than they need to be by law or the routine norms of many markets. All are more complex than their lower-quality counterparts requiring expertise in their production and connoisseurship in their consumption.

We can advance a simple heuristic model to denote how characteristics of these seven components of quality might translate into an overall quality index, or score, Q, shaping consumer choices. First we define the category of goods we wish to deal with. Next we define the vector of characteristics associated with each of the seven components for that category (they need not have the same number of characteristics). These we can score how we please, but consistently, so as to arrive at a component score between 0 and 1 for each component, thus $0 \leq q_F, q_R, q_A, q_B, q_G, q_S, q_E \leq 1$. We could then write that the overall quality of product i belonging to product-category j, $Q_{i,j}$, is equal to $7/(1/a_j q_{i,F} + 1/b_j q_{i,R} + 1/c_j q_{i,A} + 1/d_j q_{i,B} + 1/e_j q_{i,G} + 1/f_j q_{i,S} + 1/g_j q_{i,E})$, where a_j through g_j are coefficients greater than 0 and less than or equal to 1 that reflect the *a priori* weight of each component quality as it reasonably applies to goods belonging to category j. The presumption is that consumers will value, pay for, and substitute goods that have higher Q values for ones that have lower Q values.

Here, Q—which also varies between 0 and 1 and so is easily converted to a percentage-like "grade"—is defined as the weighted harmonic mean of the quality component scores. Using the harmonic mean formula we propose allows a very low score on any one of the component qualities to drag down the value of the Q a great deal. This is in keeping with the argument put forward by Coad and others noting that judgments of overall quality often depends on the multiplicative interaction of individual qualities in product quality space (Coad, 2009; Purohit and Srivastava, 2001). Of course, the specific characteristics that form the basis of individual component quality scores ($q_F, q_R, \ldots q_E$) and thus overall quality scores, Q_j, will vary from one category of good (j) to the next. The characteristics comprising *functionality*, q_F, would differ hugely between a cell phone and a dining table, that of *beauty*, q_B, perhaps less; while *ethicality*, q_E, might be quite homogeneous across several product types and classes.

Our formulation of Q assumes, indeed proposes, that all the components of quality

(should) enter into an overall quality score to some non-zero degree given by the coefficients a_j through g_j. More critically, it proposes that Q, were we to able to determine it beforehand, would predict (and indeed influence) consumer choice within a given class of goods. At the moment there is limited evidence, however, that all seven of the components are strongly embedded in consumer choice in any systematic or consistent form: as noted, most consumer-oriented, quality-ranking literature that leans to systematicity focuses heavily on the two utilitarian components, functionality and durability, omitting the other components or treated in them only in literary, post facto fashion. We might *say* that Apple succeeds brilliantly because of its products' consistent beauty and simplicity, but we have no confidence that we could or should *score* these components, or try to limn what characteristics these components are comprised of in Apple's case. But even with quality's functionality and reliability components at work, correlations between quality and consumer valuations, expressed as the observed willingness to pay higher prices for goods of higher overall quality, are not strong. Might it be because of the hidden effects of the other five, unmeasured components? ("Sure, it does the job reliably, but it's ugly and complicated…"). For us this is an open question.

Research, furthermore, shows that the price-quality (*P-Q*) correlation varies across different categories of goods. In retail markets, the strength of the price-quality correlation is influenced in particular by the cost of a product in a particular class relative to household budgets and the accuracy and availability of information about a product's qualitative attributes. *P-Q* correlations are high for goods that are durable, expensive relative to people's incomes, technologically sophisticated, and personally testable before sale—like cars, computers, and cameras. *P-Q* correlations are low (and even negative) for goods that are more ephemeral, cheap, personally untestable before sale, and technologically static, like packaged toys and foods, especially frozen foods (Judd, 2000; Riesz, 1979). Weak *P-Q* correlations are also found with local service industries (dry cleaners, roofers, locksmiths, movers…), where quality-of-service also correlates very weakly, and sometimes negatively, with those services' prices (Murphy, 2002).

It also seems that people have *expectations* about which categories of goods have high price-quality correlations and which have low price-quality correlations—and these

expectations have effects of their own. When *P-Q* correlations are thought to be low, people tend to choose lower-price, lower-quality options. When *P-Q* correlations are thought to be high, people tend to choose higher-price higher-quality options (Ordonez, 1998). Other research suggests that not all consumers need to engage in primary research about product quality in order for higher *P-Q* correlations to take hold and for all people to benefit by being able to trust prices as accurate quality signals (Tellis and Wernerfeld, 1987). It suffices that *someone* has done the research and that these findings be widely dispersed.

The implications of these two findings taken together are significant, because raised *P-Q* correlations generally might well encourage more people to choose higher-priced, higher-quality goods all by itself, as it were—*which is just what we want in order to promote qualitative growth*. Again, superior information leads to better choices by consumers, with a firm tilt toward quality. Superior information about *real* prices (i.e. prices that systematically internalize externalities) can be generated without involving *every* consumer in primary research about every product or service they might want to buy, and yet incline people to spend more on quality generally if only by improving expected *P-Q* correlations in the realm of ethicality.

We need to double back and consider how the full list of components, especially the "non-utilitarian" ones (attention to detail, beauty, generosity, simplicity and ethicality), might enter more fully and effectively into consumer choice. How, in our harmonic mean formula for *Q*, might non-utilitarian components become more heavily weighted to as to support the general substitution of quality for quantity? As we suggested when they were defined, these components and their underlying characteristics are already considered and valued by *some* consumers *some* of the time, this even though they are largely absent in quality ranking services. If these components currently influence consumer choices, and producer prices, which we think they do, then they do so in three forms which could be amplified and multiplied: 1) savvy and unusually discerning consumers devoting extra time and effort in the search and evaluation of products are evaluated prior to purchase; 2) distinct subsets of consumers putting especially high valuations on select non-utilitarian component qualities (for example, ethicality or generosity) in ways that encourage imitation by virtue of their "coolness," and 3) recognition by ordinary consumers of how the non-

utilitarian qualities of the goods have enjoyed increased their enjoyment, and this affecting their future purchase choices: lessons in discrimination, in connoisseurship.

But how might all of this be accomplished? Major insights of behavioral economics provide some new possibilities for changing the hearts and minds of consumers and producers. One of the foundational moves of behavioral economics is to update the model of the market to depict not hyper-rational agents, (buyers and sellers) operating in an information-rich environment, but somewhat-rational agents operating in as information-poor environment (Colander, 2003). This is a far more realistic picture of all but a few formal markets. On this view, the preferences "revealed" by actual consumption choices may not be reliable; they may not be telling us what buyers really want (Colander, 2003, 2007; Thaler and Sunstein, 2003, 2008), and not because what they really want is not on the market. A formidable body of research now highlights many peculiarities in consumer behavior and choice—peculiarities, that is, irrationalites, in the view of MNE tradition. Relative standing, loss aversion, and excessive time discounting are non-value-maximizing behaviors from the perspective of a rational cost-benefit analysis of consumer choices. Relative standing and loss aversion make people engage in fruitless, can't-win "rat races" of goods accumulation, while faulty time discounting makes people spend too much on current consumption and too little on goods that yield long-term, sustainable security and even pleasure (Mullainathan and Thaler 2000).

Returning to our own context: price- rather than quality-driven consumption choices may be easier to make: a price is easy to see, quality is hard to assess. But following the easiest path here might run counter to the actual welfare or happiness to be gained from noticing the absence of, producing, and then appreciating more of the non-utilitarian qualities embodied in more complex, higher-quality goods. If true, we might get some purchase as policy makers on changing the architecture of choice through "libertarian paternalist" kinds of intervention combined with a regulatory changes far less drastic than the top-down throughput restrictions recommended by Daly. The extent to which certain choice-structuring initiatives and regulations might nudge more consumers to put higher valuations on non-utilitarian qualities, as well as have higher expectations of the utilitarian

ones, is the extent to which greater satisfaction or happiness will redound from focusing on quality generally, both in production and consumption.

4. Changing Choice Architecture to Promote Qualitative Growth

As noted, there is, as yet, no evidence that the majority of consumers value the non-utilitarian components of quality anywhere near as much as they do the utilitarian ones, functionality and reliability. To claim that they do unwittingly, or simply haven't been asked the right way, would require specialized research. But there is evidence that a growing subset of consumers *do* value many goods' non-utilitarian components strongly—if selectively. For example, the market is growing for "green" and other organic products, and for goods produced under fair labor and trade conditions, without cruelty to animals. And there are certainly growing communities of consumers who show high levels of connoisseurship, from Apple aficionados, to foodies, to car and camera buffs, kitchen appliance mavens, weekend bicycle racers, adventure travelers and so on. The list is long of enthusiasms that seem, on the face of them, a little ludicrous and unproductive, but which may, in the aggregate and amplified, be our economic salvation. Complexity-wise, quality-wise, what goes around comes around. Economies can expand with less quantitative growth or environmental degradation; economies can expand demanding and supplying quality alone.

The immediate challenge of this line of thinking is two-fold: to bring the non-utilitarian qualities we've mentioned into the valuation process of a greater number of consumers, and to encourage the expertise needed to *produce* goods with these qualities (as well as greater functionality and reliability) for a greater number of producers. How might these goals be achieved with a minimum of legal regulation? Here are three recommendations.

Getting Prices Right

Most schools of economic thought today recognize that failing to invoice externalities properly promotes erroneous market signals and thereby inefficient resource allocation.

Internalizing negative environmental externalities more fully and more systematically would, for example, improve the information upon which somewhat- rational consumers or firm owners make choices. Expanding this logic to other, un-priced or underpriced externalities would lead to substantial changes in relative prices, and thus generate a distinctly different set of signals shaping consumer choices. In result, fewer harms or uncompensated gains would accrue to those not voluntarily involved in an economic transaction, and fairness and ethicality-in-production would be advanced all around. The ethicality component of all products' quality would be advanced "automatically" in significant measure. Moreover equity gains would accrue from simply reducing negative environmental externalities, which are more likely to fall on low-income citizens in their homes or workplaces (Robinson, 1991; Dembe et al., 2004).

The US has been much less effective at internalizing negative environmental externalities than its major trading partners. A look at relative energy prices is telling. Gasoline prices in the EU are 2.2 times those in the U.S., while gasoline prices in Japan roughly double the U.S price (International Energy Agency, June 2010). End use residential electricity prices in the EU average around 2 times those in the U.S. while Japan's are about 58 percent higher (International Energy Agency, 2009). The lion's share of these differences is due to Pigovian taxes or regulations on negative externalities associated with these energy sources. There is a large body of evidence that getting prices right does indeed affect major shifts in consumer and producer behavior. More accurate price signals in most OECD countries are associated with significantly less driving and energy consumption per capita, substantially less GHG production per capita, much greater transportation mode choices and even distinctly different patterns in the built environment. And there is no evidence that citizens of these countries perceive their quality of life or general happiness as inferior to the U.S. citizens'.[2]

This is well-trodden ground. For us, the point is that more accurate price signals would lead fairly straightforwardly to more ethical and sustainable *qualitative* economic

2 Indeed recent life satisfaction surveys rank northern European countries with much higher energy prices and more rigorous general environmental regulation higher in life satisfaction and (satisfaction x life expectancy) than the U.S. See Ruut Veenhoven. 2005. "Apparent Quality of Life in Nations; How Long and Happy People Live," No. 71. *Social Indicators Research,* p. 61 and Raksha Arora. 2008. "A Well Being Report Card for President Sarkozy" http://www.gallup.com/poll/103795/WellBeing-Report-Card-President Sarkozy.aspx.

growth. Many goods, presently cheap because of the unrecompensed harms they do to others or to the environment, would become more expensive. But many, presently expensive, would become less so because they are subsidized by *all* those who enjoy their benefits. This realignment of prices over time would discourage the production of low-quality, natural-resource-intensive goods that use minimum human capital, and encourage the production of high-quality, natural-resource-efficient ones that use (and thus elicit) more substantial human capital.

Quality Information

Behavioral economics highlights how market decisions are shaped by exactly how choices are presented, by the quality and framing of background information, by social habits and norms, and by feelings about fairness, deservingness, and altruism (Thaler and Sunstein, 2008). If, de-linked from strong rationality assumptions, the architecture of choice can be re-designed so that freedom of choice is retained "while also helping people make better choices for themselves" as Thaler and Sunstein argue (ibid, p.14), then "architectures" that favor quality over quantity can be put in place that have more or less specificity to the components of quality we want to encourage.

We know that warning labels, notifications of work hazards, and signs encouraging people to drink more water on hot days, can strongly influence choice patterns. Even changing the order in which alternatives are presented can have major effects (Choi et al. 2003, Kahneman and Tversky, 2000, O'Donoghue and Rabin, 2003). But thinking more broadly, making the *quality* of every good and undertaking—rather than its power, size, convenience, or popularity—a central element of the public discourse through the media and associated informational networks would supplement the efforts of marketers and advertisers to grow their clients' revenues, but channel them into sustainable, expertise- and connoisseurship-generating patterns. Certainly, already, and since its inception, a significant subset of advertising is devoted to conveying information more or less honestly about the capabilities and qualities of the goods being purveyed. Behind the ubiquitous encouragement to buy and have more, however, is a clear-eyed understanding that generating *dis*satisfaction with present arrangements by comparing them to a fictional, high-

quality norm (Walsh and Gillespie 1990; Kilbourne, 1999; Lasn, 2000). While this sometimes rankles, given stronger limitations on advertising to children and tighter regulations on truth-in-advertising—measures common in other first-world countries (Kasser, 2002)—motivations to consume less but higher-quality **x** rather than more but lower-quality **y** for relative social standing reasons could be turned to socially positive effect.

At the same time, media channels, old and new, could expand the discussion of quality in the context of both public and private goods. While customer reviews are commonplace on the Internet, they are highly vulnerable to manipulation. One could imagine a *Consumer Reports* prime time show that reviewed products and services according to both utilitarian and non-utilitarian quality components on a weekly or daily basis. Volunteerism and advocacy could also play a key role. Advocates could engage with, for example, various home improvement shows to highlight the superior quality and coolness of a beautifully crafted, green, 2,000 sq. ft. house built by skilled workmen and an informed architect as compared to a same-price, sprawling, 5,000 sq. ft. house built by underpaid laborers from formula plans. Indeed, relative social standing could be leveraged to make "smaller, better" fashionable and "bigger, worse" embarrassing.

Another way to elevate the quality discourse would be through the development of a system of "national quality accounts" paralleling national income accounts. The BLS system of quality adjustment points to a way of assessing and measuring qualitative improvement in all goods. But what is needed is a more representative and comprehensive quality tracking system, one that uses methods like those of the BLS and that includes the seven component qualities we suggest in some form, to cover a "market basket" of hundreds, perhaps thousands, of goods and services while distinguishing between imports and exports, and changing the emphasis from the contemporaneous, inter-brand comparisons typical of the consumer guide literature to the historical, model-year or generation-to-generation, *intra*-brand comparison of quality of goods at the same, inflation-adjusted retail price points. From this exercise an important Quality Growth or Qualitative Growth Index (*QGI*) could emerge, one not only with consequence for policy, but that could be incorporated into *GNH* (Gross National Happiness), *GPI* (Genuine Progress Indicator), and other quality-of-life measures being established by government accounting agencies (as in

the U.K. presently, France soon, and Bhutan).

Quality Education

We mean here better education, of course, but more pointedly, we mean *education in quality* as the subject matter of study, as one might ask for education in science or history. Formal education can be a crucial instrument in teaching people how better to produce quality, but in equal measure, how better to appreciate it and seek it out in the varied productions of others. We mean, again, *expertise* and *connoisseurship*. Happily, both expertise and connoisseurship have passed out of the hands of elites in many areas. Community colleges and university extension programs have tapped into the desire most people have to become expert in some area; enthusiast magazines, Internet 'zines and blogs, and online rating aggregators like *Yelp*, *Amazon*, and *Angie's List* are encouraging people to make discriminating choices and let those be known to others. With social digital media, quality information is wide circulation, having as much to do with status as with entertainment, and on the production side, having to do with surviving as a business. With better schooling, these informal trends can grow in scope, objectivity, and depth.

Consider the benefits of "Quality Studies" being taught at high schools, or even middle schools, as a required class, not unlike Social Studies or Geography. Students would examine an approved selection of commonly available goods and services, by brand and/or model or provider, and then systematically analyze (1) the materials, work conditions, resource demands and other factors that went into their production, (2) the externalities (positive and negative) of their manufacture, use, and disposal, (3) the characteristics, dimensions, utility, and component qualities that make them desirable at all, and then rate overall quality, *Q*. In addition to such "case studies," they might do laboratory tests and apply statistics; they might carry out modest consumer surveys and apply more statistics, or they might collect and compile tests already done (say by the BLS Consumer Price Index group or other ratings agencies). In a more literary mode, they might critique current advertising by writing essays or making their own videos, or they might formally debate good A's superiority over good B. We could inform future generations about the quality of every object, service, and aspect of their economic lives, both as consumers and *producers* (for

many would be inspired by such classes to *make* better products themselves someday, with a beginning idea of how). Quality Study classes would by default also be teaching ethics, psychology, esthetics, science, mathematics, economics, social studies, writing, and rhetoric. And be *fun*, in good part because it builds on that age-group's natural desire to individuate *and* identify with others based on product preferences.

Just as no one can have expertise in everything, so no one can be connoisseur of everything; but a *culture of quality* is possible, and this is what classes like the one described above could realistically help achieve. As we noted earlier, ultimately, the market need have a very small number of trained connoisseurs making informed quality judgments in any one area in order for benefit to accrue to all (Tellis and Wernerfelt, 1987 op. cit.). Under the watchful eye of trusted quality-raters with access to a public predisposed to making quality judgments, advertisers would become more honest and prices would become a more reliable signal of quality (Archibald et. al, 1983 op. cit.). Consumers more confident about making higher-price higher-quality choices (Ordonez, 1998 op. cit.), would start to drive producers to meet that demand and pay more for the skilled labor and smart technology required. Add to this virtuous circle the steady (probably government-overseen) adjustment of market prices to better reflect the true costs and benefits of externalities, our first recommendation, and we would have a *marketplace* whose intrinsic dynamics delivered much of the move to qualitative growth we want.

6. Conclusions

It is undeniable that profound and seemingly intractable problems are haunting the contemporary global growth regime. Growing inequality in the both the distribution of income and access to opportunities between the global north and south and even within advanced market economies like the U.S. underscores that many do not in fact benefit from quantitative growth, i.e., from more people making more things for more people. Continual quantitative growth in per capita GDP is being accompanied by escalating environmental costs worldwide, most prominently in the form of global warming, but also in the form of

deteriorating air and water quality, toxins in food and consumer products, and general natural resource depletion. Finally, there is mounting evidence that that increases in GDP per capita over the last 30 years (in OECD countries at least) have not added significantly to those countries' general happiness. These fundamental long-term trends are eroding that very central article of faith that conventional economic growth intrinsically translates into greater well-being.

Repairing failures in contemporary market growth processes involves conventional reforms to be sure, but it also requires, we claim, a more fundamental recasting of how we conceptualize, understand and organize economic activities. The aim of this paper is to promote a broader rethinking of the relationship between material wealth and social welfare by investigating more deeply the role of *quality* in economic activities and the idea *qualitative growth* (which is to say growth in product and service quality rather than product or service quantity) in both public and private goods.

As we undertook this investigation several years ago we were surprised that the meaning and possible mechanisms of qualitative growth is relatively underdeveloped and understudied in economics and related fields. The clearest and perhaps most prominent rendering of qualitative growth has been put forward by Daly and the ecological economists. They argue that a quantitatively steady-state economy could still yield robust growth in the materially lighter dimension of persistent and pervasive quality increase. Daly provides one view of how this might be helped to happen—a governmental restriction on energy use and material throughput forcing efficiency and quality improvements by producers. We attempt to complement and amend this growth concept by looking more deeply "inside" goods and services to uncover more varied and complex components of quality. If non-traditional and "non-utilitarian" components of quality are revealed, enumerated and valued this could change the habitus of consumer choice. And there are softer initiatives and regulatory measures that could more incrementally drive a move to qualitative growth than centralized throughput restrictions.

The most common riposte to qualitative growth arguments is that they are elitist. "Quality costs money and always has," the objector says. Price increases from internalizing negative externalities and improving across the entire range of component qualities will

drive up prices. "What are the poorer among us to do *but* settle for what you haughtily call junk, crude, fake, and so on?" A crucial remaining task in the qualitative growth discourse is to demonstrate that equity can actually be improved through a virtuous cycle of *economy-wide* quality improvement. When more people produce greater quality, and with resource constraints appropriately set based on true costs of production (internalizing externalities), there will be a greater substitution of labor and skill (human capital) for other factors of production, which would be more dear. On the production side, higher quality earns more for those who produce it—who then can demand higher quality from others. This is the upward spiral of economic progress through system-wide product-quality-improvement, which at present countries like Germany exemplify to some degree.[3] When more people produce greater quality, more people will be able to afford it because skills and craft will garner higher rewards. We'll consume less in overall quantity, prosper economically, and enjoy our lives more. •

3 See Aiginger (op. cit.). Aiginger uses euros/kilogram as a proxy measure of quality, a technique we will discuss later. Geoghegan (2010), and Geoghegan in Jung (2010), wonders how Germany manages to provide higher QOL to its citizens with fewer hours of work than America does, and ascribes it (generally) to Germany's labor movement's success as restricting work hours. We think there's more to it than that. Germany's GDP is based more on *qualitative growth* than is the U.S.'s; and a good part of that, as Geoghegan also notes, has to do with Germany's socialist commitment to *equity*, its highly trained workforce, and its educated population's greater ability to appreciate good design and quality.

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