Economic Efficiency, Economic Ethics, and Health Care

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Abstract

Proposals to achieve universal health insurance coverage necessarily deal with the requirements of economic efficiency implied by rules of public finance as well as economic ethics. The special nature of health care therefore requires special attention to the proper assignment of health care responsibilities. This paper examines the dictates of economic efficiency regarding the public objectives of universal health care—thus remains squarely in the economics efficiency framework—and finds that a consistent, virtually unique framework results from efficiency alone that includes the type of incentives used to expand coverage, the way insurance is offered, and control over the program budget. The implications of efficiency overturn standard assumptions regarding public provision of private goods such as health care but also provide new grounding for prescriptions involving the incapable needy and agent equipping, normally considered as the realm of economic ethics.

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1 Introduction

The United States is engaged in reconsidering national health care policy. Prominent in this review are 45.7 million residents who at a given moment are without health insurance. Past discussions have often been bound by historical and political precedent. This paper proposes to evaluate a different perspective by asking the question, If the goals of health care policy are identified and economic efficiency is the object in achieving them, what principles and tools are available and what implications emerge? Inherent in this question is the view that an unencumbered approach is best suited to finding the best action. We review both motives and methods, paying special attention to the objective of covering every household with health insurance. Tools available to policy makers may be better today than they were in the past, and in some cases the usual presumptions need revision. For example, in what follows we do not rely on market imperfections or limitations on government’s ability to observe income or work effort to justify government interest in health insurance.

This re-appraisal begins by reviewing the motives behind government interest in health care. The literature has struggled to explain the logic behind public provision of private goods on the two grounds that government wants to engage in redistribution and that it has limited information and/or tools. We find these explanations inadequate. First, why does government want to redistribute? Such a goal itself needs grounding. Second, if redistribution is the objective, why is there interest in the level of consumption of selected goods only such as health care, education, or food? There is no answer in this literature. In addition, the limitations on government and its abilities that the literature has settled on often fly in the face of facts.

Fortunately it is unnecessary to rely on inaccurate and incomplete rationales. One can justify government interest in health care and education on fully adequate economic grounds and proceed to the issue of how government can use the full set of tools available to it to accomplish its objectives. After first reviewing the standard explanations we suggest a rationale that grounds government’s interest in goods such as education and health care on efficiency considerations (First and Second Fundamental Theorems of Welfare Economics) without requiring exogenous assumptions about equity and redistribution. The objects of economic ethics enter the discussion, but through a different portal.

Having examined and rejected standard rationales and replaced them, the third task is appli-
cation. We describe three relevant results from public finance and general equilibrium accounting and summarize five objectives that we suggest satisfy most Americans' desires for health care reform, leaving few, if any, objectives unaccounted for. The purely technical problem of how the objectives are efficiently accomplished in light of the tools is described as the last application. The final section concludes.

2 Re-evaluating Government Interest in Health Care

Redistribution is often presented as the operative government objective when it intervenes in the private sector. Used as an intervention tool, we know that in-kind transfers can constrain the recipient whereas cash transfers do not.\(^1\) Thus, if redistribution is the rationale for intervention, both recipients and government should prefer cash to in-kind transfers.\(^2\) Everyone knows, however, that health care, education, food stamps, and other goods are given in-kind, suggesting that the social goals are not redistributive as typically stated, but the level of consumption of the selected commodities themselves. The possibility that a transfer recipient might use cash meant for health care to purchase cigarettes or beer causes many to advocate for in-kind transfers.

The economics literature, however, has pursued an entirely different tack.\(^3\) Observing that governments regularly engage in public provision of certain in-kind private goods, many economists sought to make this observation consistent with theory by finding constraints on government, the consequences of which would be the observed behavior. This literature generally retained redistribution as the operable objective (without justification) and assumed that the government was unable to observe the signals (usually income) that would allow it to know who the intended recipients were. Some commodity was assumed to be superior in "seeking out" the intended group in the darkness of the circumstances assumed (and/or to be superior in avoiding the non-

\(^2\)Aaron and Von Furstenberg 1971
intended group) so that the superiority of purchasing power transfers would be diminished and in-kind provision would be substituted.

For example, if rape victims are offered transfers of cash, everyone has an interest in qualifying. But if counseling is provided instead, only the intended beneficiaries will be interested in the transfer. As long as it is impossible or costly to distinguish victims from other people there is an advantage to supplying the counseling service (Blackorby and Donaldson, 1988, p. 691).

In this example, the benefits of the counseling to the recipients could, in fact, be much less to them than the cost of providing counseling. In general, it is difficult to identify the true value to recipients of in-kind-provided goods. Coupled with the usual inefficiencies associated with government programs, there are reasons to avoid in-kind transfers.

The “damaged-government-target-seeking-commodity” argument turns out to be well suited to economic modeling and publishing. Relevant discussions can be found in Atkinson and Stiglitz 1980, Hare 1988, Boadway and Marchand 1995, Cremer and Gahvari 1997, Gahvari 1995, Blomquist and Christiansen 1995. Examples include the inability to observe a person’s income, work effort, or type (high skill or low skill) where the severity of the imperfection can be alleviated by public provision of a good that helps differentiate (Nichols and Zeckhauser 1982, Boadway and Marchand 1995, Blomquist and Christiansen 1998a, 1998b, Pinto 2004). For example, if government wants to redistribute to the “low-skilled,” cannot identify who is low-skilled, can offer a good that it knows the low-skilled prefer more strongly than the high-skilled, and that the high-skilled can be made to pay for in greater proportion than their population share, then it can engage in redistribution after all through in-kind transfers, albeit in a way that introduces dead-weight losses (Besley and Coate 1991, Marchand and Schroyen 2005). A substantial literature has emerged.4 Though fully appropriate in its own sphere, the problem with this approach may be

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4In addition to the redistribution-limited-capability explanation, other approaches have looked to voting mechanisms to explain public in-kind provision (Epple and Romano 1996), human capital externalities (De Fraja 2008), revenue collection technology based on the observation that rich countries rely predominantly on transfers in cash in their redistribution policies, while in poor countries a greater share of redistribution is through transfers in-kind (“governments in rich countries have access to better revenue collection technologies and exhibit less corruption and/or less tax evasion than governments in poor countries,” Bearse-Glomm-Janeba 2000), and concern for equality of distribution of the good itself (Gasparini and Pinto 2006), among others.
that the explanation is too good. Many goods have demands that are positively correlated with income, consumer type and so on, but we do not observe government providing them. Would public support be the same if government universally provided beer because the higher-skilled, higher-income prefer wine? The fact that we observe health care, food stamps, and education being provided suggests other motives.

Redistribution itself must also be questioned as the rationale for public provision of many private goods. Education and health care, in particular, seem more responsive to notions of equal opportunity and ensuring that everyone is equipped to be able to earn a living. Food stamps are given on the occasion of inability of the recipient to earn enough to provide adequate food, and the wish is to prevent the aid from being used in other ways. In the early days of the program, it was also seen as a way to deal with agricultural surpluses, which has nothing to do with redistribution. When redistribution is the operable motive, as appears to be the case with the Earned Income Tax Credit, government provides cash as theory predicts, not publicly-provided private goods.

An objective reading of the economics and health care literature reveals that the rationale for government involvement in private goods markets is weak. If redistribution is not the ultimate government objective and government has the ability to observe incomes and/or work effort and can make cash transfers, then the underlying rationales for government in-kind provision of health care and education do not apply. Further, claims from an externalities and public goods basis that improved health for others must be a social responsibility because society benefits from a healthy population, healthy workers produce more which leads to lower prices, etc. are dubious. Many of these arguments are naive, and would apply without change to food, to clothing, to shelter, to newer production facilities, to better shopping malls, and any number of economic activities generally regarded as private. They confuse the benefits of living in a society—access to trade at favorable prices—to true externalities. The burden of proof rests with those asserting public goods or neighborhood effects to prove the amounts involved. My appreciation of the appearance of a new Microsoft plant as I drive past on the freeway may, in fact, be a true externality, but sensibly considering the magnitudes involved, does not constitute a validation for establishing public tax programs to subsidize the construction of Microsoft plants.

We are led to return, therefore, to the observation that competitive markets are efficient in providing private goods and, in general, only non-rival public goods with excludability issues need
public attention (see Ballestrano 2000). Except by chance, public-provision schemes for private goods involve deadweight loss and move the economy inside its Pareto frontier (Besley and Coate, 1991) though, as noted, public in-kind provision of private goods can result if government has limited capability. We therefore seek alternative rationales for government interest in health care consistent with an efficiency perspective.

2.1 Why is health care a government concern?

It is not difficult to show that standard welfare theory can provide valid reasons for government’s interest in the level of health care consumption consistent with the First and Second Fundamental Theorems of Welfare Economics (FTWE) that can apply to a wide range of circumstances, including Lindahl equilibria and economies with public goods. For example, the following functions of collective action through government auspices are consistent with a neo-classical and economic efficiency perspective. We comment only on items 4 and 7 that may appear out of the ordinary and thus require elaboration. The FTWE presume that the prior conditions exist for commercial “rules of the game” to apply, and we know from the literature that attention must be paid to the viability of agents that make up the economy in order for general equilibrium to exist. Viability and equipping for viability, therefore, have justifications that derive from the FTWE and efficiency.

Efficiency-based Government Functions

1. National defense
2. Law and order
3. Contract enforcement
4. Provisions for equipping. The first and second FTWE presume agents (families and households) that are able by virtue of their abilities, asset ownership, and intentions to provide for

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5 The fundamental theorems were formalized by Debreu in *Theory of Value* (1959) with important extensions to economies with public goods provided by Foley (1970). The second theorem says that any Pareto efficient allocation can be supported by a price system and the first says that any competitive equilibrium supported by a price system is efficient. Taken together they state that the set of efficient allocations for an economy is the same as its competitive equilibria.
themselves and make their way in the economy. This presumption is notably violated in the case of children and adolescents, who must acquire education, reach majority, and acquire skills sufficiently valuable to allow them to provide for themselves. At a minimum, every agent owns his or her own labor time, the sale or use of which should be valuable enough to sustain existence. Seeing that the next generation is equipped to provide for themselves is consistent with FTWE because the theorems presume families and households are able to sustain themselves in equilibrium.

5. Competition (including government interest in establishing and preserving conditions for competition.)

6. Provision for public goods and externalities, including appropriate response to externalities.

7. Provision for the incapable needy. There are individuals who for various reasons never reach the state of being able to provide for themselves. It is consistent with the First and Second FTWE that these individuals be recognized in social arrangements overseen by government as a matter of social insurance. ⁶ Government interest in provisions for the incapable needy is consistent with an efficiency perspective because nowhere in the mathematical conception of a social optimum are the incapable needy treated.

We use the term “incapable” in a narrow technical sense to describe individuals who lack the innate capacity to provide for themselves, even with proper training and preparation. They are always present in any sizable economy. As noted, children, while they are still children and until they reach maturity, are temporarily “incapable” in this sense and therefore taken care of by their parents. If a child’s parents are killed, and no close relatives exist to take him in, most economists would concur that the state has an obligation justified by social insurance arguments to provide for the child’s education and rearing. In a similar vein, permanently mentally ill, retarded or physically incapable individuals may be regarded as state responsibilities. The principle that seems to work in explaining state responsibility is

1. incapability: the inability to be brought to the point of providing for oneself,

2. a risk-pooling-like feature: since an incapable individual might arise in any family, all of society rightly bears equal ex ante responsibility for the burden of his or her care (i.e.,

⁶See Saving, 2006.
presuming that no household has a lower cost way of dealing with the debility than does society at large, a Coasian notion, and that all households have paid equally into the fund from which support comes), and

3. deservingness: innocence in causing one’s own neediness.

Most would agree that actuarially fair equal insurance levies (taxes representing social insurance premium payments) are a just way to provide for such incapable needy. Details remain; the degree of social insurance support, for example, might reflect degree of incapability. For most children, incapability is temporary; children are therefore equipped to prepare them for independence when they reach maturity.

With respect to function 4, the process of equipping individuals for their participation in the economic system, the obvious societal deficiency in practice is that children who are not equipped with the means to make a living can enter maturity unable to make their way independently. Oversight by government to ensure that equipping occurs—but not necessarily that government itself does the equipping—is therefore consistent with an efficiency FTWE framework.

The role of equipping is featured in an interesting ancient reference. The book of Leviticus describes a distribution system whereby each family group was assigned land. Further, land could not be sold in perpetuity outside the family or clan. Every fifty years, land had to revert to the family or clan of original title. Land plus effort produced a reasonable living. Land plus no effort did not. An inalienable land endowment, therefore, meant that the endowed (equipped) individual would be poor only through lack of effort. Today, equipping individuals with human capital performs a similar function. Education plus effort equals a living, but education without effort does not. A society that equips each capable citizen with ability—teaches him or her how to fish rather than hand him or her a fish—has moved in the direction of guaranteeing that no one is poor except by his own fault.

This leads us to another little-discussed but efficiency-related function of equipping because it has to do with the efficient implementation of provision for the incapable needy. A government concern with equipping must be responsive to the possibility that some capable individuals (i.e., those able to provide for themselves once equipped) are in the state of neediness through their own fault. Should the equipped capable needy be treated the same as the incapable needy? Can society distinguish? A screening device whose operation guaranteed that anyone who is
needy is so because of their own choices would logically require that no “equipped-capable-needy” individuals are present whose neediness is due to another’s mistreatment (law and order, government-enforced justice satisfy this task), and that there are no “incapable-needy.” Such a filter would serve the government function of identifying and supporting the incapable needy.

In fact, the presumed screen is related to the provision for equipping as follows: It is necessary and uncontroversial for government to prevent dishonesty, including robbery and fraud, and make provisions ensuring that every agent can keep the wealth he or she creates. In a hypothetical world where people were born either endowed with the capability to make their own living or incapable, the operation of justice alone would be enough to satisfy the screening function: the incapable needy would be identified as candidates for public aid; the capable needy would have the means to cease being needy by their own actions.

In the real world, because ability is created and transmitted to new citizens, ensuring justice alone is not a sufficient mechanism to distinguish incapable needy (deserving of state assistance) from the capable needy (perhaps deserving of private charity and compassion but undeserving of state assistance). A mechanism that adds equipping restores the screen.

Figure 1 shows how equipping limits government assistance only to the incapable needy. The following terminology is used in a carefully chosen technical sense:

- **Equipped-unequipped**: These are treatments, the endowing of an individual with the tools of economic independence.

- **Capable-incapable**: These refer to innate ability, the state of being able to be brought to the point of economic independence.

- **Unneedy-needy**: These are outcomes, the presence or absence of being economically independent.

- **Deserving-undeserving**: These are narrow assessments, relating only to the individual’s worthiness to receive government aid transfers taxed from other individuals. The terminology is not pejorative and does not mean such individuals are unworthy objects of compassion and private charity.

The first three dichotomies produce eight possible categories of individuals. For example, “equipped-capable-unneedy” would be one group and “unequipped-capable-unneedy” another. Figure 1 sum-
marizes what equipping, capability, and neediness imply about deservingness. If all are equipped, the unneedy, on the lower right of the diagram, constitute two groups (viz. “equipped-capable-unneedy” and “equipped-incapable-unneedy”). Since they are unneedy, they are undeserving of government aid. The two groups associated with “unequipped-needy” are nonexistent if government ensures that universal equipping of agents takes place (a condition that is satisfied if all are educated and have access to health care). Of the remaining groups, only the “equipped-incapable-needy” are deserving of government provision through social insurance, already covered.

Figure 1: Equipping is a social policy filter. Equipping agents with access to health care and education provides a screen implying that only the incapable needy remain as objects of government support through taxed transfers.

The extension to health care is analogous: To the extent that a sick person may not be able to work or suffers work impairment, ensuring access to health care is justified as a valid object of government oversight in the same way that ensuring that everyone is equipped with an education as a precursor to making one’s living is a proper object of government oversight. In the health context, “capability” means the ability of the person to be treated healthwise and taken to or maintained at the point of fitness for self-support. Because one’s education and health are inputs for economic independence, there is a special equipping role for them by the government. Guaranteeing access to health care and education serves the function of guaranteeing that the
only individuals receiving government aid are the incapable needy. The argument that government has an oversight interest, of course, does not imply that it should be the supplier unless that is the most efficient.

We wish to consider, therefore, situations where government has the ability to observe income and work effort, can make cash transfers through the Earned Income Tax Credit (EITC), and has as its objective not redistribution, but the more limited goal of insuring that every household is covered by a basic level of health insurance.

3 Results from public finance: Means.

Government bodies may intervene to alter the outcome of a general equilibrium in circumstances where inaction results in outcomes different from the socially desired. Pigovian taxes/subsidies are generally the preferred tools to adjust targeted consumption or production variables toward their social objectives unless these are specifically precluded. For example, carbon taxes shift equilibrium in the direction of lower carbon emissions. Such interventions can always be appealed to to accomplish the targeted objectives and are used, as in the case of carbon taxes, in ideal and non-ideal starting equilibria. One of two perspectives may be adopted. The first perspective, reported on in the first section, is that the socially-desired outcome enters the discourse as from outside the system as a "non-economic" objective. Since we assume that the intervention is adopted at a level and form to achieve its objective, we ask what form should it take? In other words, what is the least damaging means to accomplish the non-economic objective? This is a well-studied question that we reprise below. Subsequently we take up the alternative perspective which is that the objective applies to a social function whose shadow prices diverge from the private. The private equilibrium to be influenced is therefore viewed as "sub-optimal" or "inefficient" from this perspective. Starting from such an inefficient position, how can social welfare be enhanced? This question has also been addressed in the literature. We compare both approaches and show that they imply the same intervention, though the supporting rationales differ.
3.1 Efficient interventions for non-economic objectives

The intervention principle states that the efficient way to accomplish a given objective in a broad range of circumstances is to identify the behavior to be influenced and create a price incentive targeted at the behavioral objective. The incentive (tax or subsidy) should operate at the minimal level needed to accomplish the non-economic objective (e.g. see Bhagwati-Srinivasan, 1969, modifications are required if non-convexities are prominent, see Grinols, 2006). For example, in the case that will be of interest to us, if the objective is to increase health insurance coverage for children who are currently uninsured, the policy should subsidize health insurance purchase. Given the objective, the principle would say that the intervention should apply only to the purchase of insurance for children, only to those families who would not otherwise have insurance for their children, and at the minimum level required to achieve the objective. Such a program, for example, must avoid private sector “crowding out,” the tendency for those who do not need help to drop their private coverage and move themselves onto the government program. Crafting the intervention to meet such a limited set of requirements requires several other principles introduced later.

Consider an economy in which firms, consumers, and government might face different prices according to which taxes and circumstances apply to each. The government wishes to alter the consumption of a targeted commodity, can adjust prices and issue cash transfers, and seeks to identify the efficient intervention. Using standard conventions to provide notation, let \( K \) be the number of private goods, and let \( x_i \in \mathbb{R}^K \) (\( \mathbb{R}^K \) is \( K \)-dimensional Euclidean space) be household \( i \)'s vector of private good consumption. The \( k \)th component, \( x_{ik} \), is the household’s consumption of good \( k \). The consumption of all households in the economy is \( \sum_{i=1}^{I} x_i = x \).

By convention, a positive element of \( x_i \) is a good consumed by the household, while a negative element (such as hours of labor supply) is a good or service that is supplied. We also assume a generic government-provided public good \( g \), which all consume in the same quantity.

Production follows a similar nomenclature. \( y_j \in \mathbb{R}^K \) is the production of firm \( j \), the \( k \)th component of which is \( y_{jk} \). For production vectors, positive elements are outputs and negative elements are inputs. \( y = \sum_{j=1}^{J} y_j \) is the vector of country production.

The vector of real resources used by government as inputs, for the production of \( g \) as well as directly consumed in the operations of government, is \( r \in \mathbb{R}^K \).

In conformity with the production conventions, vector \( z \in \mathbb{R}^K \) denotes the excess demands,
that is, international trade, of the economy. An element of \( z \) with a positive sign represents an imported good and a component with a negative sign is an exported good. Zero components are non traded goods.

Endowments (nonproduced goods inherited from nature or the past) are denoted by \( \omega \in \mathbb{R}^K \). Endowments owned by firm \( j \) are \( \omega_j \). Firms, in turn, are owned by households. The share of firm \( j \) owned by household \( i \) is given by scalar \( \theta_{ij} \), where \( \sum_i \theta_{ij} = 1 \). Indirectly, therefore, the household owns \( \theta_{ij} \omega_j \) of firm \( j \)’s endowment and is entitled to \( \theta_{ij} \) of firm \( j \)’s profits and earnings from the sale of its endowments.

The vector of home-country domestic prices is \( p_g \in \mathbb{R}^K \), although these prices are somewhat artificial in the sense that it is possible no agent (other than government, which does not pay taxes to itself) actually trades at them. World prices \( p_w \) can be thought of as the prices prevailing just outside the port location of the home country. They differ from home-country prices by duties \( \gamma \), \( p_g = p_w + \gamma \). The elements of \( p_w \) corresponding to non-traded goods are irrelevant since they appear opposite markets with zero quantities. Without loss of generality, therefore, we set them equal to domestic prices. To maintain the relation between \( p_g \) and \( p_w \), of course, this implies that components of \( \gamma \) corresponding to non-traded goods are zero. Firms and households may also be subject to taxation. Their prices differ from domestic prices by tax wedges \( p_y = p_g - \tau \). In each case the levy on good \( k \) is a tax if it collects positive revenue, \( t_k x_k > 0 \), \( \tau_k y_k > 0 \), or \( \gamma_k z_k > 0 \), as the case may be, and a subsidy if the signs are reversed, implying that collected revenue is negative.

An allocation \( a = \{ (x_i), (y_j), r, z, g \} \in \mathbb{R}^{(I+J+2)K+1} \) is defined as the list of all quantities of households, firms, government, and international trade. These definitions are, for the most part, standard and agree with general equilibrium conventions. When we compare discrete equilibria, we will reserve superscripts \( 0, 1 \) to refer to the alternative periods or situations being compared. Generally \( 0 \) refers to the initial or pre-policy situation and \( 1 \) to the final or post-policy situation.

Let \( e_i[p_i, g, u_i] \) be the expenditure function of consumer \( i \), where \( u_i = u_i[x_i, g] \) and \( x_i \) is the K-dimensional vector of private goods consumption previously defined. Expenditure equal in value to \( e_i[p_i, g, u_i] \) is the least that is capable of generating utility \( u_i \) to the consumer \( i \) when prices are \( p_i \). \( e_i[p_i, g, u_i] = p_i \cdot x_i \) by construction of \( e_i \). Market clearing is \( x + r = y + \omega + z \).

Define the change in welfare by \( \sum_i \Delta W_i = \sum_i (e_i[p_i^0, g^0, u_i^0] - e_i[p_i^0, g^0, u_i^0]) \). Because the expenditure function is monotonic in utility for fixed prices, \( \Delta W_i \) is positive if and only if
\[ \Delta u_i = u_i^1 - u_i^0 > 0. \] By direct computation,

\[
\sum_i \Delta \bar{W}_i = - \sum_i (p_i^0 \cdot x_i^1 - e_i[p_i^0, g^1, u_i^1]) - \sum_j p_j^0 \cdot (y_j^0 - y_j^1) \tag{1}
\]

\[
- \left( \sum_i (e_i[p_i^0, g^1, u_i^1]) - e_i[p_i^0, g^0, u_i^1] \right) - \left( p^0 \Delta r - p^0 \Delta z + \sum_i t_i \Delta x_i - \sum_j \tau_j \Delta y_j \right) \tag{2}
\]

\[
= -SC - SP \tag{3}
\]

\[
- \left( \sum_i \Delta G_i - \Delta Tax/resource terms \right) \tag{4}
\]

where the effects of substitution in consumption and substitution in production are contained in the terms \( SC \) and \( SP \) that first appear in (1) and \( \Delta G_i \equiv e_i[p_i^0, g^1, u_i^1] \) - \( e_i[p_i^0, g^0, u_i^1] \) is the value of the change in quantity of public good provided. Optimization by consumers and producers at prices \( p_i^0 \) and \( p_j^0 \), respectively, implies that \(- SC - SP \leq 0. \) It is reasonable to assume that government seeks to be as effective as it can on behalf of the citizens’ welfare and that failure to do better is due to the immense political and other constraints that it faces. Presuming that

\[
- \left( \sum_i \Delta G_i - \Delta Tax/resource terms \right) \leq 0 \tag{5}
\]

subject to these constraints implies that the economy achieves a constrained-Pareto-efficient allocation because any other choice lowers welfare, \( \sum_i \Delta \bar{W}_i \leq 0. \) We assume, therefore, that government optimizes subject to its constraints and (5) applies.

We now demonstrate that the efficient intervention to increase purchase of a socially valuable commodity implies using a subsidy at a level that just achieves the target. Similar statements apply to other kinds of non-economic objectives. For discussion, assume that the targeted commodity is the first element in \( x_1 \) and that we want individual 1 to increase consumption of the first good to a level \( \theta \) or greater. The candidate for efficient intervention is a consumption subsidy, \( s_1 \), consisting of a vector of zeroes except for its first element, which is \( s_{11} > 0. \) Let superscript 0 represent the initial situation where the subsidy has been used, and 1 the alternative situation, respectively. Rewrite (1)-(2) with the subsidy present,

\[
\sum_i \Delta \bar{W}_i = -SC - SP - \left( \sum_i \Delta G_i - \Delta Tax/resource terms \right) + s_1 \cdot (x_{11}^0 - x_{11}^1) \tag{6}
\]

By hypothesis the targeted purchase of commodity 1 has been achieved in the initial equilibrium \( x_{11}^0 = \theta \), and it is also achieved in the alternative equilibrium. Thus, \( x_{11}^1 \geq \theta \) and \( s_1(x_{11}^0 - x_{11}^1) \leq 0. \)
From the earlier discussion the remaining terms in (6) are nonpositive. Thus, the desired level of purchase of the first good is achieved through the application of a subsidy to its purchase and any other policy that achieves the same objective lowers welfare when compared to the subsidy policy equilibrium. The efficient intervention does better than (or at least no worse than) any other intervention that accomplishes the targeted objective and is therefore constrained-efficient. Note that if government faces no constraints other than production constraints, the targeted intervention constitutes a first best intervention for achieving target $\theta$.

3.2 Incentive symmetry

The next consideration comes from general equilibrium accounting. It has long been known that price and tax incentives are not unique and that equivalence classes of price and tax structures exist to support a given equilibrium outcome. In international trade, for example, Lerner symmetry is the result that a nation that imports good $y$ and exports good $x$ can achieve the identical equilibrium outcome by imposing a $t$ percent tariff on good $y$ as it can by a $t$ percent export tax on good $x$. The import duty and the export tax are members of an equivalence class. Lerner symmetry also displays the fact that seeking to increase more of $A$ is often equivalent to seeking to reduce "not-$A$.

The existence of alternative instruments and formats provide policy makers with additional flexibility. Suppose there are two options in a decision, $A$ and $B$ (or equivalently, “$A$” and “not-$A$”). If we want to create incentives for individuals to increase their purchase of $A$, we can either lower the price of $A$ by subsidizing $A$, or raise the price of $B$ by taxing $B$. If the choices are from an equivalence class the same outcome is achieved, though one format or another may be preferred for other reasons.

Presume that an equilibrium obtains at prices $\{p_x^0, p_y^0, p_y^0, p^0_w\}$ where all markets clear

$$x^0 + r^0 = y^0 + \omega + z^0$$

$$x^0 = x[p_x^0, I^0_x], y^0 = y[p_y^0],$$

the government’s choices are $r^0$, and international trade is $z = z^0$.

Household $i$’s budget constraint is

$$p_x x_i^0 = I^0_i = \sum_j p_y (y_j^0 + \omega_j) + T^0_i$$
where $T_i^0$ is transfers, if any, from government to individual $i$. Government revenues equal expenditures,

$$p_g r^0 + \sum_i T_i^0 = \sum_i t_i x_i^0 + \sum_j \tau_j (y_j^0 + \omega_j) + p_g z^0.$$  

Now presume that prices are altered to $\{\lambda_x p_x^0, \lambda_y p_y^0, \lambda_g p_g^0, p_w^0\}$ for positive scalars $\lambda_x, \lambda_y, \lambda_g$. Direct calculation shows that the implied taxes, $\gamma_1^1 = \lambda_g p_g^0 - p_w^0, t_1^1 = \lambda_x p_x^0 - \lambda p_g^0, \tau_1^1 = \lambda_g p_g^0 - \lambda_y p_y^0, T_i^1 = \lambda_x p_x^0 x_i^0 - \lambda y p_y^0 \sum_j \theta_{ij} (y_j^0 + \omega_j)$ satisfy the households’ and government’s budget constraints at the original allocation $a^0 = \{(x_i^0), (y_j^0), r^0, z^0\}$ and that $I_x^1 = \lambda_x I_x^0$. The functions $x[\cdot, \cdot]$ and $y = y[\cdot]$ are homogeneous of degree 0, meaning that multiplying their arguments by a positive scalar does not alter the value taken by the function. For example, doubling all prices and income does not change the choices of individuals, neither does doubling all prices change the choices of firms. By homogeneity, therefore, firm choices have not changed, and because prices and income for the household are altered proportionally by $\lambda_x$, they are unchanged as well.

Scalars $\lambda_x, \lambda_y, \lambda_g$ can always be chosen so that good $k$ is untaxed (unsubsidized) to a household or firm in the equilibrium 1 equivalent, $(p_{xk}^1 = p_{yk}^1 = p_{yk}^0)$. We conclude that any equilibrium reached with a subsidy (tax) present on purchase of good $k$ can be achieved by an alternate intervention where $k$ is unsubsidized (untaxed).

An example showing how an incentive can be altered comes from the judicial system. Courts want to induce individuals released from custody to return at an appointed time. The called-for incentive would seem to be a subsidy that rewards returning at the appointed time. Instead, however, posting bail converts the incentive into a tax on the alternate action of not returning at the appointed time, and it avoids the necessity to tax the general population to provide a fund from which to pay possible criminals for doing what they should.

### 3.3 Social utility interventions

As already indicated, government interventions can be viewed as non-economic objectives that limit in some way the available choices of agents. Intervention respects individualistic measures of social well being and values the highest welfare consistent with achieving the objective. Intervention from a social utility perspective says that the objective should be incorporated in social preferences and intervention chosen only if it raises social welfare. Both approaches reach similar conclusions. In this section we sketch the social welfare approach. The following adopts the
framework of Guesnerie and Roberts 1984 (GR) in the case where there is an exogenous social welfare function $W$ that is used to evaluate the state of the economy.\footnote{GR assumptions 1-4 are quite general. The following are sufficient for our purposes:}

The following theorem describes the key result.

**Theorem (GR 1984):** Assume that consumers maximize utility given prices and income where prices $p_i$ represent values to consumer $i$ and $p_s$ represents government constraints (see footnote Assumptions 1 and 2). If there is a consumer $i$ and good $K$ for which $p_{iK}^0 > p_{sK}^0$, then a social welfare improvement is achievable by raising consumption of good $K$ by $i$ through a compensated subsidy of good $K$.

In other words, if the society values $i$’s consumption of good $K$ greater than the shadow cost of resources put to that end, social welfare will be raised by adjusting the price of good $K$ to induce greater consumption. As GR point out, the objective could also be achieved through forced consumption because “in compensated terms, the effect of quantity controls acting on a consumer are directly equivalent to price changes of the goods being controlled (Guesnerie and Roberts, 1984, p. 69).” A targeted price change is implied by this approach as was also identified by the intervention principle.

Assumption 1: In the initial situation $0$, there exists a $p_i^0 \in \mathbb{R}_{+}^K$ such that a consumption change from $x_i^0$ to $x_i^0 + \Delta x_i$ increases social welfare if $p_i^0 \Delta x_i > f_i[\Delta x_i^0]$ where $f_i$ is a given function such that $\frac{f_i(\Delta x_i)}{||\Delta x_i||} \to 0$ as $||\Delta x_i|| \to 0$.

Assumption 2: In the initial situation, there is a vector $p_s^0 \gg 0$ such that by using the available policy tools, given any change $\Delta (y + \omega + z)$ in net aggregate supplies government can change policy tools such that $\Delta W \geq p_s^0 \cdot \Delta (y + \omega + z) + \sigma[\Delta (y + \omega + z)]$ where $\frac{\sigma[\Delta (y + \omega + z)]}{||\Delta (y + \omega + z)||} \to 0$ as $||\Delta (y + \omega + z)|| \to 0$.

Assumption 3: Individual demand $x_i$ is differentiable in the government policy tools.

Assumption 4: There exists a public good supplied by government with positive marginal utility for all consumers.
4 Motives

To this point we have seen that the existing literature is inadequate as an explanation of government interest in health care and education. Instead, we found efficiency aspects of health care and education that provide grounding for a government interest that the consumption of each not fall below some threshold quantity. The next section identified public finance tools that are efficient for achieving a targeted level of consumption for a specified commodity. Both a non-economic intervention approach that respects private preferences (lowering welfare as little as possible to achieve the targeted adjustment to laissez faire) and the social utility approach imply use of the same tool. In this section, we introduce to the discussion objectives for health care. These objectives imply that government has an interest in the level of consumption of health care. This interest is consistent with the FTWE efficiency rationales already discussed in Section 2.

Collecting health care objectives uncritically could form a potentially very large list. Policy triage, however, suggests that features of the health care sector that will self-correct once underlying features of the environment that relate to proper alignment of incentives are corrected are not primary objects of policy. It is unnecessary to select a policy goal that firms should minimize their production costs, for example, when that objective will be achieved naturally from in consequence of the higher objective of market competition. Likewise, other features of health care may not be amenable to policy and are therefore not proper objectives of policy either. It makes little sense, for example, to attempt by policy to reduce costs of health care below marginal costs of provision, however high those costs may be. The following objectives appear to be appropriate and achievable.

1. Universal care. The first objective for a public health care system that we draw from the public debate is that its coverage should be universal. We justified government interest in seeing that no individual’s consumption of health insurance and health care fall below a specified level on FTWE grounds. This means that no one need be put at jeopardy of life, limb, or financial catastrophe through inability to receive medical treatment or to pay for it. Many have interpreted this objective to mean in-kind government-provided health care. However, as noted earlier, such a presumption rests on special assumptions. if everyone has adequate basic health insurance and income to pay for it and their health care, this objective is also met.
2. **Patient-centered coverage.** Patient-centered coverage should be personal, portable, and permanent. It should make the patient the respected central component of the health care process.

3. **Respect for Incentives for Quality Care.** Health care is a private good in the technical economic sense. With the exception of some public good aspects relating to community health (my immunization reduces the probability that you will contract the disease), the benefits from consuming health care services accrue to the individual that receives them. Respecting incentives for quality care, therefore, implies honoring the establishment and support of incentives that apply in general to accessing private goods and services.

4. **Cost containment.** Cost containment has several meanings depending on the mechanism for health care access. In the market context, competition prevents suppliers from charging prices that exceed marginal cost by more than normal business rates of return. In the context of public budgets, cost containment implies the ability to select spending levels based on readily available data, not as the result of compulsion or open-ended entitlement. This standard is achievable in an equitable framework.

5. **Sustainability.** Many kinds of public health care arrangements can function for a short period. The health care framework selected for the long term must have the ability to support indefinitely the means and funds for continued operation, treating all individuals within and across generations equally well.

   If the five objectives (universal care, patient-centered coverage, respect for incentives for quality care, cost containment, and sustainability) were met, most observers would be happy with the resulting system. In consideration of disadvantaged groups, however, we add a sixth objective:

6. **Avenue for charity.** It can be argued that the right amount of charity is the sum of the individual amounts that would be given by informed households. An efficient and trustworthy avenue for contributing toward the health care needs of others through foundations and personal charity facilitates the right amount of charity.
5 Application

The public finance tools available to policymakers in the twenty-first century far exceed what was available as little as fifty years ago. Having provided grounding, discussed efficient interventions, and identified objectives—including targeted minimum level of consumption related to health care—in this section we apply the information from the preceding sections to see what implications emerge. We treat this as a deductive exercise.

What presently prevents first five objectives from being met? Three separate impediments may be summarized as “too little insurance,” “too little income,” and “too little market.” Because very good health insurance can be compared and bought through www.ehealthinsurance.com, and most public libraries provide free access to the internet, there is little to prevent individuals from purchasing insurance if income is not a concern. We conclude that the problem of uninsured individuals (“too little insurance”) must be tied to the separate problem of households with too little income. This second impediment is not really a health care problem, but must be addressed nevertheless in any health care arrangement. Finally, we see numerous ways that the health care and health insurance sectors fail to exhibit even rudimentary features that characterize competitive market allocations, which the FTWE show are equivalent to efficient outcomes. Thus, market rationalization should accompany health care reform.⁸

Too little insurance: response. The principles outlined above suggest feasible choices for meeting health care objectives. One popular approach, providing refundable tax credits to everyone to buy insurance, fails to be efficient because it covers everyone, not just the targeted group of uninsured. Working either from the intervention principle or from the social utility perspective, if the objective is to induce more individuals to buy health insurance, then the response is a subsidy to the purchase of health insurance that applies just to individuals who would not buy insurance without the subsidy.

In the initial period of a program of purchase subsidies, it might be possible to verify who has not bought insurance in the previous period, but in subsequent periods as earnings of individuals change and new individuals become eligible for the program, it is not possible to observe who

⁸Describing the full range of market rationalizations for the health care and health insurance sector is central to health care policy, but beyond the scope of the present paper. As a starting point, the Appendix provides an annotated list.
would have bought insurance without subsidies. Applying the incentive in an alternative form circumvents this problem. By incentive symmetry subsidizing insurance is equivalent to raising the price of everything else if insurance is not purchased. Raising the price of everything else (e.g. imposing a tax such as a broad-based value added tax that is waived if the purchaser has health insurance) has at least three desirable properties:

1. It rewards those who buy health insurance with lower prices.
2. The incentive has consequences only for those who do not buy insurance. For others there is no impact since they pay no tax and their prices are unchanged.
3. There is no longer a need to observe who would have bought insurance without government subsidy dollars.
4. No public outlays are needed for the incentive to be successful, and the incentive can be made as strong as needed to induce the desired purchase of health insurance because it has no impact once insurance is purchased.

A smart card such as a driver’s license or other photo ID, can be swiped to check if coverage is current. The incentive collects no revenue if everyone carries insurance, but provides an incentivelower prices for everyone to carry health insurance.

Notice that the form of the incentive is an implication of the principles of Section 3. If one creates an incentive in a less efficient way, then other tools that induce insurance purchase are available. For example, one could use carrots and sticks that relate to the individual’s interface with government. Requiring that individuals must have health insurance meeting a certain standard before being issued a driver’s license would create an incentive in the right direction, but would be an inferior tool on several counts. If an individual is incentivized to buy health insurance, its purchase must be feasible. We deal with this next.

**Too little income: response.** Figure 2 shows the budget of an individual who earns labor income (consumes leisure) and uses it to consume two goods at levels $C_x$ and $C_y$. The consumption set is such that good $x$ must be consumed at level $3/2$ or greater. The individual has an endowment of time that allows leisure to be selected at levels $L_e \in [0, 1]$. The budget constraint shown is

$$1 + w = wL_e + p_xC_x + p_yC_y$$
Figure 2: The household budget constraint. 2a) \( C_x \geq \frac{3}{2} \) is the consumption set. 2b) \( C_x \geq \frac{3}{2}, C_y \geq \frac{3}{2} \) is the consumption set.

where initially \((w, p_x, p_y) = (1, 1, 1)\). The feasible choices are shown in 2a as the pyramidal region lying to the right of 3/2 on the \( C_x \) axis. If all time is taken in leisure, the consumer’s budget choice is limited to points on the small triangle in the foreground of the three dimensional budget constraint.

Figure 2b adds the social constraint that the individual consumes good \( y \) at level \( \frac{3}{2} \) or greater. Now the effective consumption set is the box-like region bounded by the shaded and dashed lines. The corner of the consumption set is point \( a \). Since every point in the consumer’s budget constraint lies below this set, the consumer has no capacity to consume good \( y \) at the required level. In other circumstances (not drawn), the consumer would be able to afford bundles with consumption of both \( C_x \) and \( C_y \) greater than \( \frac{3}{2} \). Initial prices \((w, p_x, p_y) = (1, \frac{1}{2}, \frac{1}{2})\), for example, would allow both constraints to be met.

Figure 3 shows the same consumer with a subsidy applied to the purchase of good \( y \). Prices are now \((w, p_x, p_y) = (1, 1, 1/s)\) where \( s > 1 \). The green lines show the the consumer’s expanded budget set. Notice that the price of good \( y \) can always be made low enough that the consumer would be able to afford good \( y \) in the specified amount. In the case drawn, the subsidy is \( s = 3 \) which is just large enough to allow the consumer to meet the constraint on purchase of \( y \) at point \( a \) in the original consumption set. Greater subsidies would expand the choices of the consumer.
Figure 3: The household budget constraint with subsidy applied to the purchase of good $y$.

As noted, however, a subsidy may not be the preferred form for the incentive. Figure 4 shows the consumer with the incentive applied in the form of a higher price of other goods if $y$ is not consumed in amount $3/2$ or greater. Goods $x$ have now become so expensive that the consumer is not able to consume within the original consumption set defined by $C_x \geq 3/2$.\textsuperscript{9} If consumption set represents a survival requirement, the incentive to buy good $y$ becomes very strong, indeed. If the incentive causes the consumer to buy good $y$ in the required amount, then the budget set reverts back to the original set drawn in Figure 2a. If the original budget set allows consumption of both $x$ and $y$ in the needed quantities, that is the end of the story: the consumer has been induced to buy the targeted good, no budget outlays were involved, the incentive did not change the consumer’s ultimate prices.

The case drawn in Figure 2a, however, showed a consumer for whom it is impossible to buy goods $x$ and $y$ in the requisite amount if the incentive takes the tax format. Thus, for some consumers, it will be necessary to provide income aid. The problem of consumers with too little income to buy good $y$ not really a health care problem. Fortunately, it can be separately addressed in an incentive-compatible way by expanding the earned income tax credit (EITC) for those who are capable of working and providing some sort of direct aid to those who are not. By setting the EITC appropriately, everyone will have enough income from their own earnings combined with EITC to purchase insurance. Through the EITC government can collect from

\textsuperscript{9}The case drawn is for prices $(w, p_x, p_y) = (3, 3, 1)$. 

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applicants information on education, skill level, age, sex, dependents and dependency status, work information, and make cash transfers. Revenues collected from the value-added tax, if any, can be directed to funding the augmented EITC outlays. Further, charitable foundations can be encouraged to supply money to fund the health insurance portion of the EITC. In Christianity and many other religious traditions, individuals have an obligation of private charity. They, too, can be provided check-off boxes on their tax forms. Checking an amount would increase the tax payment by an amount that is used to fund the EITC transfers.

Government may wish to contribute to the pool that finances the EITC insurance-related transfers. Two observations apply. First, a health-care-provider revenue tax accesses resources in the health care sector for use in transfers that previously were expended on free care and cost shifting. To retain not-for-profit status, for example, many hospitals are now required to provide charity care equal to 4 percent of their revenues. The levy could be designed to be revenue neutral, leaving providers no worse off. If everyone has insurance coverage, there will be no uninsured to provide free care for. And with the need to cost shift eliminated, those with insurance will no longer need to pay the hidden tax currently built into the prices they pay. Second, the government has control over the amount that it allocates to EITC insurance-related transfers. Call this amount $A$. By controlling the amount that it collects from the health care sector’s revenue—call this $B$—it controls the net budget devoted to health care, $A - B$.

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$C_y \geq \frac{3}{2}$

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$^{10}$EITC outlays are in the form of cash transfers and are not tied to purchase of any good. Incentives to buy good $y$ have been described earlier.
6 SUMMARY

Review of the existing literature shows that its explanation for publicly-provided health care and education is inadequate. However, the FTWE provide efficiency rationales for a government interest that the consumption of each not fall below some threshold quantity. Both a non-economic intervention approach that respects private preferences (lowering welfare as little as possible to achieve the targeted adjustment to laissez faire) and a social utility approach point to the same intervention principle for efficiently achieving a targeted level of consumption for a specified commodity. Perhaps the foremost problem in American health care is the presence of uninsured individuals. Reasoning either from the literature on non-economic objectives or the social utility approach, the efficient intervention is a subsidy to the purchase of insurance, available only to those who would not buy insurance in the absence of government intervention. Applying the incentive in the form of a tax on non-insurance purchases that is waived for insured individuals creates an incentive to buy insurance that has no consequences for those who would buy insurance independently of the government program. It also relieves government of the need to make budget outlays to support the subsidy.

Some individuals do not buy insurance because they earn too little income. Although too little income is not really a health care problem, it must be addressed in order for the incentive to be successful for all households. Augmenting the EITC allows only those who apply and qualify to receive cash transfers which, when combined with their other income, enables them to purchase insurance. The other health care and health insurance objectives are met by market rationalizations.

Economic ethics as a distinct concern played a diminished role, once government satisfied its FTWE-grounded oversight functions related to provision for the incapable needy and equipping of agents. The implied policy describes the least intervention consistent with economic efficiency that achieves the targeted level of consumption for health care for the relevant group of currently uninsured private agents.

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Appendix: Short List of Market Rationalizations for Health Care and Health Care Insurance

Rationalization of both health care and health insurance markets are desirable. Health care market reform includes:

- *price transparency*
- *most favored customer pricing.*

Providers must make prices known to prospective customers and every customer should be able to pay on the same terms as are available to other customers for identical provision. In international markets the comparable concept of most favored nation status has long been accepted.

Desirable health insurance reforms include

- *Freedom to Underwrite.* A national framework for health insurance cannot depend for its success on insurance companies acting against their own interests. Entry and exit are critical to market contestability and competition. Underwriting freedom allows competition to improve service, deal effectively with moral hazard, and lower administrative overhead costs.

- *The Base Policy.* The base insurance policy coverages must be priced by age and sex and allowed to vary, if needed, to keep prices low and fair. The base policy is sold by an insurance company to all members of the same risk class (age, sex, location) at the same price, eliminating adverse selection issues for base insurance.

- *Guraranteed Renewability.* Guaranteed renewability at standard rates is enforced for all health insurance policies. A national re-insurance mechanism allows individuals to change providers consistent with guraranteed renewability. Guaranteed renewability provides the required protection against reclassification risk, which is a distinct risk from the risk of a treatable medical event. Implicit payouts on reclassification events mean that everyone of the same age-sex-location risk class pays the same insurance premiums based on competition and actuarial fairness. Affordability and “ uninsurability” are no longer issues, having been dealt with by policy.
• **Homogeneous risk pooling, actuarially-fair basis of premiums.** Homogeneous risk pooling and actuarially-fair-based premiums are good insurance tenets. Competition keeps prices to the lowest feasible.

• **No Utilization Gatekeeping.** No gatekeeping is a freedom-of-choice provision. If insured individuals wish to purchase a covered service and are willing to pay the required co-pay or co-insurance rate, then they may decide to do so. This rationalization will cause the base insurance policies to be devised with moral hazard kept foremost in mind.

• **Source Tax Neutrality.** Tax neutrality implies that individual purchase of health insurance is kept on a comparable tax basis to insurance offered through place of employment.

• **Affordability Safeguards.** The base health insurance product is kept affordable several ways. The mandated base coverage incorporates only features that are premium-reducing (such as selected preventive care) and needed. Pre-paid (routine) care is excluded from the base policy (unless such care is premium-reducing). Unwanted, unneeded, and purely elective benefits are excluded from the base policy. When individuals are appropriately insured in homogeneous risk pools (rated by age and sex) the problems of making insurance more expensive than it is worth to insured largely disappears. For example, requiring 20 year olds to pay for colonoscopies and heart by-passes of the elderly could easily make their policies too expensive relative to what they are worth because they are paying for procedures that they rarely use and do not benefit from. However, even if colonoscopies are included in basic plans for all age groups, they will become significant in pricing only for those in the older risk pools. Those in older pools, however, want such coverage because they use it with higher frequency.

• **Insurance connector.** An “insurance connector” serves an efficiency function by facilitating information flows.

• **Other.** Price transparency, freedom of sourcing by the insured, and insurance portability by the insured (supported by a re-insurance mechanism) are other safeguards to effective insurance.