Chapter 6-SC

ECONOMY - Social Capital

Human Predicament in Logic Couplets

Two Facts

No significant Natural System has remained unaltered by Human Activity.
Nothing except sunlight comes from outside the Ecosphere.

The Ecosphere is our Support System.
The Ecosphere must be preserved for our Future Civilizations.

Our Economic System is creating intolerable Social Inequalities.
Our increasing Population is rapidly consuming our Support System.

Two Consequences

Our Resource-Wealth per person is decreasing exponentially.
Much of our resource loss is becoming increasingly irreversible.

Two Constraints

Humanity is now inescapably co-dependent on a global scale.
Technology is neutral, it can destroy or save us.

Two Solutions

Bring our Resource Consumption to a Sustainable Level.
Bring our Population to Carrying Capacity.

Two Methods

Include the Costs of Resource Depletion & Pollution into our Economy.
Elevate Public Awareness in order that our system can self-correct.

Two Destinies

A Feudalistic Society that is Socially and Ecologically Unstable.
A Sustainable Society that is Socially Equitable and Ecologically Stable.

CHAPTER 6.

The Value of our Societies

6.1. Defining the Issue

6.1a Status from a Planetary Perspective. In Chapter. 1, The Earth System is described as consisting of four major internal systems, as the Marine, Terrestrial, Atmospheric, and Human Systems. The first three are ancient mega-systems that have survived large astronomical, physical, geological, chemical, and biological disturbances throughout the course of their evolutionary development such as meteoritic collisions, volcanic explosions, ice ages, continental drift, and changing atmospheres. Life on the planet also has generated or been impacted by enormous disturbances; for example those of the Great Oxygen Event[2] 440 Mya years ago mya or by the Mass Extinction caused by the asteroid explosion of Event 66 Mya. These mega disturbances were unevenly distributed in time by hundreds of million years apart, and each has left significant changes in the composition and structure of the Earth Systems that can now be read in their signatures within terrestrial and marine sediments.

The evolution of life has added another more complex disturbance to the planet with the biochemical evolution of plants (autotrophs) that were capable of self-reproduction and spread unchecked throughout the marine, terrestrial, and atmospheric systems. The plants also drove down the concentration of CO2 of the primitive atmosphere which cooled the earth, and drove up the proportion of oxygen in the atmosphere, which then oxidized continental minerals and changed the chemistry of the ocean. With the evolution of herbivores that consume plants and breath in O2 and respire CO2, again changed the chemistry of the atmosphere and warmed the earth. The evolution of carnivores (humans included) further increased the atmospheric CO2 to a balance of 78% nitrogen, 21% oxygen, and 0.04% carbon dioxide[3]. That is until the middle of the nineteenth century, when the human heterotrophs and their machines began wasting buried fossil carbon that previously had not in the present atmospheric carbon cycle, at accelerating rates to levels higher than they have in hundreds of thousands of years.

Thus, the human footprint[4], is superimposing an ever increasing disturbance on its three supporting systems (Chap. 1, Fig.6) at a time-scale of geological explosive event compared to most biological evolutionary events". Scientists[4] have enough evidence on the human-derived impact of increasing CO2 and decreasing O2 during this interglacial period is significantly changing the planet's marine, terrestrial, and atmospheric systems sufficiently to qualify it as another planetary disturbance and usher in an unique epoch, called the Anthropocene that is destined to leave a signatures through its mass extinctions, additions of synthetic and radioactive chemicals in sediments, and by changes in the compositions and functionalities of the three earth's systems. Many of these Anthropogenic changes (like climate change are) irreversible on a more-than human time scale, and they are seriously affecting interactions between Social, Natural, and Financial Capitals, in the sense of damaging the habitability of life on earth, and causing at an ever increasing monetary costs of recovering from extreme climate damages.

The paradoxical fact is that while our human population has demonstrated the capacity to measure and analyze these deteriorating changes that they have consciously known for more than three decades, humans are only now beginning to respond this threat appropriately. The tragic irony is that humans have proved they have the capacity to devastate life on the planet, but not to save it! Alas, the technical capacity of humans to change has out-developed their social capacity to preserve their civilizations. The actual fact is that the Human System no longer plays an autonomous role as it did prior to its industrialization. It has become increasingly dependent on the three natural systems through its continued development as an extremely complex set of inorganic and organic interactions and processes that are superimposed on the three earth's systems is destroying their very capacity to host the human habitat. Consequently by virtue of the growth and dominance of the Human System, it cannot afford to pretend to be independent of Natural Capita since, it has been quickly losing its carrying compactly since the 1900s!

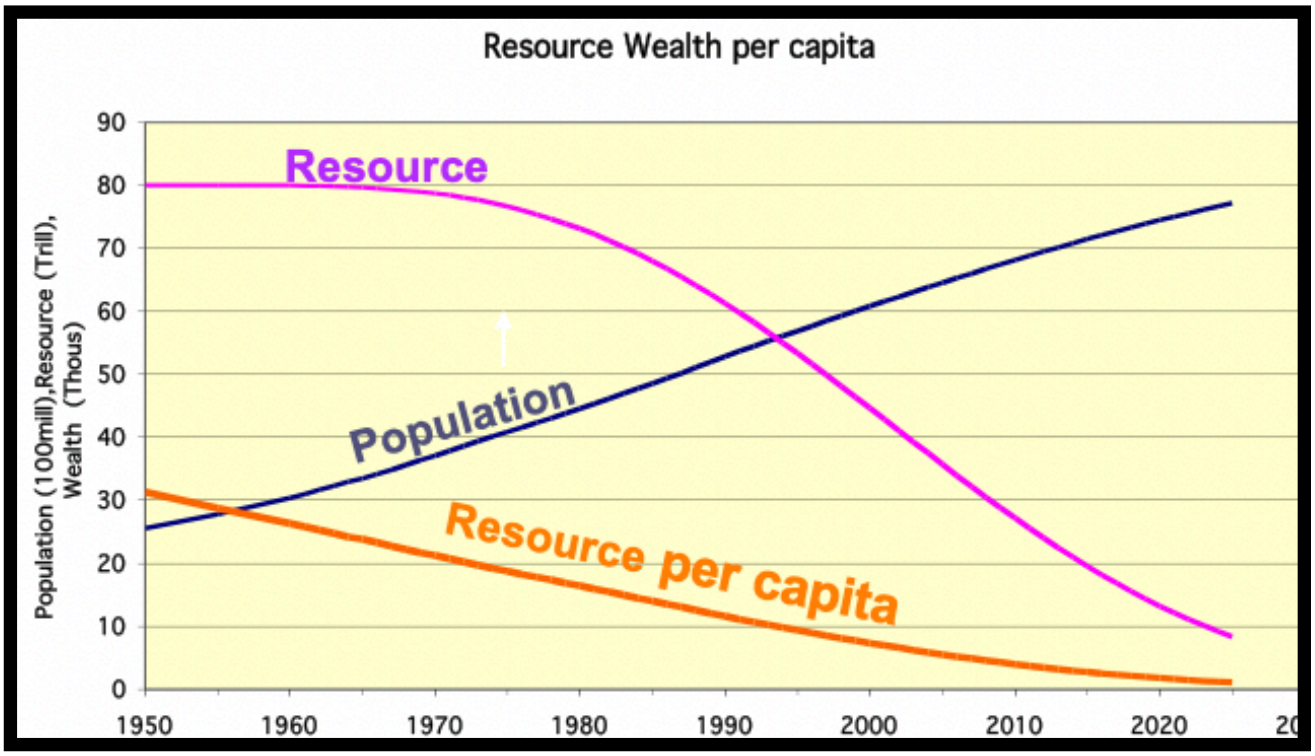

Figure 1. Behavior of Human Civilization has and is decimating Carrying Capacity. The global carrying capacity of all major sectors are decreasing: Food, Water Fish, Wood, Soil, Biodiversity, fossil fuel, and stability of Climate. The fact that resource consumption is not equally partitioned among a nation's population, but is skewed toward those who consume the most, causing it to strongly contributes to economic inequality. With Population Growth being inevitable for next two decades: Per capital Resource wealth has a half life of 20 years. **R**eversing these trends requires:•an informed leadership,•a threshold level of public awareness, and•a higher-level scientific and technical support. Author generated from Spicosa[fn]

Since humans now have so much more consciousness and technical capacity, why are they not using these assets to preserve the health and resilience of the natural systems and the health and vulnerability of our global social systems and global trade and financial structures.

Instead, nations are competing for resources and economic wealth with insufficient *functional* awareness of the finiteness of those resources as the basis of that wealth, which is putting all societies on a trajectory of global collapse. Several great past civilizations have collapsed for these sorts of reasons, and the collapse of our own has already begun, signaled by the rising number of failed states and civil wars in a context of prolonged severe droughts, rising temperatures, and local ecosystem failure. Yet science is continuing to validate and deepening this knowledge, and international organizations and government bodies are actively pursuing solutions. It isn't that our societies are wholly unaware of the crisis of sustainability, or performing some corrective measures, but rather that policy-makers are not responding quickly or effectively enough to address the full urgency and complexity of the solutions needed to avoid collapse.

Thus, the human footprint is superimposing an ever increasing disturbance on its three supporting systems (Chap. 1, Fig.6) at a time-scale of geological explosive event compared to most biological evolutionary events".[1] Scientists have enough evidence on the human-derived impact of, increasing CO2 and decreasing O2, during this interglacial period is significantly changing the planet's marine, terrestrial, and atmospheric systems to qualify it as another an unique epoch of raw Holocene, called the Anthropocene, based on its impacts, that are destined to leave a signatures through its mass extinctions, additions of synthetic and radioactive chemicals in sediments, and by changes in the compositions and functionalities of the three earth's systems. Many of these Anthropogenic changes (like climate change are) irreversible on a more-than human time scale and are seriously affecting their interactions between Social, Natural Financial Capitals, in the sense of damaging the habitability for most of life on earth, and at ever-increasing monetary costs of recovering from extreme climate damage.

The paradoxical fact is that while our human population has demonstrated the capacity to measure and analyze these deteriorating changes, which they have consciously known for more than three decades, humans are only now beginning to respond this threat appropriately. The tragic ironic fact is that humans are proving that they have developed the capacity to devastate life on the planet, but not to save it. Alas, the technical capacity of humans to change has out-developed their social capacity to preserve their civilizations! The actual fact is that the Human System no longer plays an autonomous role as it did prior to its industrialization. It has become increasingly dependent on the three natural systems, which through continued developments evolving into an extremely complex set of inorganic and organic interactions and processes that are increasing the burden on the three other earth's systems, and destroying their very capacity to host the human habitat (Chap. 1, Fig.1). Consequently by virtue of the growth and dominance of the Human System, it cannot afford to pretend to be independent of Natural Capital preservation.

In addition, the Human System cannot pretend to ignore the ecological and thermodynamic laws that govern nature. Even though the Human System can be distinguished n an extremely important way from the Natural Systems, in an extremely important way because

humans have evolved a highly developed consciousness and intelligence that enables them to willingly weaken certain ecological laws that otherwise would limit them. For example, they can better adapt to weather extremes with clothing and shelter and thereby geographically expand their niche to a larger range of climes. They can better harvest, distribute, and store plant and animal food. They can and better store and communicate information as communal knowledge to communicate and cooperate to develop large communities that obtain support by means of occupying, harvesting, and polluting global ecosystems. These human-developed attributes are both revered and ignored with respect to their impacts on, and limits posed by irreversible limits on the human dependence on the other three earth's systems.

6.10b The Ultimate Importance of Livability. Since humans now have so much more consciousness and technical capacity, why are they not using these assets to preserve the health and resilience of the natural systems and the health and vulnerability of our global social systems and global trade and financial structures. Instead, nations are competing for resources and economic wealth with insufficient *functional* awareness of the finiteness of those resources as the basis of that wealth, which is putting all societies on a trajectory of global collapse. Several great past civilizations have collapsed for these sorts of reasons, and the collapse of our own has already begun, signaled by the rising number of failed states and civil wars in a context of prolonged severe droughts, rising temperatures, and local ecosystem failure.[5] Yet science is continuing to validate and deepening this knowledge, and international organizations and government bodies are actively pursuing solutions. It isn't that our societies are wholly unaware of the crisis of sustainability, or performing some corrective measures, but rather that policy-makers are not responding quickly or effectively enough to address the full urgency and complexity of the solutions needed to avoid collapse.

One might ask why we appear to have a lack of drive to self-preservation, when it would be safe to assume that an overwhelming majority of individuals don't want a global collapse. One might also assume that most nations would not want collapse either, but they remain locked into the notion that national sovereignty has precedence over that of global sovereignty without recognizing that these two goals are interdependent when they could be symbiotic. The UN was created to avoid a global breakdown and has made great strides in enhancing social responsibility and justice. Yet more than half a century after the UN's founding, humanity appears to be still bent on pursuing the mistaken goal of monetary and material wealth as if the purpose of life were to compete for more wealth than others, and thereby demonstrating the falseness of the belief that monetary wealth necessarily generates peace, social wealth, or happiness, when instead it tends to generate social inequality and oppression.

6.1c Why don't we Monitor our Social Progress? If our societal goal is prosperity for all, why are we not honoring it, and measuring its development as our primary focus instead of relying on economic growth and financial wealth as indicators of our society's prosperity? Such reliance steers our societies towards striving for greater financial assets and away from

transitioning to a more sustainable society (Chap. 5). *Without the clear, common goal of pursuing social development for sustainability, all lesser goals will inevitably lead to global instability*.

This ought to be obvious in the face of the afore-mentioned destabilizing global trends (Chap. Fig. 2) in climate, energy, biodiversity, resources, and population, and the accelerating spread of corruption, corporatism, and oligarchic government. Global society is precariously balanced between the forces building social stability and those destroying it—and at the time of writing, it is tilting toward the destructive forces. Why then do we persist in ignoring and not monitoring this balance, when we should be and striving to reverse these trends by focusing on the constructive developments that are promoting our common goals of stability, peace, justice, and tolerable equality for all? To ignore the confluence of ominous social trends that are already endangering the survival of modern civilization and instead to promote the continuation of those trends, is to contribute to a global genocidal crime against life on earth.

6.2 Reasons for concern

6.2a. Concerned about what? Our present economy often acts as a default management for our societies under the rationale that the mythical 'invisible hand' will bring all transactions into balance. While this rationale is controversial (and becoming more so as neoliberalism fails to deliver on its promises) it remains an article of faith—or pretended faith—for the relative handful who profit from its persistence. In fact, it is becoming increasingly clear that the "free market" is nothing of the kind, as politicians put their fingers more and more heavily on the legal and regulatory scales. A growing mountain of recent evidence clearly demonstrates that, under the now threadbare pretext that deregulation and privatization will "lift all boats" and lead to greater efficiency and generalized prosperity, our present economy has morphed into a kind of machine for increasing inequality, expanding consumer debt, and transferring wealth upwards. When the ideology of competition is used to justify self-interest and private good over social interest and the common good, it creates an inevitable propensity to generate conditions of economic and social inequality, which never brings forth prosperity for all.

Because economic and social discourse is largely controlled by those who are at the "positive pole" of inequality and upward wealth transfer, we continue to measure our well-being via society's monetary activity and wealth, through the use of simple construct based on an artificial (and in many ways factitious) yardstick, GDP, while ignoring the social values that make a society livable. These would include particularly: food, water, and housing security, access to health care, the absence of social violence, the presence of positive and supportive communities; and more broadly to include those of peace, justice, happiness, trust, cooperation, and harmony, that are essential elements of a common, acceptable goal that we could measure and pursue

instead. These are all characteristics of 'Social Capital' and are also the goals of Sustainable Development (Chap.7). How can we quantify this argument by demonstrating that these and other social characteristics could and should be valued as the ones essential for livable societies and best suited to guiding our policies towards a sustainable level of material existence for all humans on this planet?

6.2b What is Social Capital? The concept and usage of "Social Capital" is ambiguous and evolving. Ambiguous because social capital can be positive or negative, and it is subjectively dependent on who and how it is evaluated. In a holistic sense Social Capital consists of the collective effect of the characteristics of a particular society that contribute to the quality of its Social Well-Being[6] and in a destructive sense, of those characteristics that degrade social well-being, like greed, oppression, inequality, conflicts, and lack of social responsibility. The World Bank[7] defines Social capital as: "*referring to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the of the institutions which underpin a society — it is the glue that holds them together*." That which is evolving about social capital, is a growing recognition of it's importance and value for better societal governance. The UN refers to this as positive 'Human Development' directed towards increasing the wellbeing of communities, and of how it can be measured such that it can be inserted into the equation of the real total wealth (TEW)[8] of a society.

From the point of viewpoint of sustainability, Global Social Capital represents the total (plus or minus) contributions of human societies to the planet's carrying capacity for hosting the human population. In short, Social Capital is our present civilization and its potential for survivability on this planet! The '*glue*' represents the trust that fosters cooperation between individuals, organizations, and societies, and the inherent optimism characteristic of humans that, together with their intelligence, has the capacity to construct a better future by creating a sustainable e niche in symbiosis with nature (cf. Sect. 4.5d).

6.2c Why should we Evaluate Social Capital? Like natural capital, social capital has been mostly externalized by the economy under the neoliberal that the economy would act to distribute financial capital sufficiently to satisfy social needs and generate wellbeing in the population. This is what "trickle-down" neoliberal economics has failed to do over nearly four decades. As discussed in (Sect. E.5.1), most conservative[9] policies have *not* favored incentives or laws that generate more equitable distribution of wealth, in opposition to progressive[9] options that would promote them. As a consequence of this failed 'trickle-down' strategy, governments are forced, in varying degrees, to compensate via social programs for the disparities caused by the externalization of social values from the economic system. Governments act as intermediaries between the rich and the poor. This is inefficient and wasteful, and would be unnecessary if the economic system were self-regulating and functioned to minimize disparities in wealth. The resulting political conflict over economic inequality has created a patchwork of

approaches that are the ad hoc product of this conflict. They are ineffective and insufficient, and they beg for a much stronger and more sophisticated interface between social and financial capitals that can measure and guide the costs and benefits of their interactions to ensure a net gain for social capital. Analogous to the mainstream view of natural capital, the task of quantifying social costs and benefits has mostly been simply passed off as being too difficult. Yes, it is difficult, but it is essential. It is entirely possible to gather and analyze useful, qualitative information, such as preferences determined by studying people's social responses to their level of satisfaction with their living conditions, their perceptions of obstacles, alternatives, tolerance, justice, etc.

A major principle of democratic government is the goal of establishing and maintaining the political and legal equality of citizens. The founders of the American republic understood that to achieve this goal—which the United States has arguably failed to do—its economy must fairly distribute wealth among its population to a level of shared prosperity. This was the reason. Despite this, economists, politicians, and the mainstream media use GDP per capita as a representative indicator of the economy's health and thereby view economic growth as synonymous with improving a population's standard of living. This is largely misleading for several social reasons:

1) As discussed in Chapter, .5 (Financial Capital), the calculation of the GDP averages together all economic activities regardless of whether or not they represent damaging environmental or social costs.

2) The arithmetic mean (average) of a set of numbers is just the sum of the set divided by the number of numbers. It does not give any information about the distribution within the set. The arithmetic median indicates the number that marks the halfway point of a set of numbers. The difference can be significant as shown in Fig.1. In fact, the less equal the distribution of wealth and income, the more misleading the figures for *average* wealth and income. Imagine distributing 24 apples among eight children. One child receives 16 apples, the others each receive one. The *average* number of apples per child is three, but in fact seven out of the eight receive only one-third of that average, while one receives more than five times the average.

3) The possibility of accumulating wealth without restriction generates an addictive greed that multiplies socially damaging results like, inequality, oppression, coercion, and monopolization. (It is notable, for example, that even as the wealth gap in society grows, large corporations generating billions in profits engage in wage theft—unnecessary for profitability, but evidently driven by a thirst for squeezing every last drop of revenue out of workers already paid less than they need to survive.

The latter is a relic form of feudalism that differs from the medieval version in which the wealthy nobles were landowners and were somewhat obligated to provide for the basic needs of their serfs. In the modern version, "Pure" or free-market capitalism, the wealthy have no legal obligation to share their wealth with the working class or even with the subsidiaries that support them—the ideology of the trickle-down economy now promulgated

by groups like Americans for Prosperity and other Political Action Committees (PACs) funded by conservative billionaires. Such an economy is blatantly immoral and in reality, it acts directly against the goal of prosperity for all. Yet it continues to be blatantly justified by financial and political oligarchs. The hoarding of money as capital by the rich takes it out of circulation, generates economic inequality, engenders social inequality, and inhibits the development of essential social capital needed for a society to properly function. Why do we tolerate this situation instead responding directly to prevent such an obvious injustice, which makes the poor poorer, shrivels the middle layers, and degenerates our social capital? The figure also shows that half the US population have a wealth of ~40,000 and the other half ~350,000, almost a factor ten time richer!

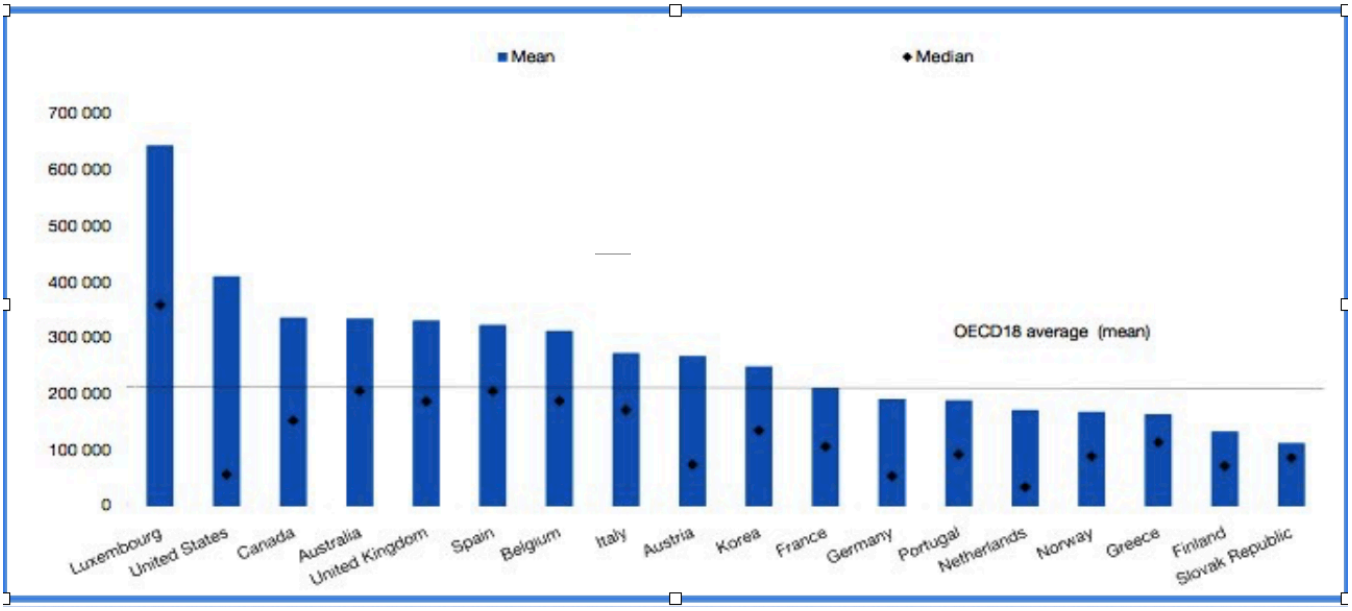

Figure. 2. Household Wealth in OECD Nations. Countries are ranked frUSD 2005om left to right, in decreasing order of mean household wealth with the Mean (blue bar) and Median (black dot) for the net wealth per household. Wealth values are ranked in 2005 USD: meaning the first-wealth values in different years are expressed in prices of the same year (2005). Though consumer prices indexes; second, national values are converted into a common currency through the use of purchasing power parities for household consumption. Source: OECD Wealth Distribution Database, June 2015 - No. 21 - Statistics Brief.

Allowing wealth to grow without limits while limiting wages results in an increasing income-to-labor ratio that unjustly differentiates the rich from the poor, or the privileged from the deprived. This immoral mechanism is blindly justified as an inadvertent privilege of being rich. Economic inequality drives social inequality, which acts as a drag on developing sufficient social capital for a society to function. The latter is a relic form of feudalism that differs from the medieval version in which the wealthy nobles were landowners and were somewhat obligated to provide for the basic needs of their serfs. In the modern version, “Pure” or Free-Market capitalism, the wealthy have no legal obligation to share their wealth with the working class or even with the subsidiaries that support them—the ideology of the trickle-down economy now promulgated by groups like Americans for Prosperity [fn] and other

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6.2d. How is Social Capital Structured? Social capital is often dissected into different slightly overlapping component capitals, which are commonly referred to as: Human Capital, Built Capital, Institutional Capital, and Cultural Capital, each of which is further differentiated into market and non-market components in order to facilitate their evaluation by using differing methodologies. Each of these capitals overlaps and interacts with the others. Social Capital is often dissected into different slightly overlapping component capitals, or can also be divided into those components that have horizontal associations—the shared networks and mutual norms that provide social cohesion for a particular sub-community, and those that have vertical associations, represented by hierarchically structured entities that require a cooperative effort to achieve specific goals, such as families, business firms, corporations, and military units. These associatiated units can co-exist and can have a positive or negative synergistic effect on the social capital of their host community or organization. Robert Putnam is known his argument[13] "that the success of democracies depends in large part on the horizontal bonds that make up social capital". The following descriptors identify some of the important aspects of each component based on those defined by Costanza, et al.[14] and by Wikipedia. They are expressed in terms of their positive contribution to social capital and are commonly referred to as: Human Capital, Built Capital, Human Capital, Cultural Capital, and Institutional Capital.

Built Capital. The buildings, machinery, transportation infrastructure, and all other human physical constructions that help provide basic utilities for human needs and services, such as roads, shelter, subsistence, water, mobility, and communications. These physical structures have market values based on their replacement cost (and also, in the case of rented or leased housing or commercial buildings, on ground rent) and on the costs derived from their use and maintenance. Their non-market values derive from determinations of the how well their use fulfills or facilitates positive contributions to livability and wellbeing. [Mostly market value]

Human Capital: : The human labor that contributes directly to social capital and/or indirectly contributes to economic assets. It is a necessary contributor to built capital, and includes the stock of competencies, knowledge, skills, habits, social and personality attributes, including creative and cognitive abilities, embodied in the ability to perform labor so as to produce economically useful products of market value. It can be approximately by wages

and benefits. However, monetary evaluations of labor grossly underestimate the contributions of unpaid laborers such as housewives, children, volunteers, and the underpaid, such as educators, health workers, and public responders, all of whom contribute to the 'glue' that holds society together. Employment qualifications depend on numerous non-market conditions, such as the person's physical and mental health, knowledge, skills, suitability, and other capacities such as empathy and intuition. As a macroeconomic labor force for a community, its non-market value depends on its efficiency and cooperative will to meet basic human needs of the society it serves, such as fulfilling work, cooperative understanding, training skills for production, creativity, and freedom. [Mixed market and non-market values]..]

Cultural Capital: The web of interpersonal connections: social networks, cultural heritage, media, traditional knowledge, trust, and of impersonal institutional arrangements: rules, norms, and values that facilitate human interactions and cooperation between people and information that helps formulate their world views. Its value lies in the extent to which these norms contribute to a socially cohesive, vibrant, and functioning communities, and to whether their governance fulfills the basic human needs of security and opportunity through cooperative participation, trust, and a sense of belonging. [Mostly non-market values]

Institutional Capital. The governmental, religious, and social activities that define and facilitate the functioning of a society, such as education, media communications, heath care, travel, entertainment, and exchange of goods and services. In concert with Cultural Capital it provides a framework for behaviors that ensure justice, promote rules of conduct, and cooperate for growth in Social Capital. [mixed market and non-market values].

6.3 Evaluating Social Progress.

This section describes some examples of how aspects of Social Capital are measured, and how they can be useful in guiding policies for social progress.

6.3a How Can We Evaluate Social Capital? A community's social capital is a vital, complex organic system that despite external disturbances evolves to meet the needs of the host community through a continual discussion of its function, experimentation, and measurements of its success. Since these needs are difficult to meet, social capital's evolution depends on the public's will and ability to improve its social capital up to the limits imposed by external disturbances. However, the rhetorical clarity of the discussions and the precision of the measurements are mostly blunted by the external political-economic processes that directly impact the local policy decision-making process. Some of this political retardation is explained by over-reliance on adages and opinions that don't apply or have not been scientifically validated as being relevant to the policy issues considered. In addition, the inherent complexity of social capital necessarily involves numerous multidimensional interactions within their internal components and requires subjective estimates of human interactions with components of social and natural capitals.

In sum, measuring the value of financial capital is easy, measuring that of natural capital is fairly difficult, measuring that of value of social capital is very difficult, and measuring the interactions between these Capitals is even worse. In order to guide our societies, we need to be measuring changes in the total value of our societal capital, when instead we mostly rely on single dimensional probes as indicators like the GDP to indicate the health of our wellbeing, For example, by simply using the GDP we are not taking into account the important changes in the values of natural and social capitals, which are far more relevant criteria for human societal progress.

6.3b.6.3b Relationships with Natural and Financial Capitals. Because societal growth requires considerable quantities of natural capital and because financial growth facilitates that interaction, the correlation between the growth of financial capital and the combined growth of social and natural capitals (or GPI), can be strong at low levels of social-capital development (Fig. 2). However, past a threshold point, the correlation begins to plateau and even to reverse: social and natural capital growth is flat or slow while financial capital continues to expand. This threshold occurs as the basic societal needs for natural and financial capitals are sufficiently met, while financial growth continues independently. This continued growth of financial capital then generates negative growth for both natural and social capitals: that is, loss or damage to natural capital and decay of social capital, which then devolves into social injustice, poverty, and pubic debt. The accelerated growth of GDP and of correlated indicators like stock-market values illustrates how financial activity can feed on itself (literally, in the case of massive stock buybacks that are now used to inflate the value of a company's equity) and how it loses it connections with natural and social capitals. This uncontrolled acceleration also shows that financial capital has little internal self-regulation that might keep it from underserving social capital and damaging natural capital. (External regulation from agencies charged with its oversight, like the US Securities and Exchange Commission, is continually undermined by the permanent "revolving door" between financial firms and regulatory agencies.) It also demonstrates how the growth of social capital is closely correlated to the available natural capital up to the point of the environment's carrying capacity, in the seventies, and remains flat.

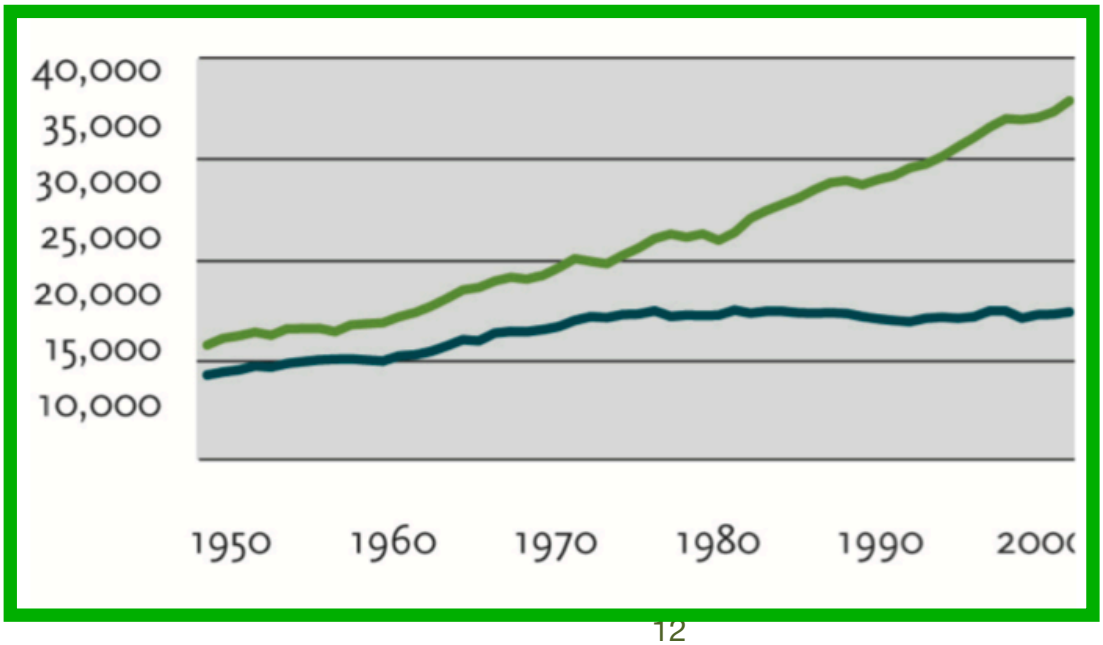


Figure 3. Growth Comparison between GDP and GPI. Comparative growth of GDP (economic activity) and GPI (net value of social and environmental gains). In essence, social capital becomes an intermediary between financial and natural capital, with the result that mismanagement of either of the two degrades social capital. Further discussion in Sect. 6.4.

6.4c. Assets and Development Factors. Since social capital represents a complex system, an evaluation requires a separation of its two main functional components: the stock or quantity, and the quality of the factors associated with its development. By measuring changes in each Asset and in each associated Development, we can better understand how they are changing, and where they are actin to assist or destroy the social capital.

Examples of Stock Assets

1) Monetary – assets and debts.
2) Governance - legislature, judiciary, military.
3) Demographic – population density, cultural diversity, and level —of education.I
4) Norms (social milieu) — cultural backgrounds and world-views that influence behavior on an individual, local, or national scale derived from religion, politics, group pressures. Institutions – societal infrastructures that provide wellbeing, sense of community, and social responsibility, volunteering, parks, churches, libraries, festivals.
5) Physical infrastructure — transportation, distribution of utilities, buildings, ports, bridges, resource mines
6) • Resources-Clean Air and Water
7) Water, oil, coal, forests, cropland, and fish.

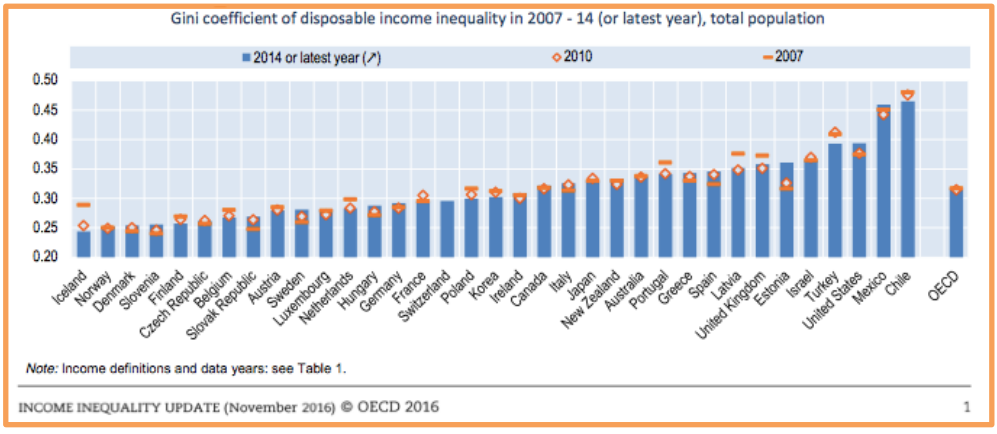
Examples of Developmental Factors

1) • Relationships – synergistic social connections between individuals and between groups that enhance social responsibility, provide mutual economic benefit, sponsor cooperative efforts.
2) • Jobs – working conditions, wages, skills, commute time, upward mobility.
3) • Labor – non-profit efforts to sustain the state of society, as housewives raising families, educators, health providers, first responders.
4) • Media – news and information dissemination, I internet, films, that inspires positive social development.
5) • Education – as a mechanism for improving the wellbeing, skills, productivity, and knowledge of citizens.
6) • Health – ability to maintain a level of health adequate for the society to function, disease control, emergency care.
7) • Wellbeing – sense of security, existence of human rights, and freedom from oppression, crime, war.
8) • Social Responsibility - willingness to cooperate and/or compromise for common good sense of neighborhood, providing outreach support to community.

6.4 Trends Measuring Social Progress

6.4a Social Capital Growth. The quantification of social capital growth is mostly neglected in the general accounting of a nation's growth measured by the GDP. Rather it is assumed that growth of positive Social Capital will perhaps grow by association with the economy. This assumption has a partial validity, restrict to poor economies, but otherwise it decidedly false. This is because, while the one-dimensional financial capital can rise and fall with impunity, reversals in the multidimensional components of Social Capital rarely can reverse without an additional energy (effort money or labor). It is then a fundamental security that that we try to measure and interpret changes in social capital. In the following sections, we will describe examples of how aspects of Social Capital are quantified, and how they can be useful in guiding policies for social progress.

6.4b.6.4b Social Indices. An initial approach to quantify social capital has been to track statistical trends by using indicators that reflect the condition of various social capital components and of their trends over time in terms of being favorable for, or in opposition to, sustaining human wellbeing. Some indices also indicate the health and the limits of the interactions between social and natural capital in order to guide corrective polices. Trends in these indicators can also be analyzed for significant differences between societies to determine which are the more responsible actions, policies, and cultural factors supporting Social Capital. That is, by comparing the differences and the changes in these trends, we can better diagnose which policies are better for generating positive sustainable development. Table 1 provides a reference list of indicators (cf. Wikipedia) discussed in this document. In aggregate these indices give a good picture of the diversity of Social Capital measurements, with respect to the various components that they are seeking to evaluate. Basically they help define a statistical base and the trends of specific issues from which one can extract mean tolerance levels of acceptance for these issues.



Figure, 4 . OCED Comparison. In 2012, the World Bank rated the US as 33rd highest among world nations, and among the 34 developed nations OECD, behind Mexico and Chile and similar to that of Turkey (Fig.30), the 34 developed nations OECD**,** and similar to that of Turkey (Fig. 30).

6.4b Social Indices. An initial approach to quantifying social capital has been to track statistical trends by using indices that reflect the condition and trends of various social capital components and of their trends over time in terms of being favorable or unfavorable to sustaining human wellbeing. Some of these indices also highlight the health and limits of the interactions between social and natural capital in order to guide corrective policies. Trends in these indicators can also be analyzed for significant differences between societies so as to determine which are the more responsible actions, policies, and cultural factors supporting social capital. That is, by comparing differences and changes in these trends, we can better diagnose which policies are more favorable to positive sustainable development. Table 1 provides a reference list of indicators (cf. Wikipedia) discussed in this document. In aggregate, these indices provide a good picture of the diversity of social capital measurements with respect to the various components that they are seeking to evaluate. They help to define a statistical base and the trends of specific issues from which one can extract mean tolerance levels of acceptance for these issues.

Table 1, Financial, Natural,& Social Capital Indices

	Acronym	Descriptors
Ecological Footprint	EFP	Measures the human demand on the earth's ecosystems
Environmental Performance Index	EPI	Ranks nations on how they manage natural and social capital.
Environmental Vulnerability Index	EVI	Expresses the resilience in terms of vulnerability to Global Change impacts.
Gini Index	GI	Maps the distribution of a quantity into a range of 0 to 1, e.g., inequality.
Gross Domestic Product	GDP	Measures the marketed economic activity during a year per person.
Global Performance Index	GPI	Measures health of a nation's economy by incorporating the annual costs of environmental and social impacts into the GDP.
Human Development Index	HDI	Life expectancy, education, and income per capita.
Index of Sustainable Economic Welfare	ISEW	Measures sustainable development - Similar to GPI.

Subjective Well-Being	SWB	Refers to how people experience the quality of their lives and includes both emotional reactions and cognitive judgments.
Sustainable Development Indicators	SDI	A suite of indicators to evaluate progress toward SD for the EU
World Health Statistics	WHS	UN-WHO compendium of statistical trends in the health of the world nations
Biodiversity Index	BI	The measure of the number of different species in a biotic community.
Satisfaction With Life Scale	SWLS	Covers 11 multiple life dimensions, such as: civic engagement, housing, household income, work, life balance, skills to health status.
Social Progress Indicator	SPI	Measures social progress directly, independent of economic development. It is based on a holistic and rigorous framework for defining social progress based on 54 indicators of social and environmental outcomes.

5.4c Gini Index. The Gini Index is a unidimensional measure primarily used to represent the extent of income disparity in a nation or community. It is based on a mathematical algorithm that maps the distribution of income between 0 and 1, with zero meaning everyone is equal, and one meaning that single individual has all the income. It is commonly used as an indicator of the distribution unidimensional social-economic properties, such as wealth, disparity in education or opportunity. It is widely used because it can objectively compare inequality of such properties within a nation or between nations, regardless of the size or type of their economy, and it is useful for detecting trends over time. However, it cannot be used to compare the internal inequality between nations of different average incomes; and it is not helpful for comparisons between nations with the same average income. For example, in 2010 Bangladesh and the Netherlands had the same low Gini index of 0.31, despite large differences in their income level, due to the similarLevel level of disparity among their individuals. The population structure also distorts the Index, e.g., when comparing nations with large proportions of non-working children or elderly. For these and other reasons[2] the Income Gini Index should be considered as a measure of income disparity and not as an indicator of lifestyle equality. However, since a goal of sustainable development is the attainment of a tolerable range of financial inequality, the Gini index can indicate whether a nation is trending towards or away from financial sustainability.(see Figure 50

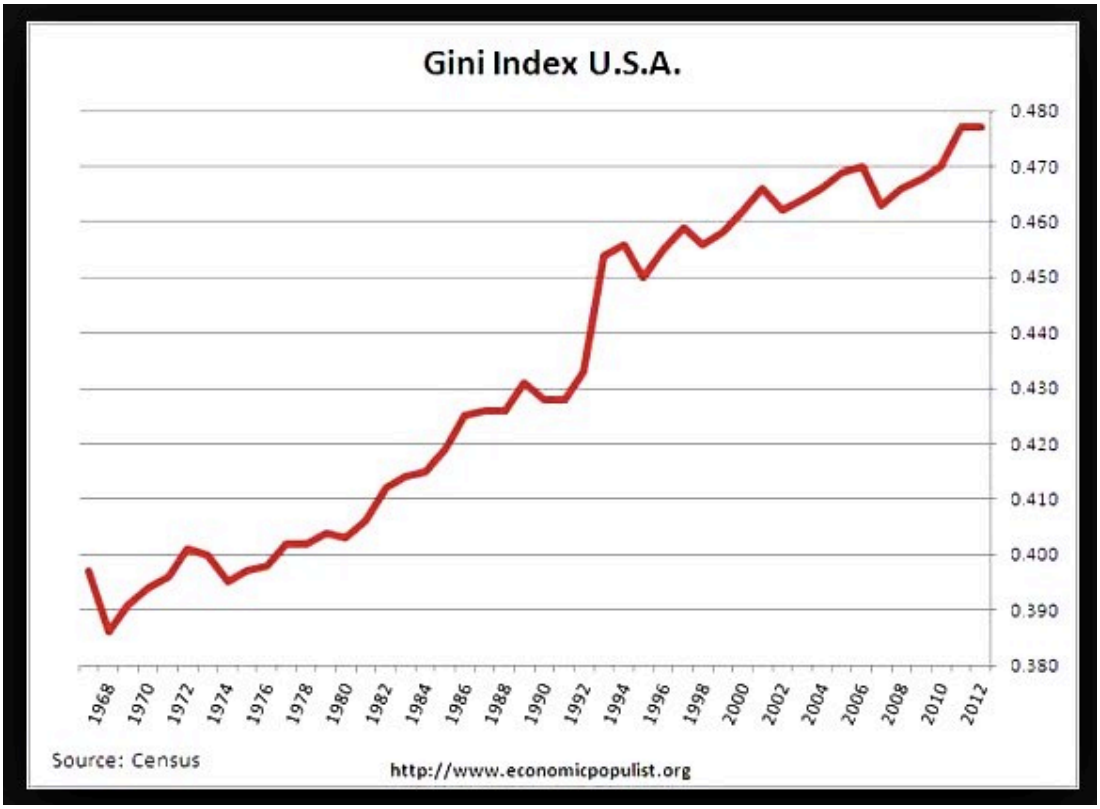


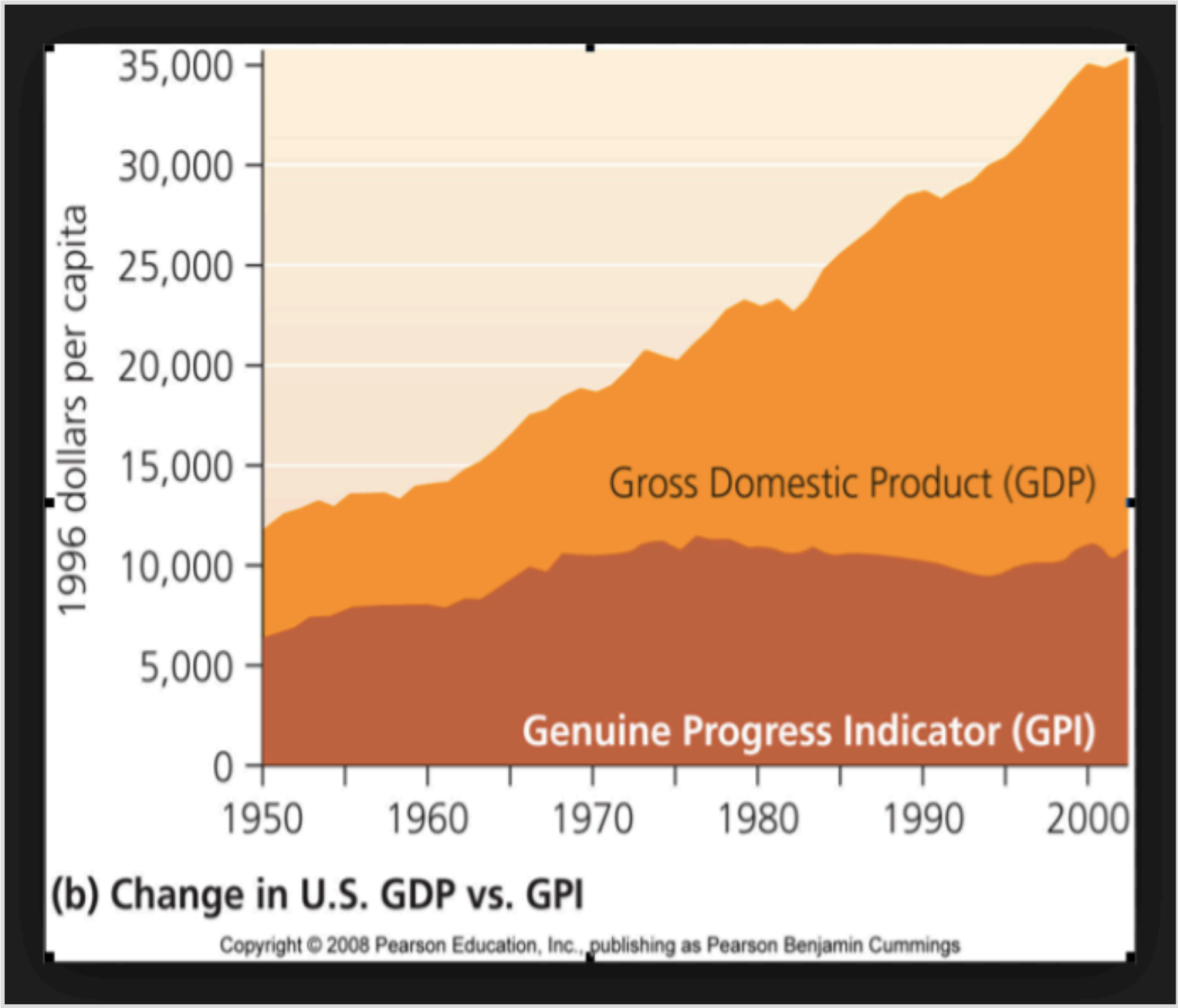
Figure 5. The Gini Index for the US from 1968 to 2012. The index is used as a measure of statistical dispersion of a parameter mapped in to values between zero (homogenous) and a hundred (maximum inequality). It is used commonly to indicate the distribution of a nation's population.Incomes within nation's population. From the Populist Pos

6.4d Genuine Progress Indicator (GPI). The GPI is a macroeconomic per capita index developed to include multi-dimensional, environmental, and social factors into a single monetary value, such that it could be compared with the GDP. It is an extension of the ISEW proposed earlier by Daly and Cobb (1990)[15]. Both indexes are inclusive and detailed "measures of a nation's net social progress toward sustainability. As such, the GPI is considered a far better indicator of economic welfare than the GDP. A brief explanation of the difference is given in The Genuine Progress Indicator • The GDP "is merely a gross tally of products and services bought and sold, with no distinctions between transactions that add to well-being, and those that diminish it." Whereas "the GPI starts with the same personal consumption data on which the GDP is based, but then makes some crucial distinctions. It adjusts for certain factors (such as income distribution), adds certain others (such as the value of household work and volunteer work), and subtracts yet others (such as the costs of crime and pollution). Because the GDP and the GPI are both measured in monetary terms, they can be compared on the same scale.

These results also suggest that we can quantify the limits of economic growth beyond which financial growth should be redirected to better use, such as improving social capital, rather than increasing financial capital. Fig 6 visually helps demonstrate the more than four

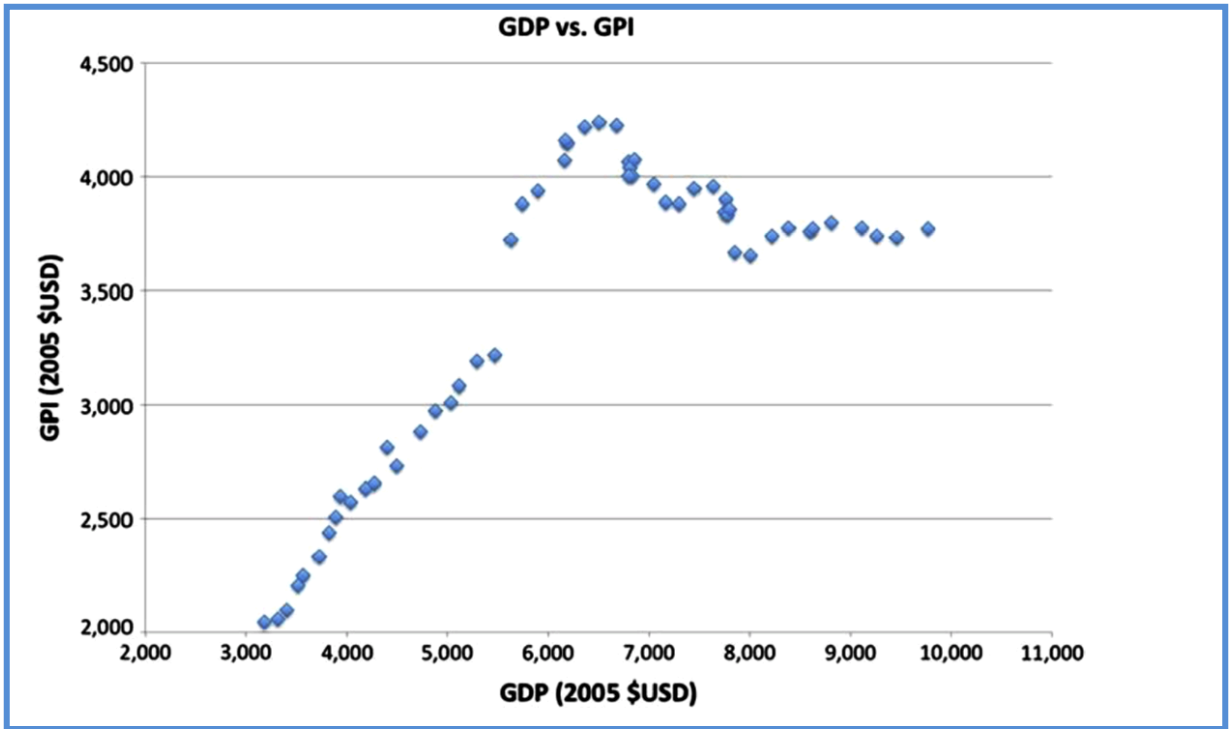
decades of wage stagnation occurring in the US. Fortunately, one can find examples of national, state, and municipal organizations that are using the GPI and ISEW indicators. For example: as of 2014, Vermont, Maryland, Washington, and Hawaii have passed state government initiatives to consider GPI in budgeting decisions, with a focus on long-term cost and benefits, and in 2010 also a new companion index.

Figure 6 shows Gini index for the US from 1968 to 2012. The index is used as a measure of statistical dispersion of a parameter mapped in to values between zero (homogenous) and a hundred (maximum inequality). It is used commonly to indicate the distribution of a nation's population incomes within nation's population. From the Populist PostNote, at these efforts to measure social inequality are likely not to be supported under the new the present US Administration.



Figure, 6.The ratio of global average GDP/capita vs. global average GPI/capita from 1950 to 2008. This more recent comparison reflects a positive correlation (R^2 = 0.98) between the two indexes up until the 1970s, when the correlation began to diverge and flatten out with deference the GDP being ~3.5 times more than the GDI in2008. Note, this behavior is observed in Figs. 3&7

6.4e. The Max-Neef Hypothesis. In 2013, Kubiszewsk[16] reported on a comparison of global trends in GDP and GPI for 17 economically diverse nations based on data from 1950–2003 with the scope of validating the commonality of Max-Neef hypothesis.[17] This hypothesis states that for every nation there is a period of growth when the quality of life is correlated with economic growth up until a threshold point is reached, where the close correlation with the GDP is lost and GPI flattens or decreases while the GDP continues to grow. This holds despite the fact that the threshold values varies between nations; such that individual nations reach different threshold values at different times. This behavior implies that when our modern societies reach a certain satisfied level of wellbeing they reach a certain threshold level of growth, at which the GDP is no longer a dependable measure of positive social progress. Instead after the threshold level, it GDP becomes a negative indicator of social-capital growth as a result of the mounting natural and social debts created by superfluous financial activities that do not augment social capital and that damage natural capital. This threshold occurred earlier for developed countries the seventies and eighties and later for lesser-developed countries nineties and oughts. In addition, the actual monetary value of the threshold depends on the average economic level of GDP of each nation. The average of the seventeen comparisons gives Figure 6 a threshold value per capita of $7,000 in USD 2005. The US threshold occurred around 1980 at ~12,500 when at a GDP/capita have about ~23,000 in 2005 (Fig. 7). The high income-inequality, the GDP average per capita is numerically skewed toward the rich, and that the more happy folks are not necessarily the richest who in any case are much fewer in number. Because the GDP and the GPI are both measured in monetary terms, they can be compared on the same scale. The consistent globally of this economic threshold should be an important asset for national policymakers concerned with maintaining a minimum income for sustainability.

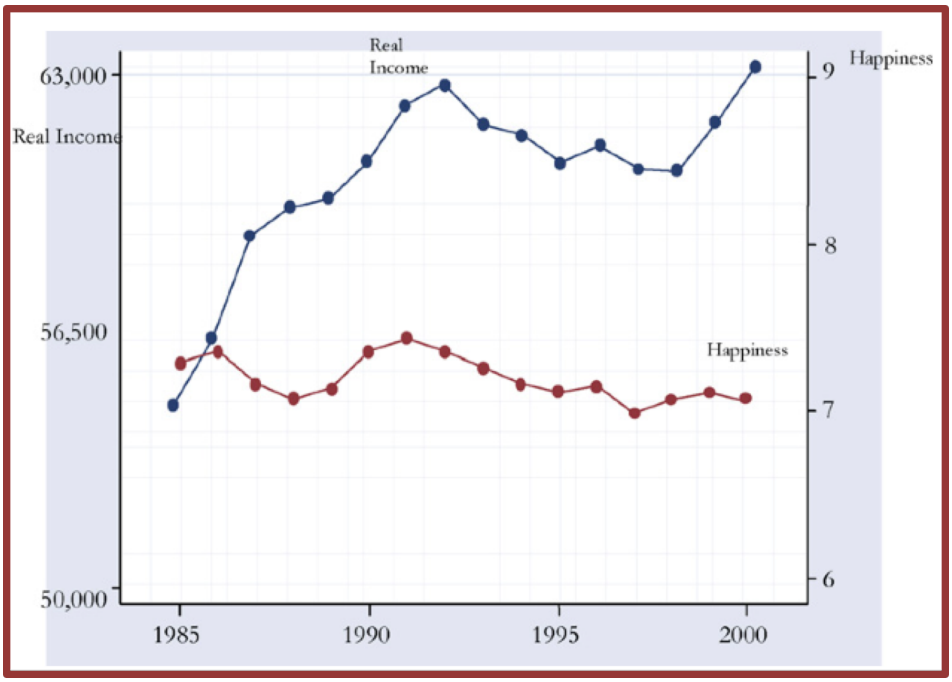


Figure, 7.The US Threshold. This chart shows the Max-Neef threshold occurring around 1977 at a per-capita value of12,500 USD when the GDP/capita value of 37,000 in USD 2005.

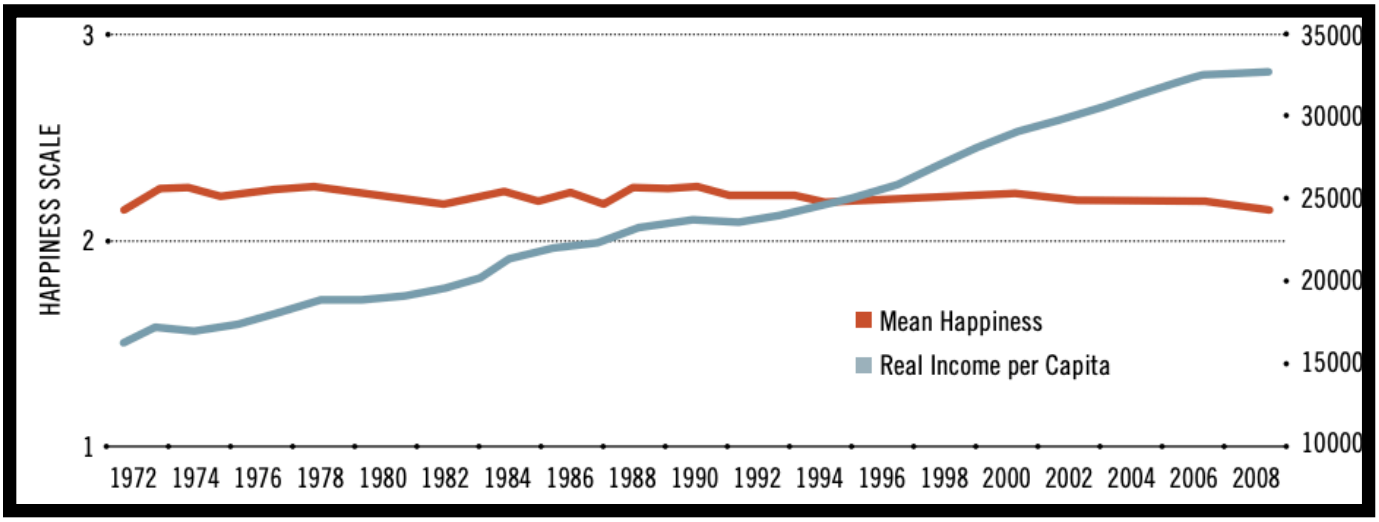
6.4f. Happiness and Wellbeing. A more comprehensive study conducted, in the USA from 1972 to 2008, compared the mean happiness (satisfaction with one's life situation), bore the same results: that there was virtually no change in happiness over this period in which the GDP/capita had more than doubled. These attempts, although difficult to measure numerically, have These results undoubtedly reputed the economic conception that, if a country's GDP grows, its population will be happier or more satisfied. They also support the 'Easterlin Paradox'[18] that states: "*wealthier individuals report greater happiness at any given time, but average happiness does not increase with average income over time*"[Ibid}3. The caveats for this case follow.

1) In a country with high income inequality, the GDP average per capita is numerically skewed toward the rich, so that the happier individuals are not necessarily the richest ,and who in either case are much fewer in number.

2) A dynamic enters that helps explain the public tendency to retain happiness independently of the economic growth of their society is that monetary growth is linear whereas satisfaction and happiness depend on multiple factors, that have differing thresholds that do not grow linearly, in relation to monetary growth, but can provide enough support from other satisfying-thresholds such that they can tolerate some variability in income. As with ordering a meal in a restaurant with friends, where one can chose lesser expensive options, because enjoying the meal is more important than worrying about how much it costs.
3) If we accept the verity of the GPI, the cost of environmental damage is paid by poorer citizens, who are the most impacted- but least as much as is paid for by the richer citizens, who in addition can escape or shield themselves from such damage.
4) In accumulation of wealth does represent future security, and is a positive factor favoring life satisfaction. A sense of security derives also from a trust in of stability of your satisfiers. Once a household is satisfied with the availability of its needs and services, it tends to adapt to its situation, and be satisfied in the trust that they have, rather than to gamble on superfluous or risky changes offered by a growing consumer economy. This is reversible up until an economic inequality threatens the security of one's wealth and threatens the livability and sense of happiness.This result is shown in both Figures 8 & 9.



Figure,8.Happiness and Income. This graph compares average real income and the observed happiness (on a 0–10 scale) for a group of 7,812 randomly sampled West German individuals who are followed from 1985 to 2000. After testing mathematically several explanatory hypotheses for the flatness over time, the study concluded that the dominant factor was one of adaptation. From Dieneer[19]

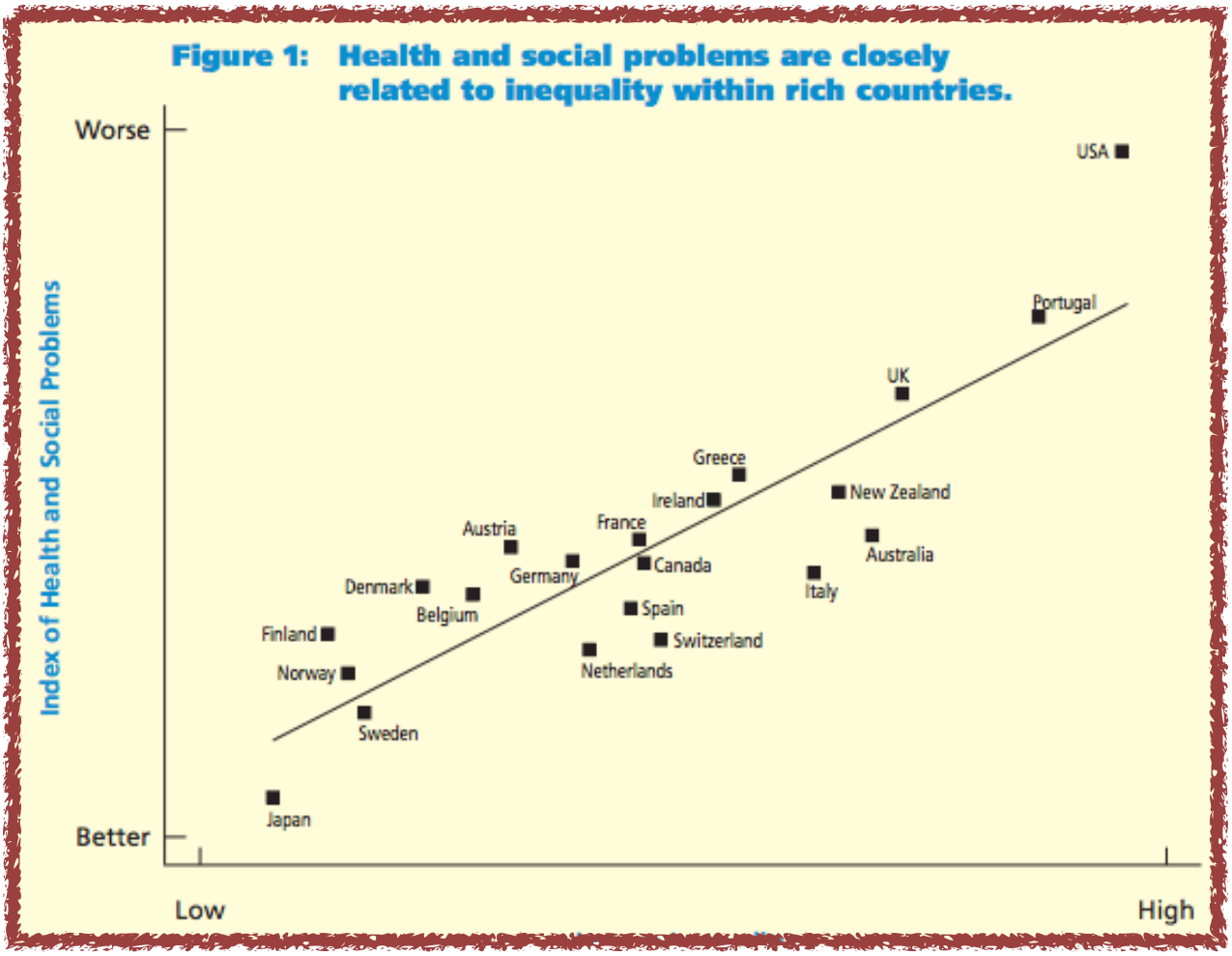


Figure, 9. Happiness and Real Income per Capita in the United States. Note: Mean happiness (left scale) is the average reply from respondents to the US General Social Survey. The survey question asks: "Taken all together, how would you say things are these days? Would you say that you are not too happy, pretty happy or very happy?" These values were coded as 1, 2 and 3, respectively. Source: General Social Survey data available at http://www.norc.org/GSS+Website. Real income per capita based on authors' calculation using data from the Bureau of Economic Analysis and the Census Bureau

6.5 Social Ramifications of Economic Inequality

6.5a Is Economic Inequality a Serious Problem for the Public? Yes,. The dynamic that, increasing financial inequality accelerates the degree of social inequality, appears to have gained some recognition among the public and in US political dialogue through B. Sanders[20] and E. Warren and others, but their messages need to be more widely understood as to why and how it effects all of the social capital components and how they can resolve them. This is not to say that they all the candidates have not contributed greatly to public awareness on this issue economic inequality. Also it should be emphasized that global inequality has long been a priority focus of the United Nations and other non-profit global organizations. When the Catholic Pope Frances had to remind the world that inequality is a systematic moral problem for everyone despite their religious orientation, he essentially made it a global economic-political issue in his 2013 Apostolic Exhortation[21] and in speeches during his visit to cities of south South and North America. The problem focuses on the global mistake to economies for profit rather than for wellbeing. Pope Frances identifies the issue eloquently:"*Some people continue to defend trickle-down theories which assume that economic growth, encouraged by a free market, will inevitably succeed in bringing about greater justice and inclusiveness in the world. This opinion, which has never been confirmed by the facts, expresses a crude and naive trust in the goodness of those wielding economic power and in the sacred workings of the prevailing economic system. Meanwhile, the excluded are still waiting. To sustain a lifestyle which excludes others, or to sustain enthusiasm for that selfish ideal, a globalization of indifference has developed. Almost without being aware of it, we end up being incapable of feeling compassion at the outcry of the poor, weeping for other people's pain, and feeling a need to help them, as though all this were someone else's responsibility and not our own. The culture of prosperity deadens us; we are thrilled if the market offers us something new to purchase. In the meantime, all those lives stunted for lack of opportunity seem a mere spectacle; they fail to move us."*

It is obvious that economic inequality creates social inequality, because most all of the social-capital components depend directly or indirectly on the available economic capital, yet social capital remains in the basement of political polices. As for example, the lack of importance given to the health and wellbeing components of US social capital is obvious in comparison with other OECD nations, shown in Figure 9 where the US has the highest economic inequality and the worse health and social problems compared to other rich countries.



Figure,10. Inequality, Health and Social Issues. Correlation between Inequality and Ian index of health and social issues of the 21 OECD nations. From, Wilkenson K. and Pickett R,2009b[22] who found: why *More Equal Societies Almost Always* do Better.

6.5b What is Causing Financial Inequality? In the 20th century, the inequality gaps followed the strong economic recoveries after the two World Wars. For the US after WWII, an inequality gap started to open-up in seventies and has continued to broaden until the present. The growth of US inequality is also clearly shown in Figure 3; and in the US Gini Index of Figure 4, both of which show how the top and bottom income deciles beginning to diverge in 1975; and continue to grow until reaching an intolerable wage-gap inequality of 135% by 2005 and more specifically by economic decile:

1) the top decile increased by 75% (growth),
2) the median decile decreased by 5% (economic stagnation), and
3) The bottom decile decreased by 60% (economic depression)[4].

This dynamic has steadily differentiated the population into economic tiers of those experiencing economic growth, stagnation, and deprivation during last four decades, Fig. 9 as

published in 2010 is only one of many portrayals of this situation of alarming growth in income inequality of the US compared other countries, as in Figure 2. for Household income expressed in dollars. What is remarkable is that this economic inequality and wage stagnation has existed and has been increasing for at least the life span of the present labor force, experienced by roughly half of the US population and continues without resolution. During this 40-year period, the political controversy over causal factors and associated ramifications were politicized, but not sufficiently aired publicly nor addressed directly. This stagnation of the lower quintals at the expense of the higher quintals is clearly shown again in Figure 11 from Chapter 4, Figure6.

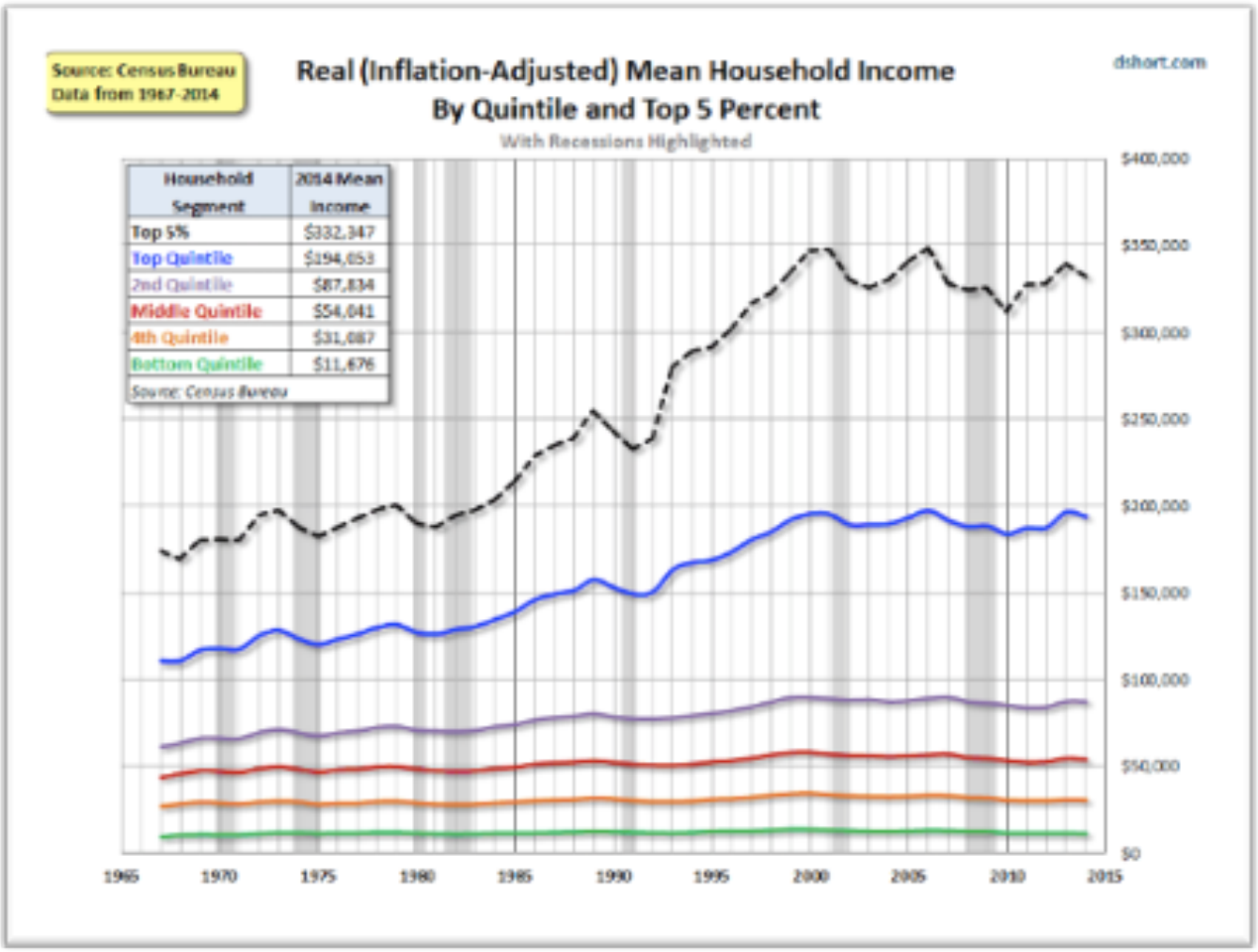


Figure 11. Household Income Growth, 1967 to 2014. This graph illustrates how the average household income cumulative household income growth by quintile cumulative household income growth by quintile for each quintile has changed since the 1970. The inserted table the average incomes in dollars for each quintile are shown in the insert. The black dotted line represents the top 5%, the blue line, the 5th, purple the 4th, red the 3rd (middle), orange the 4th, and green the 1st (bottom). The shade vertical strips mark periods of recession. Data from US Census Bureau.

]

The growth of the financial sector has been the primary driver of this increase. The Center for Economic and Policy Research[23] (CEPR) reports that: "*Over the past three decades, the top 1 percent's share of national income has more than doubled. In 1978, the richest 1 percent of income earners made less than 9 percent of total income; by 2014, their share was over 21 percent. During the 1940s to 1970s, finance typically accounted for about 3 to 4 percent of GDP; by 2005 and 2006, just before the 2008 financial crisis, finance claimed 7.6 percent of GDP. While the industry's share of national income fell during the recession and for the fourth quarter of 2016, it was 6.3 percent"*

One might ask which of these two sectors is more important for the nation's population—the financial one that produces money or the social one that produces goods and services?

During the US 2016 presidential election, economic inequality became a major issue, and it also demonstrated that ignorance of its causality, coupled with misinformation and oligarchic influence, could overwhelm any self-correcting dynamic. The result is making the situation worse by the present government with its promises to further this degenerating dynamic. The US is proud of its governmental "Checks and Balances" among the legislative, judicial, and executive branches of government, but it cannot claim pride for the economic inequality and instability that the manifest failure of these checks and balances to prevent them and erase the American Dream. It should be obvious to the public that financial inequality erodes social capital, and in particular those components of social capital that directly or indirectly depend on monetary transactions, such that increased financial inequality is correlated with decreasing social capital.

Opposition to this logic can be found easily on the internet. For example, the Cato Institute states[24] "Economic inequality has risen to the top of the political agenda, championed by political candidates and best-selling authors alike. Yet, many of the most common beliefs about the issue are based on misperceptions and falsehoods. Although we are frequently told that we are living in a new Gilded Age, the US economic system is already highly redistributive. Tax policies and social welfare spending substantially determine inequality in America. But even if inequality were growing fast as some claim, the Cato Institute maintains that it would not necessarily be a problem. Some of the myths arguments in criticizing the defense the inequality issue are definitely questionable:

1) "*Inequality Has Never Been Bad, Inequality has never been worse.*
2) *The rich don't earn their money, they inherit it*
3) *The rich stay rich; the poor stay poor.*
4) *The Greater inequality necessarily means greater poverty.*
5) *There is good reason for this country to have a debate over issues such as how best to reduce poverty and increase middle-class incomes*." But beating the inequality-drum with money will do little to contribute to resolution.

,,These arguments justifying the existence of economic inequality have gained greater political dominance with the 2016 US election's 'conservative 'victory' despite the tremendous efforts of Bernie Sanders, and other candidates in the recent Democratic Debates, who have understood that inequality cannot be reversed just by tweeting financial component with a tax reform, which had the effect of benefiting the rich more than the poor but rather by vitalizing all the social components that are monetarily connected directly or indirectly and by putting limits on interest rates and income. Strangely, we have an unfair minimum wage but not a fair maximum wage. Yet the lack of recognition and comprehension of the Nation's inequality remains a vital but disregarded issue remains In fact it is analogous to the climate issue ,and closely linked to it,-the longer the condition persists, the more obvious and expensive become the consequences and the more difficult the solutions. Should we conclude the US has reached the point where practical sense does not make economic or political sense, especially to the younger citizens? For example, "The Fight for $15 is an American political movement advocating for the federal minimum wage to be raised to $15 per hour. The federal minimum wage was set at $7.25 per hour in 2009, and as of 2019 it has not been increased since"Wiki[25]

The quotes in the following paragraphs offer some relevant explanations of the causal dynamics and options for resolving the condition. Comprehending this is analogous to that of climate issue, and closely linked to it, that is, the longer the condition persists, the more obvious and expensive become the consequences and the more difficult the solutions. Why doesn't the public internalize the messages of leading economists, and react more strongly? Especially since there is overwhelming evidence of how the '*trickle down*' economy has been and continues to be a persistent economic policy that generates economic since it was adopted in the seventies has persisted and been ignored by uninformed voters — at least by male voters, as Figure 11 confirms.

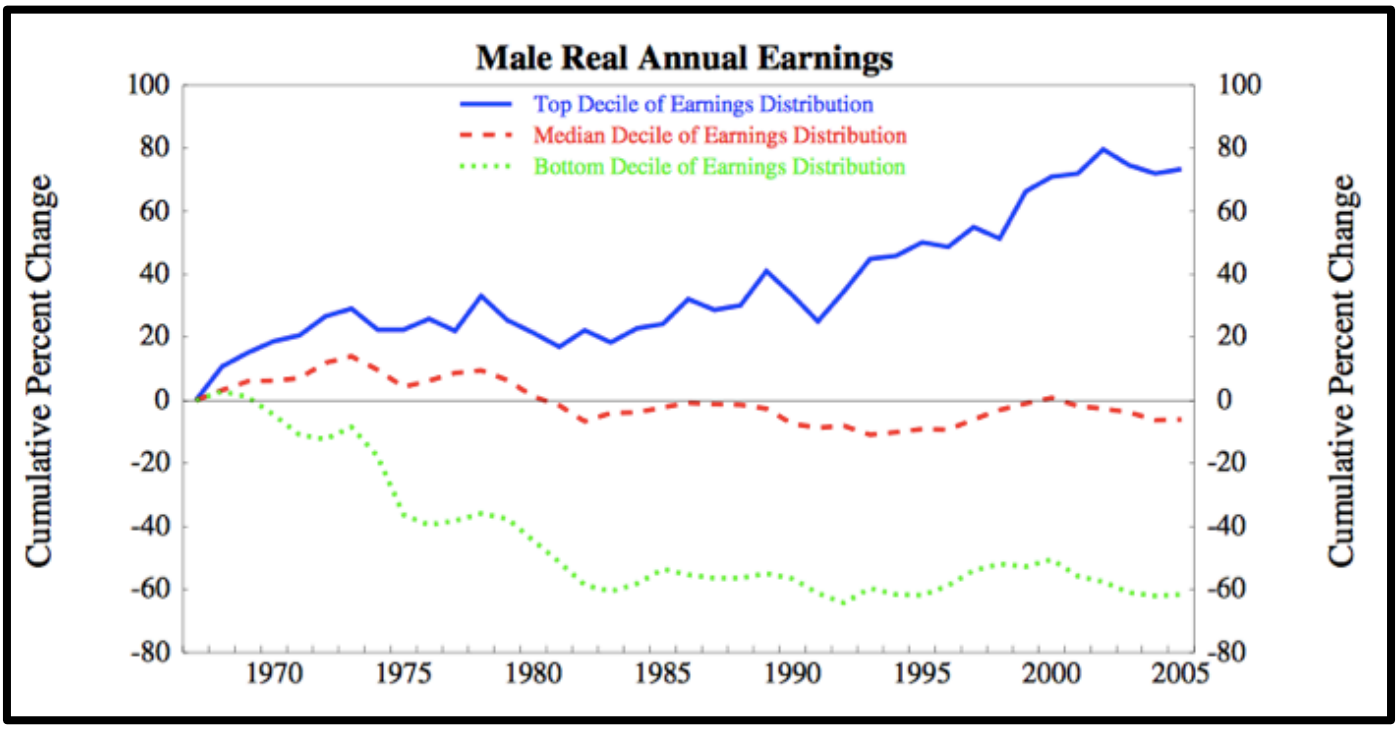


Fig. 11 Male Real Annual Earnings (US) 1967-2010. The cumulative percentage changes in real male annual earnings for the bottom 10 percentile, the percentile surrounding the median, and the top 10 percentile. The male annual earnings include labor income plus two-thirds of self-employment income. Source: Heathcote, Perri and Violante.[26]. Note, no similar plot was available for female wage earners.

Further discussion of this topic can be found easily on the internet. For example, the Cato Institute states[23] "*Economic inequality has risen to the top of the political agenda, championed by political candidates and best-selling authors alike. Yet, many of the most common beliefs about the issue are based on misperceptions and falsehoods. Although we are frequently told that we are living in a new Gilded Age, the US economic system is already highly redistributive.ax policy and social welfare spending substantially reduce inequality in America. But even if inequality were growing as fast as critics claim, it would not necessarily be a problem*." The Cato Institute maintains that five of the arguments justifying the validly of the inequality issue, which are instead myths:

1) Inequality Has Never Been Bad
2) The Rich Didn't Earn Their Money
3) The Rich Stay Rich; the Poor Stay Poor
4) More Inequality Means More Poverty
5) Inequality Distorts the Political Process

1) According to the **International Monetary Fund**[11] The key mechanism derives from the rapid growth in the size of the financial sector, which is spurred by its loans made to the rest of the population in order to prop-up consumption, which has the risky side-effect of increasing public debt and damaging Natural Capital. When there is no corresponding mechanism to increase the wages and income of the poor and middle-income households, their debts keep growing as does the probability of a major crisis.
2) **Thomas Piketty**:[27]
3) "When the rate of return on capital exceeds the rate of growth of output and income. Capitalism automatically generates arbitrary and unsustainable inequalities that radically undermine the meritocratic values on which democratic societies are based". Wealth breeds wealth because money can grow money. This simple process generates financial inequality and social inequality in the demographic process.
4) **Joseph Stiglitz**[28] summarizes: "Inequality leads to lower growth and less efficiency. Lack of opportunity means that its most valuable asset — its people — is not being fully used. Many at the bottom or even in the middle, are not living up to their potential, because the rich, needing few public services and worried that a strong government might redistribute income, use their political influence to cut taxes and curtail government spending. This leads to underinvestment in infrastructure, education and technology, impeding the engines of growth. Most importantly, America's inequality is undermining its values and identity. With inequality reaching such extremes, it is not surprising that its effects are manifest in every public decision, from the conduct of monetary policy to budgetary allocations. America has become a country not 'with justice for all,' but rather with

favoritism for the rich and justice for those who can afford it — so evident in the foreclosure crisis, in which the big banks believed that they were too big not only to fail, but also to be held accountable."

5) **Paul Krugman**[29]asks the question: Can we design policies so people can live better lives? He answers: "There are things that we know we can do and there are things that we think we can do. And we should be doing all of them. Redistribution, taxes, and transfers, guarantee of basic income in some form for the less fortunate, paid for by taxes on the most fortunate. We can do that. But we know that there's a wide range of how much is done, and there's no evidence that countries that do more pay any real price".[5]

6) **Robert Reich**[30]in PBS interview: The argument is that inequality is bad for everyone, not just the middle class and poor. The rich would do better with a smaller share of a rapidly growing economy than they're doing now with a large share of an economy that is barely growing at all. It's not growing because there's not enough purchasing power in the middle class, and the lower-middle class and everybody aspiring to join the middle class, to keep the economy going. Meanwhile, median household income keeps dropping, adjusted for inflation. Well, where are people going to get the money they need to keep the economy going? We can't go back into debt like we were in before 2008. So, there is a fundamental threat to the economy. There's also a very fundamental threat to the democracy we live in because, as even Louis Brandeis, the great jurist, understood: "*We can either live in a democracy, or we can have a huge amount of wealth concentrated in few hands, but we can't have both*".

6.5c. Do we have Economic Mobility and the American Dream? Economic and social mobility are hallmarks of the 'American Dream' defined by J. T. Adams[31] in 1931, as one that promises. "a dream of social order in which each man and each woman shall be able to attain to the fullest stature of which they are innately capable, and be recognized by others for what they are, regardless of the fortuitous circumstances of birth or position". The economy has evolved instead in another direction towards the creation and/or perpetuation of financial inequality, which seems to better characterize our present economy due to lack of recognition of several dominate processes that are not being utilized to control inequality.

The conditions that facilitate upward mobility are greater support for Social Capital components such as less residential segregation, less wage stagnation, better public schools nation, subsidized higher education, levels greater health-care, transportation, etc. According to Chetty[31], there is a cultural propensity to strive for intergenerational mobility of income. In contrast, the average trend in the US has been for less mobility, but with a large variability due to the internal diversity of so among the population. Because the mobility process increases with the income rank of the parents, it contributes to income inequality. Fig. 12 compares the rate at which a child's income is related to its parent's income for the three countries studied, United States, Canada, and Denmark. In comparison to Canada and Denmark, US children have the least mobility, which contradicts the "American Dream" promise.

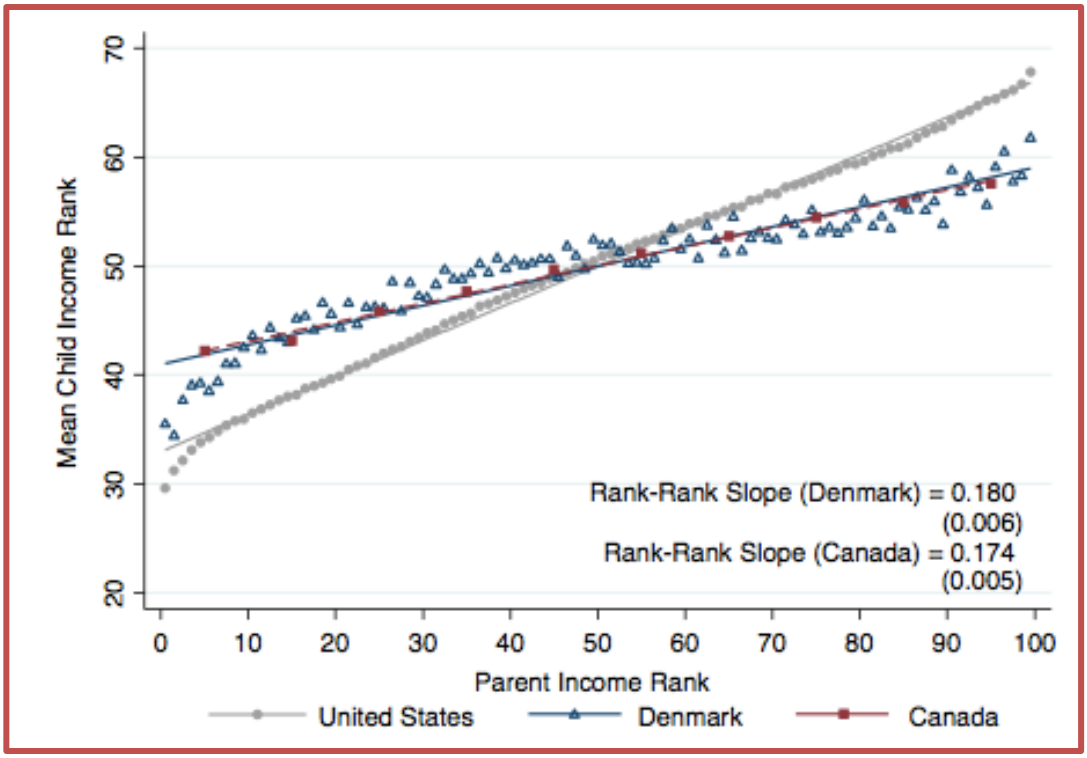
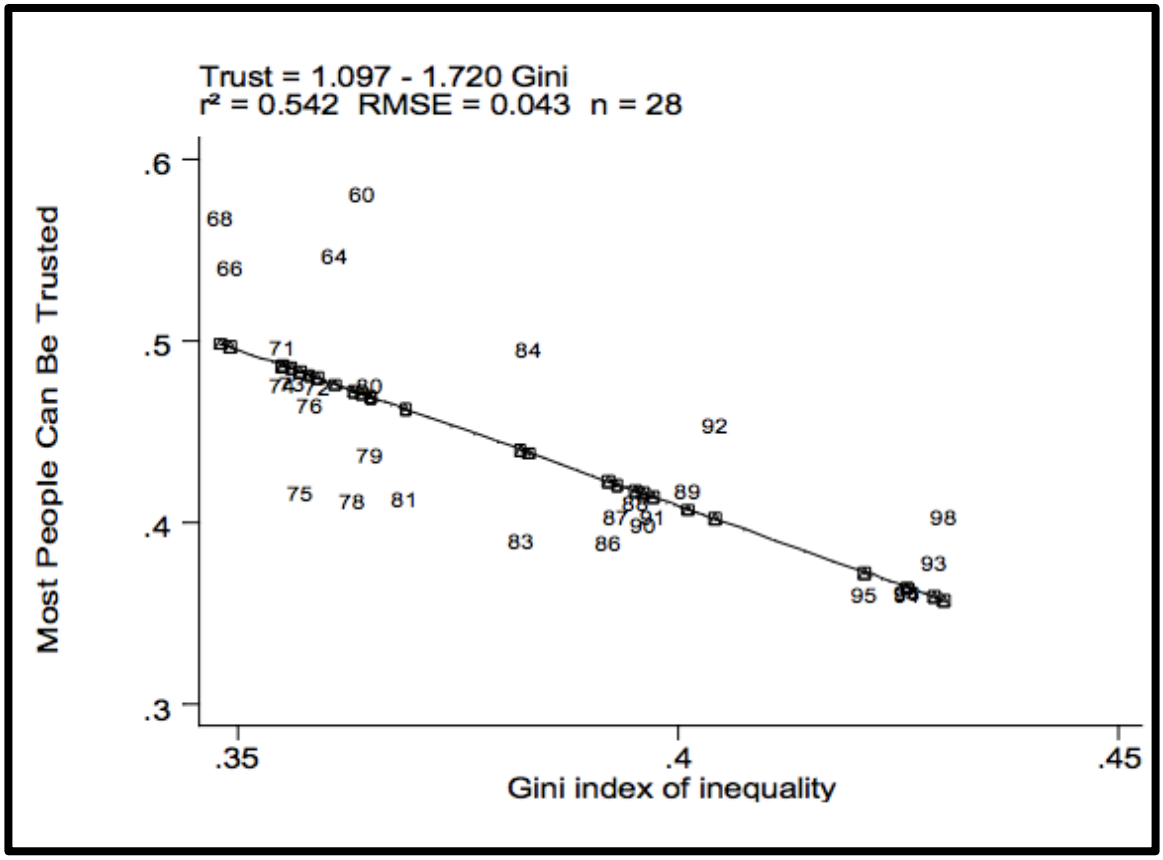


Figure 12 Economic Mobility between US, Canada and Denmark. Economic mobility expresses the intergenerational accumulation of wealth, trust or child's chances of succeeding to be wealthier than its parents. The chart shows a steeper trend for the US meaning, which means its children have had less mobility to achieve the same income as their parents. The Child's income is the mean of 2011-2012 family income (when the child is approximately 30 years old), while parent income is the mean family income from 1996-2000. Children are ranked relative to other children in their birth cohort, while parents are ranked relative to all other parents in the core sample. See Chetty [32] for further explanation of the data and analysis.

6.5d How are Trust, and Civic Engagement related to Inequality?. As economic inequality increases because the financial sector is feeding on itself through the gains acquired by interest on their wealth, by their increasing incomes and by trust-commissions on their transactions, such that their aggregate wealth grows more than the value of the economic activities to the other components of social capital or by their actual taxes paid to the government. Hence, the wealthiest tiers separate from the lower tiers, leading to increases in inequality. This process not only destabilizes the economy itself but it also generates serious damage to Social Capital. The post-war growth in the seventies of the upper wage decile clearly did not cause a 'trickle-down' of wealth to the median and bottom deciles (Chap. 4-FC, Fig. 5). Instead, the income growth steadily differentiated population into economic tiers, between those experiencing economic growth, stagnation, and deprivation (cf. Sect. 6.6b)

A study by Brown and Uslander[33] found that increasing inequality over time is strongly correlated with declining trust in higher economic tiers (Fig. 13). They also found that this decreasing trust was correlated with decreasing civic engagement and to a lesser degree political participation. In other words, increasing inequality acts to erode the level trust that a population has with its governing structures. At low levels of trust, marginalization begins with lesser and lesser participation: first trust in higher political levels and then at community levels. At the lower levels of trust, the marginalized individuals become dropouts from society and contribute to a social-capital debt. The forces of marginalization are not limited to the lower economic tiers. There can be strong cultural differences that exaggerate the separation of individuals or groups from the existing cultural norm. Marginalization acts to divide a society raising a barrier to constructive participation in their communities and contributing to social unrest, however expressed. Hence the strength of a society is in a large middle-class that can bridge the gap and can achieve constructive, collective action. The wiliness to cooperate with others is fundamental to sustainable development.



Figure, 13. Correlation between Economic Inequality and Civic Trust. A correlation of trends between interpersonal trust and financial inequality as represented by the Gini Index, from 1967 to 2005. From Brown and Uslander[33].

The economy depends heavily on trust but trust is violative and so its abuse must be controlled by self-limiting regulations. In other words, the American Dream is a promise for a better future, a promise we all share and often violate. Our economy depends on trusting this promise. If we invest money in an enterprise, we expect its future value to increase; or if we borrow money to get a higher education, we expect have a better income to pay off the loan. So,

what happens if the investment or the hoped-for income decreases in value, and what happens when a country owes more than its income? The US public debt has exceeded by 100% of the US GDP at $17.4 trillion, which consitiutes (Figure 14), and about 120 times the amount of dollars in circulation. So, what happens when you owe more on a debt than you can pay? – Bankruptcy

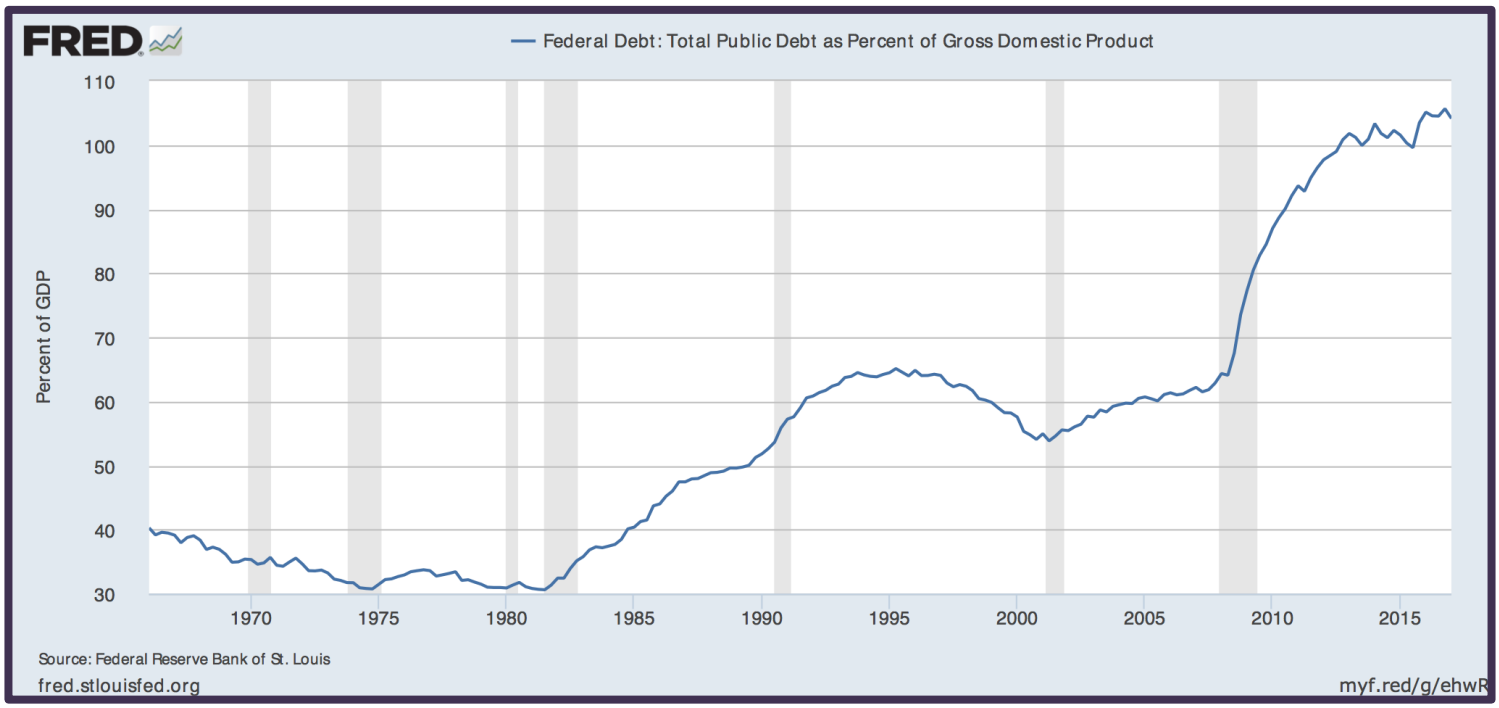


Fig. 14. United States Public Debt-to-GDP ratio. In the first quarter of 2017, the ratio was estimated at 104.2%, including external debt. The shaded areas indicate US recessions. From: The US Federal Reserve Economic (US Central Bank)

Betting on a better future has fostered a debit economy has now generated a very unstable credit crisis that is very vulnerable to a rush for cash, an asset sellout, devaluation of fossil fuel, for example. So why are most ordinary people borrowing? It's because their real incomes are stagnant or declining while the public-service functions of government, like college education, are shredded, and the price of health care is going though the roof. Most bankruptcies now are caused by health-care debt.The promise for a better future also includes increased wages and retirement pensions, which are expected to be realized by a 'growing economy'. Instead, this is not happening and cannot happen until the functionality of economic distribution becomes self-regulating and just

6.6 Choosing the Direction of Human Development

The UN's Human Development focus on preserving and enhancing the value of Social Capital is a landmark achievement towards tipping the global balance away from oppression, competition, selfishness, and deprivation to the ultimate goals of peace, cooperation, freedom, and sustainability. Such lofty goals seem impractical but are far more practical than a business-as-usual course to follow towards a life on a harsh, turbulent planet incapable of even sustaining only a small portion of the present population.

6.6a Human Development Index (HDI)[35] In 1990 the UNDP adopted the HDI formulated by Pakistani economist Mahbub ul Haq[36] The index was created to emphasize that people's wellbeing and capabilities should be the ultimate criteria for assessing the development of a country, and not just its economic growth alone. The HDI is a composite indicator of three social-capital components that are: education, which is adult literacy rate and years of schooling, health care which is judged by life expectancy, and including the economic factor of GDP, as shown in Fig. 15. The UN Human Development Program purposes other than to quantify the status of a country as a means compare the success among counties towards the goal of human development. The HDI has also provided a solid basis for identifying national problems and providing guidance on improving their progress with human development, illuminate corrective nation policy choices, and what international assistance might be available a small portion of our present population.

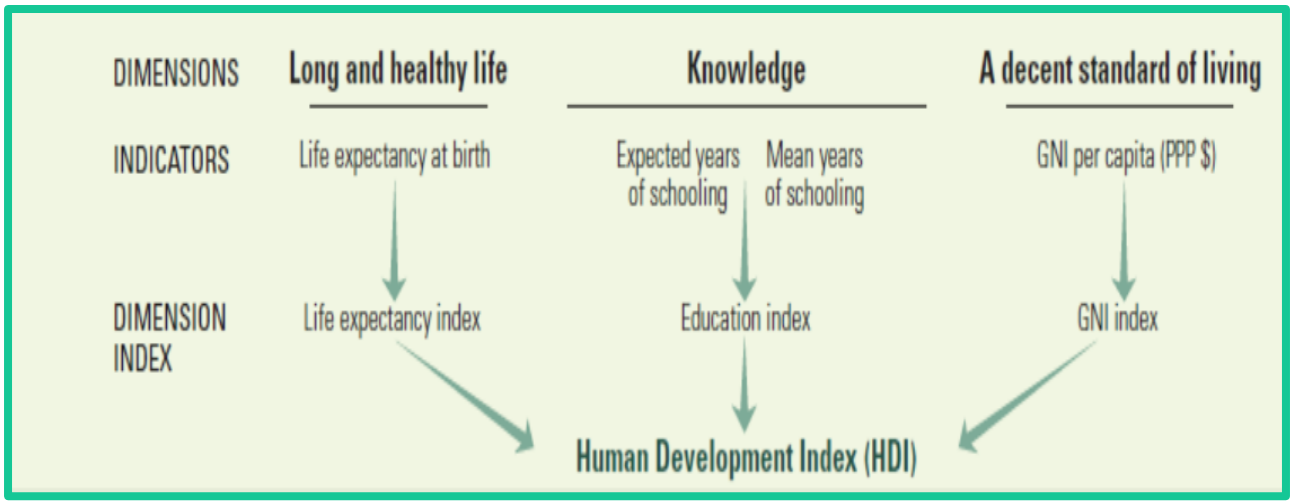


Figure 15. Human Development Index. This diagram illustrates the composition and formulation of the HDI.

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Figure 15.Human development Index. The diagram illustrates the composition and formulation of the HDI.Human Development Office Report .

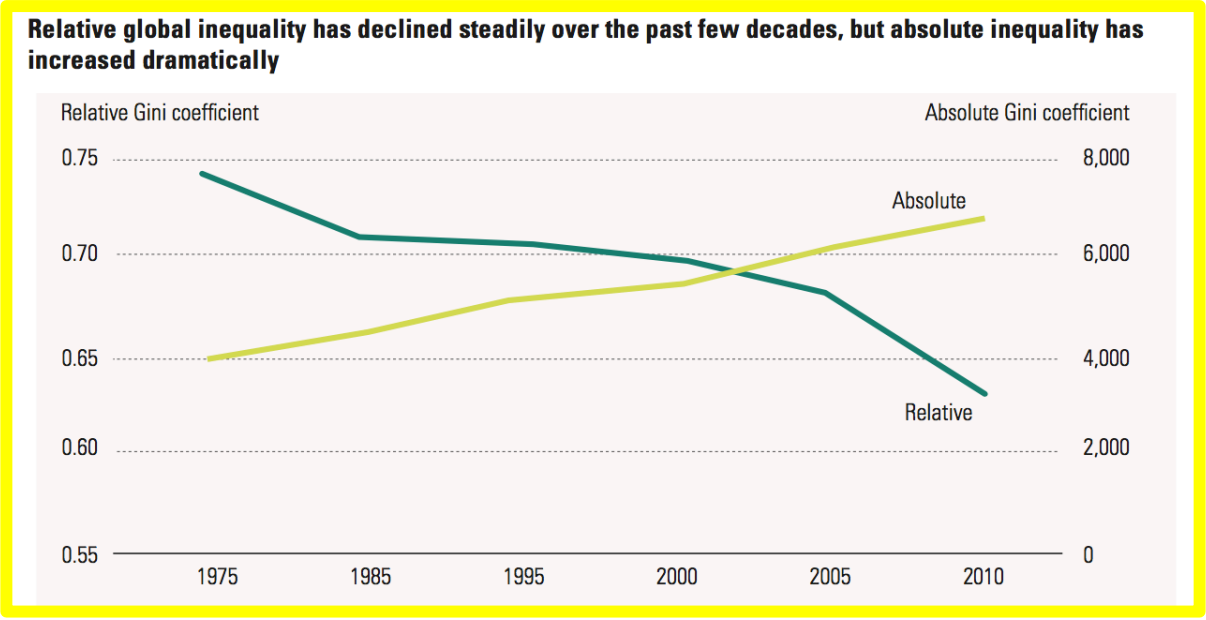
6.6b The Inequality-adjusted Human Development Index (IHDI). The Human Development Report Office 2016 ibid has redefined 'Human Development' as being "*all about human freedoms: freedom to realize the full potential of every human life, not just of a few, nor of most, but of all lives in every corner of the world—now and in the future*". To ensure human development for everyone, the Report asserts that merely identifying the nature (status and composition) of social deprivations is not enough without analyzing the complexity of their causes. To match this expanded scope the Human Development Report 2016 very comprehensively describes an expanded and upgraded composition for the HDI, such that it now includes an Inequality-adjusted Human Development Index (IHDI), a Gender Development Index (GDI), a Gender Inequality Index (GII), into a Multidimensional Poverty Index (MPI). This composite is referred to as the Inequality human development Index (IHDI to differentiate it from the HDI). The difference between a natIon's HDI and its IHDI represents a relative quantification of nation's loss of social capital and affording a quantified value for the role played by social components in the creating or eroding a nation's Social Capital. For example, the 2016 difference between them caused the US to lower its global ranking of tenth for HDI to twentieth for its IHDI.

The HDI has allowed the international community to better understand the origin of social

inequalities and associated deprivations that inhibit human development. The effort is important with regard to the evaluating of the economic impacts of these inequalities and their connections to the many social-behavioral dimensions that are non-market and that are not well recognized due to positive or negative synergisms occurring in a deprived community. For this reason, linear policies, such as' simply pumping money into Built capital or moving a community elsewhere are wasteful and ineffective in restoring the livability of a deprived community can compound the public's level of trust, responsibility, justice, and cooperation, because of the side effects of these actions only add to the existing stress of uncertainty and indecision about adapting to abrupt changes that are not destined to change to change the primary causes of they inequality. Several examples of the HDI 2016 Report's findings that are relevant to this discussion follow (with some text edits) :

Inequality. The global 'relative' inequality between countries has declined steadily over the past few decades, from a relative Gini coefficient of 0.74 in 1975 to 0.63 in 2010. This was driven by strong economic growth and declining inequality in some of the developing countries like China and India. This happened despite an increasing trend of the average inequality measured within countries 'absolute' inequality has increased dramatically since the mid-1970s.

This can happen numerically, for example, a doubling the income of a both a low-wage and high-wage, the difference (inequality) is also doubled. The actual monetary dispersion in global income inequality between the rich and poor nations better demonstrates the global inequality problem as shown Figure. 16.

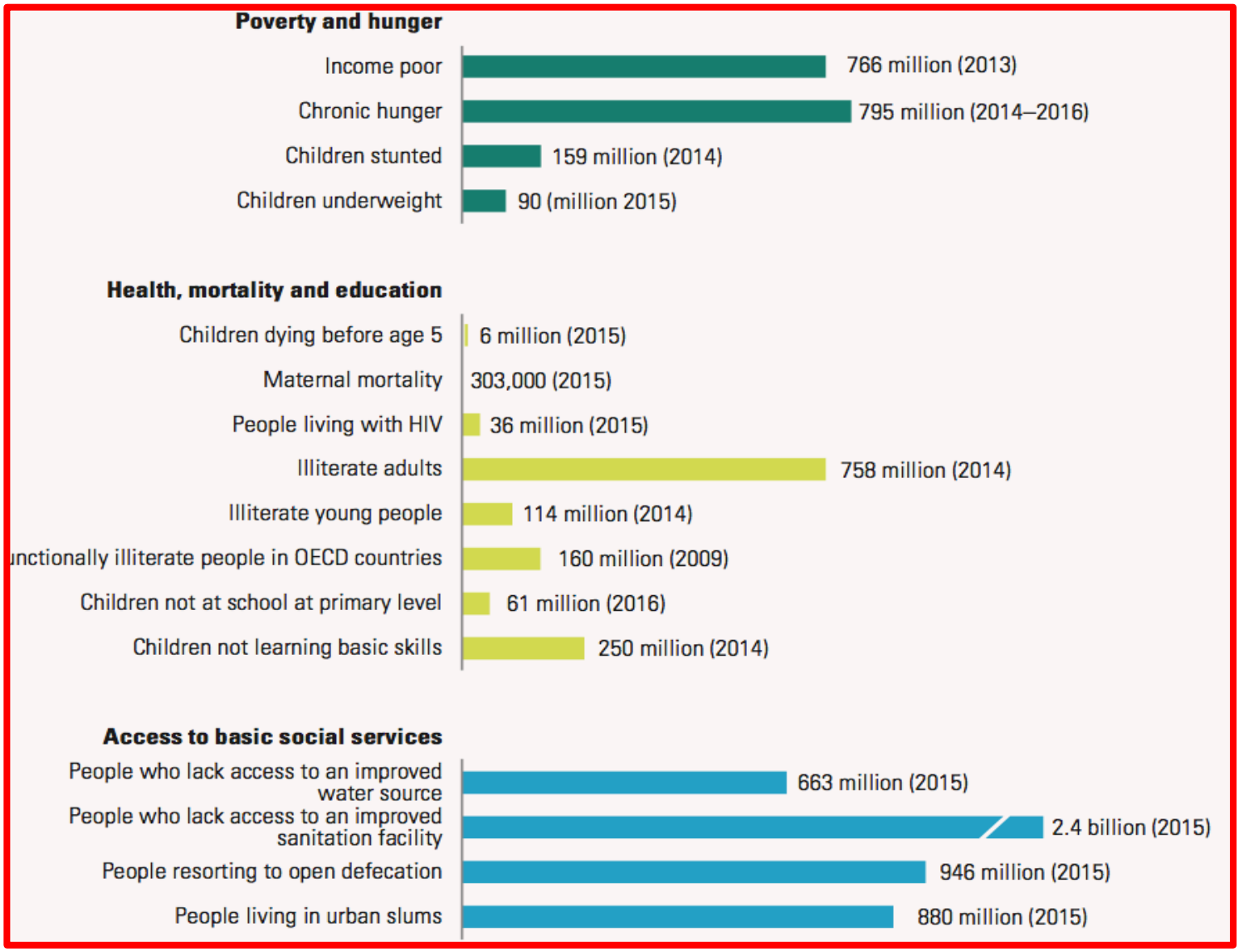


F**igure 16. Global Trends in Inequality Absolute and Relative.** The difference in global inequality trends of average relative inequality within a country and absolute inequality between countries. This means that the difference between the rich and poor is increasing, but within countries it is deceasing. From, UNDP Report on Human Development 2016.

I**ncome Distribution.** More recently between 2008 and 2013, the World Bank reported that income gaps widened in 34 of the 83 countries monitored as income grew more quickly for

those in the wealthiest 60 percent, than for those in the poorest 40 percent. Furthermore, in 23 of these countries, the poorest 40 percent saw their income declining, while people in the top income group they were sharply rising. Some 46 percent of the total increase in income between 1988 and 2011 went to the wealthiest 10 percent (Figure 17). Since 2000, 50 percent of the increase in global wealth has benefited only the wealthiest 1 percent of the world's population. Conversely, the poorest 50 percent of the world's population received only one per cent of the increase.

Deprivation. The HD Report points out that despite the promising improvements, made in the 25 years since 1990, has raised the level of wellbeing of some deprived populations. Unfortunately, these deprivation issues are far from resolution as shown in Figure 17. For example, more than one billion escaped extreme poverty threshold of less that $1.90 per day, but three quarters of a billion remain below the threshold; the under-five mortality rate was halved from 91 to 43 per 1000; and a third of the global population still lack access to improved sanitation facilities. Meanwhile the population increases by~80 million annually.



Figure, 17. Global Deprivation Status, UNDP Report on Human Development 2016.

6.7 Progress on Understanding Social Capital.

6.7a. Furthering Methods for Sustainable Development. Over several decades, the UN has devoted an increasing effort to mapping indicators of the human condition with commendable success. Through its various programs, the UN programs has promoted accounting methodologies and provided guidance to member nations in incorporating them into their governance practices and in socio-economic decision-making. Primarily, this accounting strives to quantify the relative importance of social and environmental capitals relevant to the advancing human wellbeing.

The first step involves the use of indicators (or indexes) that can be mapped into a numerical framework for further analysis. The comprehensiveness, pertinence, methodology, and interpretation of these indicators are still evolving. . Heretofore, an obstacle has been the acquisition of social and environmental databases that are correctly monitored, formulated, and comprehensive, enough to provide accurate analyses to create compatible data bases from all nations. The results derived from these Indices then help us understand both global and national economic social and environmental trends , such as the efficacy of policy, healthcare, poverty, and livability conditions. Improved methods measuring the mean status of these social conditions, and analyses, are much improved by new monitoring methodologies, digitization of data, and by model simulations. The IHDI continues to be invaluable 'Global Information Base' in providing and making available their global databases and analyses.

Good simulation models can be significantly more effective addressing corrective measures for policymakers important, because other than just making information from snap-shot descriptions of social issues to formulate policies. They can simulate the effect of different approaches by construct real-time simulation models that can establish thresholds of deprivation, injustice, health, and education that can alert and provide options for resolution that could be monitored to strengthen and validate and for an greater understanding of what is needed for resolution. The above mentioned social trends give policy makers information on the degree of dysfunction of various aspects of a society, but they do not necessarily guide policies for their solutions. Usually, this is because the science-to-policy interface is not strong or willing enough to collaborate on corrective policies. It is also because the degradation of one social component likely involves its connections with other dysfunctional components creating negative synergisms that must be considered in the solution. For example, an undernourished child has a greater health risk from drinking polluted water, which in turn increases the risk of illness or death within its community. This is to say that social issues are complex — no surprise — and cannot be resolved by a one-dimensional policy strategies, for example, with more money for education, or police enforcement, or neighborhood resettlement. The type of social-capital component involved, its connections to other components (side effects), and the real needs of the persons affected must be considered before the funding of a development-project is funded. For example, with these pre-analyses improving physical infrastructure (built social capital) that

needs public money, but it also generates costs to other non-market social-capital components that cannot be resolved through direct funding. That said, if well employed, funding can assist indirectly, as with unhappiness, due to poor health care facilities whose low quality is party the result of the hospital's inadequate equipment (market) and the inferior skills of the staff (non-market). Thus, policies aimed at improving social capital must be also complex enough to address the multi-dimensional causes of a social dysfunction. The HDReport has comprehensively described curative policies for many social-capital components.

The human development effort in UN member Nations all nations is weakened or set back by inadequate or corrupt policies to supplement external support, and stem the growing external global problems of population increase, climate change, and resource consumption that are damaging to their social capital and causing an enormous global debt in social and natural capitals. Unfortunately, the distribution of responsibility for contributing to these problems is grossly uncorrelated with distribution of the damaging consequences and with any given nation's capacity to resolve them: some of the wealthiest nations are largely responsible for the problems but are suffering from them the least, while the poorest nations contribute the least and suffer the most. These mixed distributions of responsibility, capacity, and damage are evidently unjust, and collective action is obviously the fairest and most technically feasible approach, but likely the most difficult to implement — due to lack of collective will. Since these drivers are damaging each nation in different ways, each nation—especially the wealthiest—must strengthen their support of internal social-capital components (positive human development) so as to reduce its global contribution to social inequalities; in that way, all nations can collectively reduce the global social-capital debt according to their capacities, and richer must aid and support the poorer. In this respect, it is an obligation similar to collectively reducing the global natural-capital debt. Such an effort was achieved with the historic consensus on Climate Change of the Paris Agreement[37] negotiated by representatives of 196 parties at the 21st Conference of the Parties of the UNFCCC[ibid] and adopted by consensus on 12 December 2015, now marred by the present US President's recent declaration of intention to withdraw.

6.7c Behavioral Boundaries. In order to make this goal clearer requires a better understanding of the social barriers that must be overcome with respect to the goal of 'Universalism' a term that the HDReport[ibid] uses to stress the importance that all collective efforts for human development be all-inclusive: they must neither leave out nor favor any one, group, society, or nation. This requires identifying social capital deficits within communities or nations and focusing on humane resolutions that are:

a) paramount to sustainability goals, and

b) include achieving peaceful interrelations between themselves.

Responses to Stimuli. Evaluations of human behavior in response to external stimuli help us define and quantify the criteria for a good life, happiness, or subjective wellbeing (SWB). Behavior is unique to all life, from poppies to puppies, but human behavioral responses can be extremely complex. Much of this human complexity has do with humans' innately more

developed consciousness in their interactions with each other and with their environment. Humans seek a “happiness niche” that provides optimal satisfaction within the social-capital domains of their lives, such as family, friendship, work, sustenance, material security, and understanding. Creating stable relationships between individual persons and their domains makes achieving a satisfactory balance in wellbeing even more complex. This balancing act requires a special type of adaptive mutualism with multiple issues to which individual or groups are exposed, and with the larger-scaled overlapping social domains to which a person is exposed within or community interacts. An additional complexity arises, namely the inevitable diversity of groups with differing levels of tolerance of the stresses of social domains that impinge on their ability to achieve a satisfactory balance. Achieving such a satisfactory balance requires minimizing conflicts and optimizing cooperative sharing between components or individuals. The HDOR illustrates (Fig. 19) the concept of identifying major barriers to addressing social inequalities that must be respected when formulating remediating policies. Thereby, efforts to understand the tolerable limits of provides a guideline for policies focused on helping communities find satisfactory balances. Those communities that are severely out of balance will accumulate social-capital debts that will spill over into the neighboring communities they interact with. The HDOReport concept requires an identifying and addressing the major barriers that are actually the actions and behaviors that are generating the social inequalities. This requires change for both the persecutors and those oppressed, a condition that must be respected when formulating remediating policies, illustrated in Figure 19. Efforts to understand the tolerable limits provide a guideline for policies focused on helping communities recover satisfactory balances. Those communities that are severely out of balance accumulate social-capital deficits that spill over into the neighboring communities they interact with. To make this goal clearer, we need to understand the social barriers that must be overcome with respect to the goal of Universalism[38], a term that the HDOReport uses, to stress the importance that all collective efforts for human development be all-inclusive. That is they must neither leave out nor favor any one, group, society, or nation. This requires identifying social capital deficits within communities or nations and focusing on humane resolutions that are paramount to sustainability goals, and achieve peaceful interrelations between nations.

Figure, 19. Four Barriers to Universalism. Understanding the tolerable limits to Social Capital that should help in restriction policies to a window of sustainable Social Capital level.From HDOffice.

6.7d Consciousness. Since humans possess a highly developed consciousness, far greater than any other species on Earth or the social domains that they create, they are obligated to take on most of the responsibility for negotiating and adapting to the limitations of their social and natural environment. Humans also humans have evolved to protect themselves and their families or loved ones, cultural identity, or their larger social group over other humans or cultures. This tendency inhibits them from seeking responsible adaptations within their own milieu, requiring them to evaluate the short-term vs long-term benefits of their actions, and adapt accordingly. Modern genetics has found that the human species has survived as a species in part because it possesses both a 'cooperative gene' and an *"empathic gene"*[39]. These qualities help humans interact with others to be self-adapting in negotiating cooperative solutions with their ambient social domains. However there is no gene that can guide humanity us to planetary survival-this would have developed through a learned belief system

Approaches to Cooperation. Even under less than sustainable conditions, these cooperative agreements can be achieved if they have shared goals and are not independently subjected to external oppression. The challenge that humans face is balancing their needs within the limits imposed by their social domains of government, family, work, emotions, enjoyments, and sustenance. If these external domains exceed tolerable human limits of individuals or communities, the population becomes dysfunctional in a variety of ways, and it becomes progressively more difficult to reach a shared goal, of maximizing wellbeing, and minimizing their oppressive conditions.

The psychologist Martin E. P. Seligman[40] describes the two opposite approaches to the connection between SWB and Sustainability: "*This distinction between the hedonic and eudaimonic approaches to emotional well-being also sheds light on the best path to sustainability as well. The hedonic path is essentially short-term and short-sighted, even selfish. Whilst all people need some hedonic well-being in their lives, in the form of positive emotion, constantly seeking pleasure and avoiding pain will tend to lead to profligacy and waste. Since it is selfish and irresponsible it is unsustainable. In contrast, the eudaimonic approach is much more likely to be sustainable. With good relationships, positive goals and a sense of meaning providing purpose (rather than just passive consumption) the eudaimonic approach fosters a long term view and responsibility for others as well as the self recognition and corrections".*

If these authoritative domains are not kept within the tolerable limits of individuals or communities will be damaged, and their population becomes dysfunctional in a variety of ways; and it becomes progressively more difficult to reach the shared goal of maximizing wellbeing. It is natural for people to want to separate themselves from strangers sometimes to the point of oppressiveness. America has proven that multicultural diversity usually animates a community, but it takes more than a generation to do so, but it creates a richer culture on the way. Just think about the contributions of other cultures that have enriched the US traditional culture through exposure and acceptance, such as: Pizzas, Jazz, Avocados, Athletes, Sushi, Cars, and Religions, etc.

Intersectionality Theory[46] is a theoretical framework for understanding how aspects of one'i social and political identities (Figure 20) might combine to create unique modes of discrimination. The purpose of intersectionality as a theory is to identify how these overlapping categories of identity impact the behavior of individuals and institutions, and to take these relationships into account when working to promote social and political equity. This complex problem would require a Systems Approach that researches of how a matrix of corrective polices versus inequalities to relieve all potential combinations of corrective measures.

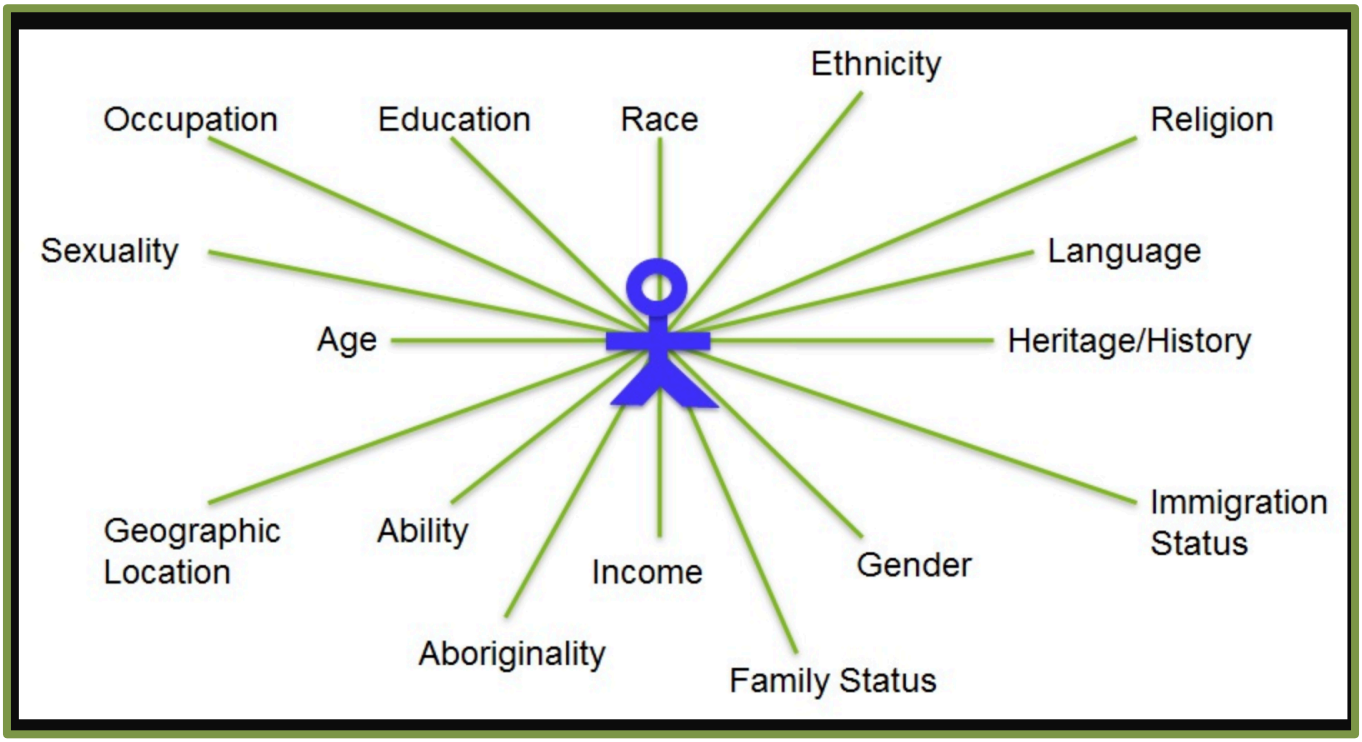


Figure 19. Chart of Diverse Civic Identities Common varieties individual and categories that suffer social inequalities or differing. Note several missing identities might be included are, Class, Handicapped and Politics,

While the theory began as an exploration of the oppression of women of color within society, today the analysis has expanded to include many more aspects of social identity. Race and gender bias are two separate issues, however, they can be combined to create even more harm or it can promote recognition and positive cultural change. An example by the Editor:[38] While the theory began as an exploration of the oppression of women of color within society, today the analysis has expanded to include many more aspects of social identity. Race and gender bias are two separate issues, however, they can be combined to create even more harm or it can promote recognition and corrections. An example from the Editor:[42]: "*When an ethnic group has been oppressed and denied a voice, 'identity politics' can be both necessary and liberating. Consider, in succession, James Brown singing 'Say It Loud—I'm Black and I'm Proud' in the mid-1960s, Jesse Jackson's 'I Am Somebody' campaign in the 1970s-80s and now the Movement for Black Lives. These are "identity" phenomena that occur because black people continue to face daily discrimination, denigration, abuse, and violence within a system of institutionalized racism."*

6.7d Lessons from Trends? The various Social-Economic trends in the US today demonstrate the failure of our (somewhat) democratic government to fulfill its obligation to ensure tolerable levels of social inequalities. This failure points to this government's lack of recognition of a clear understanding of the foregoing discussions, that is since the 1980s the US economic policies have been erosive to Social Capital, by ignoring the essential value of Social Capital in favor of Financial, there by Capital, has been repeated in other developed countries, for example by the UK. The dynamic that the financial sector is rapidly degrading social capital urgently needs further discussion, beginning with the ample evidence that the financial sector growth breeds inequality. This phenomenon seems to repeat a dynamic sequence of growth-and-crash. The trends discussed in the above sections can help us define a comfort zone for social capital that will be invaluable in pursuing the more socially equitable goal of sustainability.

Table 3
The Growth Sequence of Social Inequality

1) The wealthy can **perpetuate their wealth** more than those with less income or wealth. They continually gain income from investment (the larger and more diverse the portfolio of assets, the lower the percentage loss in a devaluation or crash) and they can pass on income their families, thereby inhibiting the upward mobility of others. Increased wealth spawns increased influence in promoting self-favorable policies.
2) Through these policies, the **wealthy class influences governments** by: changing the tax structure in their own favor; lowering wages and benefits and degrading working conditions to extract more value from labor; privatizing public services and turning them into profit centers at taxpayer expense; raising the price of health care and pharmaceuticals; neglecting and privatizing public education; deregulating pollution controls; neglecting infrastructure such as roads, rails, bridges, airports, and the electrical grid; influencing elections with unlimited campaign funding; increasing public resource consumption; mining or otherwise exploiting public lands for profit; and decreasing funding for the maintenance of other social-capital stocks and developments that would make life more liveable.
3) **The middle class stagnates and starts to shrink**, while sharing some of the benefits of the wealthy and the hardships of the poorer.
4) Just as the upper economic tiers can better perpetuate their advantage, the **lower classes become increasingly marginalized** without upward opportunities; this can foment social protests to gain recognition. This condition contributes to an increasing social debt, much of which cannot be regained within a generation or two.

5) The **consumer economy encourages consumption** and wrong use of natural capital that creates an environmental debt, most of which cannot be fixed with money or technology.

6) The interaction between the wealthier and **poorer classes deteriorates into a creditor-debtor relationship** that can only collapse and restart after immense waste of human and natural resources.

7) **Reformers protest with documents, conferences, and demonstrations,** and workers with larger and more aggressive demonstrations and strikes that **in some countries lead to civil strife or war.**

8) Increasing economic growth leads to greater social capital up to a threshold level, where further economic growth begins to accumulate in smaller and s**maller proportions of the population.**

9) **Humans have the capacity to adapt to a change in average income**, but only if all their basic needs (food, water, health care, education, work) are satisfied. This implies that past a threshold value of an average societal income they can adapt and be moderately satisfied.

10) **Increasing economic inequality disturbs this adaptability and destroys communal trust.** It can also lead to personal or community pathologies. Personality pathology refers to enduring patterns of cognition, emotion, and behavior that negatively affect a person's adaptation. It is characterized by adaptive inflexibility, vicious cycles of maladaptive behavior, and emotional instability under stress.[48]

11) **Loss of trust** in authoritative structures results in marginalization and dissatisfaction, and eventually leads to social unrest.

12) Marginalization **weakens civic engagemen**t and the democratic process.

13) **Economic growth** generates greater social capital up to a **threshold level**, where further economic growth begins to accumulate in smaller and smaller proportions of the population, and especially, the **lower classes become increasingly marginalized,** which reduces their upward opportunities that then can foment social protests to gain recognition. This condition contributes to an increasing social debt, much of which cannot be regained within a generation or two.

14) **Poor civic engagement** with the democratic process leads to an **abdication of social responsibility** and a **loss of representative voice f**or necessary social needs, which can worsen the process of marginalization. Voter turnout in democratic societies is often taken as an indicator of civic engagement. (Fig.20)

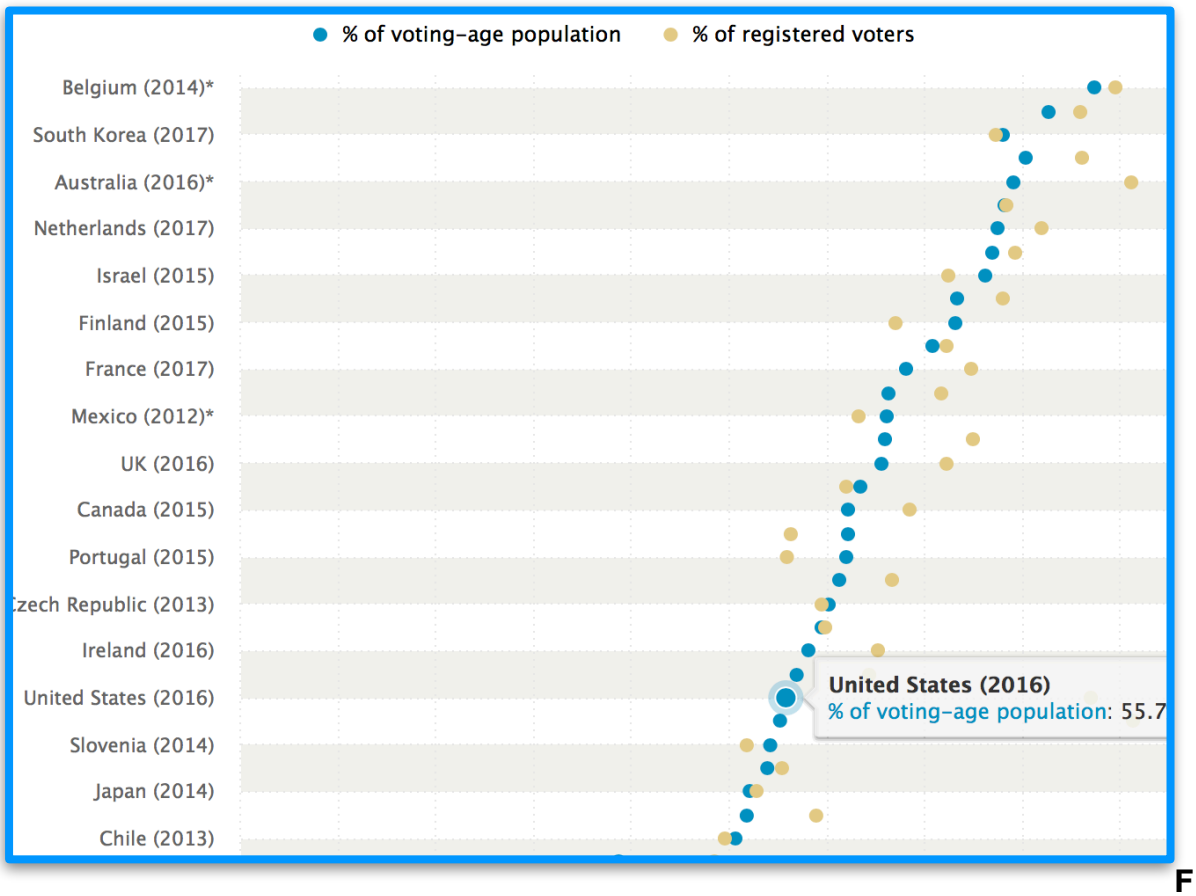


Figure 15. Voter Turnout. Voter participation in elections is used as an indicator of the participation of the electorate (citizens) in the democratic process. Comparison of percentage Voting-age population (VAP) and percentage Registered Voting-age (RV) turnout population for 19 developed nations. Pew Research Center calculations based on data from International Institute for Democracy and Electoral Assistance, European Election Database: www.pewresearch.org/fact-tank/.../us-voter-turnout-trails-most-developed-countries.

6.7e Achieving Democratic Elections? Who has the right to vote has been debated since the beginnings of the ancient Greek Democracy. The argument has always been who should have the right to represent the people for the preservation of the State. Thomas Jefferson introduced the phrase "*all men are created equa*l" into the Declaration of Independence in 1976. At the time of the American Revolution, it represented "all mankind,"most likely as a guide for the future. They had to be cautiously selective with the electorate because they were committing treason with England and intending to abolish the system of hereditary aristocracy, in which where some individuals were born as lords and others were granted privilege. Over time and many protestations, the phrase of "*all men are created equal*" evolved to be interpreted as all persons are created equal, regardless of race, sex, or class, This was finally clarified by the Supreme Court by the Civil Rights Act of 1964[43] . This was "a *landmark civil rights and labor law that outlaws discrimination based on race, color, religion, sex, or national origin It prohibits unequal application of voter registration requirements, and racial segregation in schools, employment, and public accommodations".*[Wiki] Thus, a voting citizen

has the same equal right to vote as that of any other ” But wait! The election system still needs improvements, because a standard of honesty and justice is difficult to achieve, due to insidious corruptive practices that continue to plague the US election system..

Electoral College. The US Presidential Elections are determined by an ‘Electoral College’[44] that is a body of electors established by the United States Constitution, which forms every four years for the sole purpose of electing the president and vice president of the United States. The Electoral College is a body of electors established by the United States Constitution, which forms every four years for the sole purpose of electing the president and vice president of the United States. The Electoral College consists of 538 electors, and an absolute majority of at least 270 electoral votes is required to win an election. Each state's number of electors must be is equal to the combined total of the state's membership in the Senate and House of Representatives. "

According to Article II, Section 1, Clause 2 of the US Constitution, each state’s legislature determines the manner by which its electors are chosen. This “*leaves the States’s majority party legislature free to gerrymander* the *geodemographic boundaries of the lesgestlative districts in a way that gives the majority political party an unfair advantage over its rivals or that dilutes the voting power of members of ethnic or* linguistic minority

Matrix of Needs and Satisfiers

			A		B		C		D		E
		Existential Needs / Axiologica Needs	BEING (qualities)	Rank	HAVING (things)	Rank	DOING (actions)	Rank	INTERACTING (CONECTIONS)	Rank	EMOTING (satisfation level)
Exogenous needs from other than yourself	1	Subsistence	Health Stress Inerests	2 2 3	Food, Shelter Job	4 2 1	Rest, Work, Excericse	1 3 2	Theater Friends TVSports	4 5 2	1
				7		7		6		6	1
	2	Protection	Shelter, justice, Public order		Health-care, Insurance, Savings, Civil Rights, Socoial Security		Health-care, Insurance, Savings, Civil Rights, Socoial Security		Family, Neigborhood, Roads		Content, Safe, Peace
	3	Affection	Appreciation Friends		Family, Affection, Relationships		Express Loving Emotions,, Care for Others, Apprciate Nature		Intimcy, Apreciation, Playing together		Loved, Connected, Generous
	4	Understanding	Accsess to information, Community activities		Literature, News, Education		Questioning, Listening, Studying, Investigating' Critiquing, Synthezing		Schools, Public Radio, Museums		Informed, Capable, Self- confident
Enodogenous needs internal to yourself	5	Participation	Adaptability, Willingness to Cooperate Opportunities		Rights, Responsibilities, Priviages, Discussions		Cooperating, Discussing opinions, Cooperating, Protesting, Resolving		Community Work Coaching Sports, Church Activites		Content, Happy, Cooporative, Sense of Belonging
	6	Leisure	Imagination, curiosity, meditation		Silence, Special Places, peaase of mind		Relaxing, Playing Contemplating, Enjoying,		Walking in Park Mediation, Movies		At Ease, Capable, Cooporative, Creative
	7	Creation	Cooperation, Passion, Dedication		Abilities, Challenges, Technics		Composing, Building, Interpreting, Inspiring		Writing, Playing, Constructing		Sense of Purpose, Generous, Cooperative
	8	Identiy	Solitude Recognition		Habits, Customs, Religion, Language		Knowing Yourself, Building Self-Confidence, Expressing Yourself		Expressing Myself, Spirituality, Helping Others		Free to Rest & Contemplate, Free to Futz
	9	Freedom	Self-esteem Authenicity Autonomy		Equal Rights		Developing Awareness, Disenting, Choosing, Taking Risks		Protesing for Justice, Choosing my Activites, Traveling Opportunities		Gratitude, Freedom of Expression & Activity

groups”[44]. Opposition to this political antic has continued since 1812. The last attempt to rid the use gerrymandering in elections was the recent Supreme Court decision that partisan gerrymandering cannot be challenged at the level State’s Federal Court. In other words, this decision should be judged only by the Supreme Court instead, Since they have denied to change this practice, the States Legislators can continue pick their representatives for the Electoral College as they wish.

6.8. A Methodology for Human Scale Development

6.8a Background. Human Scale Development was created in response to traditional hierarchical development systems in which decisions start at the top and flow down instead of in a democratic manner. Max-Neef's theory[17] of fundamental human needs forms the basis for the creation of an alternative bottom-up approach to human development. His hypothesis is “that the best development process will be one that enables improvement in people's quality of life; one that must allow countries and cultures to be able to be self-coherent” (Max-Neef 1998a). He proposes a “participatory platform for development by the people and for the people in order to fulfill the fundamental human needs, increase self-reliance, and balance people with surroundings. \The satisfaction of fundamental human needs and the generation of growing levels of self-reliance; and in the construction of the organic articulations of people with nature and technology, of global processes with local activity, of the personal with the social, of planning with autonomy, and of civil society with the State” (Max-Neef 1992b, 197).

In short, Max-Neef proposes a more systematic approach to evaluating Social Capital other than trying to integrate assessments of responses to different specific issues. Surveying a response to a specific community or SC component will not provide enough information to formulate a solution, unless its dependences on other SC internal and external components are taken into account. That is because of the complexity of SC communities that have numerous connections between its components such that any given individual at any moment is sensitive to and influenced by other components. By treating a Social Capital as a complex system and using the System Approach*to achieve stability among a human population constrained to a liveable balance between what it needs and what is available, and how they are internally distributed. Such a condition provides and objective goal: that is, by comparing the lack of quality and functionality expressed by a community with a well function SC community. The needs are relatively constant compared to a consensus condition of what they feel would be a satisfactory distribution. The approach then is to evaluate the difference between the needs of a community and what it needs to satisfy them taking into account the complex interactions between the needs. From this difference one can analyze how interactions between satisfiers can form positive or negative synergisms and thereby suggest more effective policies. Deficit requires as a complex system that to achieve stability among its human population must be

constrained to an equable balance between what it needs and what is available, and how they are distributed. The basic needs are relatively constant compared to the availability and the distribution of wants “Satisfiers” (or what people think would make them happier). Satisfiers of needs. Max Need then suggests a bottom-up economy should focus on satisfying the public’s fundamental needs instead of what the market decides is the most profitable and convenient to offer.

This approach also differs from the conventional top-down policy approaches that focus on fixing undesirable impacts to the public’s social capital after they have happened and the causal links are blurred. Since the needs of a social capital population represent a complex subsystem of interwoven needs and satisfiers, simple policies focused on a single problem, such as poverty, hunger, crime, and so forth, are commonly unsuccessful. For this reason Max Neef proposes a more thorough systematic approach. Hence, he proposes a methodology that demonstrate: what is the structure and intensity of a community’s basic needs, what governance might satisfy them, and how a policy framework might be designed to synergistically satisfy these needs.

Essentially, this approach presumes that individuals require an essential certain set of conditions to exist (existential needs) and a supplemental set of conditions to contribute to enjoy and contribute to the society they live in. A summary explanation of the methodological framework is given in the following paragraphs:

6.8b Causal Relationships with a Systems Approach. The information from the above trends (Sect. 5.5) can help us evaluate our social progress by measuring certain critical variables pertaining to specific components of Social Capital that are changing within a population, but not necessarily the causes of these changes. This is because an external action may create multiple responses (in a complex system), which makes it difficult to surmise the cause from any incomplete set of those responses. For example, we see a strong correlation between economic and social inequality, particularly for those social components directly connected to the market, but we understand less how that correlation breeds side effects that can penetrate and dominate the other social components. This in turn requires a more complete understanding of he cause-and-effect chain between a public policy, the issues it creates, and the individual responses to that issue, in order to facilitate policy modifications that lead to better social capital instead of towards social deterioration and chaos.

These are the very questions that a Systems Approach[6] (SA) uses to better understand how one misguided policy in a complex system can propagate internally to other components. The Human System has only one external input provided by components of Natural Capital that results in many internal connections within Social Capital components, such as the Financial, Industrial, Agricultural, Economic Governmental, and Cultural, which are human constructs that interact with each other and are internally distributed by a distribution system to meet the needs of its component systems (nations, regions, cities, individuals). If the internal distribution function is inefficient, or erratic, such that the minimum requirements of its components' needs are not satisfied the stability of the system is sacrificed, which results in internal strife, conflicts, and emigration. If this condition persists, the system it and will reorganize to a higher entropic level of inequality.

The Systems' Approach presumes that for complex systems a cause-and-effect chain is not reversible, in the sense that by repairing the effect (impact) the original cause will not be eliminated. For example, a single energetic input (material or political) to a complex system spreads internally to many sub-components of a complex system and creates a Humpty-Dumpty scatter of side effects, which cannot then be reversed to and return the system to its pre-disturbance state. For example, a single policy action to fix one problem can have many collateral impacts, and unless the internal functionality is well understood, a linear connection between the system's responses will not reveal the cause of the targeted impact, because the links in the cause-and–effect chain will have changed. Hence, any energetic input to a complex system can cause multiple and diverse outcomes other than the outcome intended.

Consequently without knowing the functionality of the internal components of the cause-and-effect chain activated by a wrong or inept policy, one cannot determine why people are responding to a policy, in a particular way, simply by measuring their responses to it. For the same reason, removing the policy action, the affected components will not necessarily return the affected components to their previous states. Promoting changes in changes in social capital, is difficult for several reasons: because of its subjective and interconnected nature, the uncertainty of how in the cause-and-effect chain a policy should be actualized, and what will be the human behavioral response to this policy change. In short, social problems cannot be remediated by one dimensional, top-down policy. The difficulty is that most social problems inspire policy changes only after they become glaringly obvious.

Nevertheless, a well-designed systems approach that uses validated behavioral norms based on historical data to construct and validate simulation models could help in forecasting impacts to Social Capital. As a case in point, a number of Tax models exist[7], but they extend only to the microeconomics of tax payers financial portfolios, such as shifts in portfolio holdings, shifts in consumption, and tax planning and tax avoidance strategies.

6.8c What about Subjectivity? How people feel about their social environment can be variable subject to how they feel at the time the polling.Whereas measuring the level of

satisfaction with their life's condition in the broader sense of being able to fulfill one's life-needs and expectations, is likely a better average measure of acceptance their current social conditions. Where a cause is an external disturbance imposed on a human community, such as policy changes or natural disasters, the internal effects are the affected people's stress responses to these disturbances, which often cannot be repaired by simply replacing parts (such as housing following a disaster, or employment following the end of an industry) and others that inhibit a community's sense of wellbeing. Nevertheless, there is important information in how a constituency responds both rationally and emotionally to disruptions of its social environment and in its expressions of how their needs are being blocked or violated. effects that inhibit the satisfaction of the community's provision of basic needs

The systems approach regards a community's Social Capital of as a complex system composed of living and material components whose the function is to provide liveable conditions to its inhabitants, and must have sufficient resilience to remain stable under most external and internal disturbances. This requires a degree of mutualism that maintains a sufficient level of cooperation, social responsibility, and commitment towards a shared goal of wellbeing. In order to evaluate harmful malfunctions in the livability of a Social Capital system, one can identify damaged social market-components, emotional responses to the damage, and how the loss might be replaced or compensated for. However, the non-market social components that cannot be repaired by infusions of money, need social attention, which in a marginalized neighborhood may hard to find. Prolonged damage, neglect, or deprivation in a neighborhood can lead to personal or community pathologies, such as violence or substance abuse that create a burdensome social debt, as seen in Figure 14.

6.9 The Matrix Definition

6.9a Defining the Needs and Satisfiers. The central concept of Max-Neef's contribution to Human-Scale Development is that the understanding of human Needs, and how they are or are not satisfied (±Satisfiers) is essential for generating policies focused on improving the livability of human societies. This understanding requires a distinction between Needs and Satisfiers. It is important to recognize that human needs, and how they could be satisfied or not, form two complex subsystems of Social Capital in that they are interrelated, interactive, and that their interactions must be in dynamic balance for their good functioning and stability. However, the variability needs is much less than the variability of the satisfiers, which is, in turn, dependent on the variability of the policies, economies, and producers of satisfiers. A systems approach to the

management of social stability necessitates an understanding of a community's needs and of how they can be satisfied as the starting point for this cause-and-effect chain in order to actualize more efficient and effective policies that ensure social development. These two categories, Needs and Satisfiers, are classified and described in the following paragraphs:

Four Existential Needs.A criterion for wellbeing and the quality of life depends on a set of four inherent actions that are fundamental to satisfying one's basic existence; these are the Existential Needs of Being, Having, Doing, and Interacting. These needs are critical for an individual's survival despite the wide diversity of cultural environments to which any society is historically exposed. Hence, they tend to have a high commonality value between human communities.

Nine Axiological Needs. In the process of fulfilling these existential needs for a complex modern society, another set of nine supplemental *axiological needs* must be considered (cf. Fig. 19). These all relate to one or more of the four basic existential needs. They arise as supplemental common needs incurred by the complexities of living in modern societies. The first four are termed exogenous because they are available to, or imposed externally on, the individual. The remaining five are generated internally within the individual. It is important that all the axiological needs be defined by the resident population; they may vary somewhat in intensity depending on the individual's existential needs, but they still remain immutable to the passage of time or changes in ambient culture. They represent a quality of life that an individual can identify with and provide a rough measure of its level of intensity, and some descriptor of how it could be fulfilled or satisfied. Thus, any list of satisfiers is dependent on the composition of the community studied.

6.9b. Defining the Satisfiers. The satisfiers for the existential needs are relatively independent between communities, varying mostly in intensity. On the other hand, the satisfiers of the axiological needs can vary significantly in quality and intensity between communities because they are dependent on the resident culture and environment. All satisfiers are subject to time variations of their external environment. In addition, the satisfiers of the axiological needs can interact synergistically or conflictual such as to affect the stability of the community, unless an interactive balance between them can be established.

Specific satisfiers are defined according to way in which they fulfill the needs of the resident society in the form of descriptors, agents, objects, behaviors, conditions, and so forth. Consequently, a rapidly changing culture creates a disconnect between the needs and the satisfiers of both developing and developed nations due to internal changes in economy, policies, ways of life, and due to external changes wrought by depreciation of Natural Capital. Thus, this disconnect is aggravated by a lag in establishing a match between two moving targets: the erratic changing of satisfiers, and the relatively slowly adjusting of habitual axiological needs.

This difficulty generates a system of satisfiers from those that are deemed as successful in fulfilling a need in a positive manner, to those that are deemed to be unsuccessful in the fulfillment the intended need. Diversity in the goods, services, and polices in modern cultures generates a changing set of exogenous satisfiers, that can be identified as positive or negative satisfiers. If the balance of plus-&-minus satisfiers is negative the community becomes vulnerable to SC degradation; and because of the commonality of the Needs is higher than that of Satisfiers can vary significantly, in intensity and type, between communities. Max-Neef has categorized the satisfiers into types; They are briefly described here in abbreviated form and ranked in the sense of best to worst as follows:

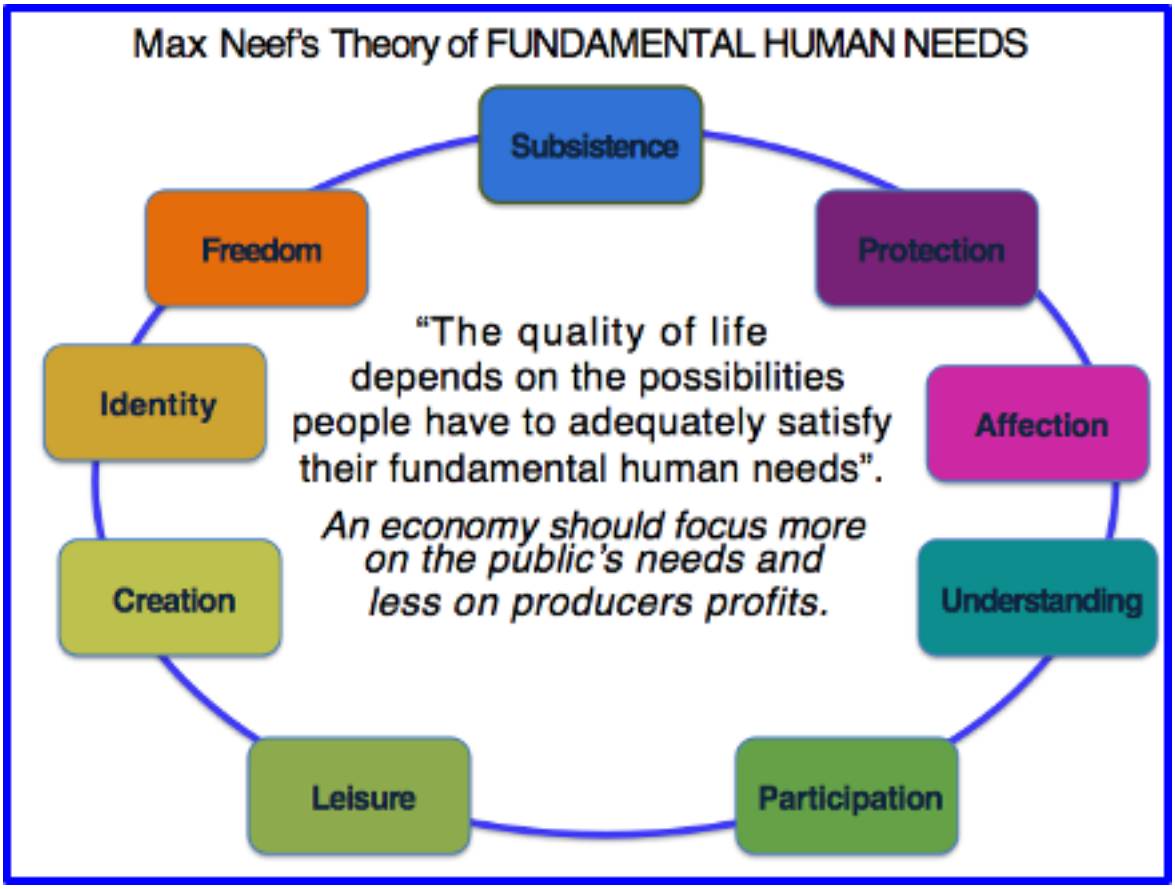


Fig. 19 The Fundamental Human Needs. Going counter-clockwise from Subsistence, the first four are exogenous and are imposed or available external to the individual, and the next five are generated internally to the individual. Author generated from Max Neef[Ibid].

Synergistic Satisfiers: These satisfiers focus on satisfying a specific need, while simultaneously stimulating and contributing to the fulfillment of another need(s). They share the attribute of being generated by individuals or free participating groups, and not imposed externally as an obligation or directive. They can be an agent for individual enjoyment or social change, and they point to synergistic policies that generate self-reliance and social responsibility. Examples: would be Examples: Preventive Medicine (Protection), Democracy (Participation), Meditation

(Identity).Preventive Medicine (Protection), Democracy (Participation), Meditation (Identity).

Singular Satisfiers: These actions are intended to satisfy only a particular need but often also satisfy other needs. They are characteristic of constructive programs of assistance, cooperation, and development. These satisfiers are similar in that they are usually institutional; that is, their origins are mostly from governmental or private institutions, NGOs, or from private volunteer groups. Examples would be: Food Stamps (Subsistence), Access to Curative Medicine (Protection), Hospice Support (Affection), Early Education (Understanding), or Recreation (Leisure).

Inhibiting Satisfiers: These are negative satisfiers that over-satisfy a given need or that can curtail the possibility of satisfying other needs. They are primarily rooted in curative beliefs related to deep-rooted customs, and they can impair all the axiological needs. Examples would be: Poor quality education (Education) (Understanding), (Segregation), (Freedom), or Overprotective Parents (Affection).

Pseudo Satisfiers: These are remedies that generate a false sense of the satisfaction of a given need. They may on occasion annul the possibility of satisfying the need they were originally aimed at fulfilling. Their main attribute is that they are generally induced through propaganda, false news, or other means of persuasion; and they are mostly are aimed at the need of Understanding but can induce failure in fulfilling any of the axiological needs. Examples: Stereotyping (Identity), Indoctrination (Understanding), or Charity (Subsistence)

Dissatisfiers: These are remedies that, when applied with the intention of satisfying a given need, not only annihilate the possibility of its satisfaction over time, but also impair the adequate satisfaction of other needs. These mostly pertain the positive need of Protection, yet in fact, make it more difficult to satisfy the need of Freedom and may impair the satisfiers of other needs. Examples would be: Oppressive National Security (Freedom), Corporatism (Subsistence), or Restricting Voting Rights (Participation)

Appendix for The Matrix Method

An example of how the method can be conducted

6.10a The Matrix Method. The value of the Max-Neef matrix is that facilitates the measurement of acceptable limits of livability of a community in a manner that provides guidelines to policies for Human Development and Sustainability. The advantage of first identifying the basic needs is that they are easier to define, more consistent, are of a much more manageable number than the complex array of social responses to them. This multidimensional approach differs in information content from that provided by one-dimensional indexes (Table 1) or their aggregates. These positive trends can be measured by indexes as those of Table 1 hat provide necessary validation of specific social progress. Human responses to its social environment are subjectively experienced, and consequently they cannot be cannot be directly measured monetarily, but can be measured relatively through extrapolative and comparative studies.

Max Neef proposed a transdisciplinary methodology for diagnosing the interactions between social policies and social needs. The information of the three parameters, of the existential needs, the axiological needs, and their satisfiers, permits the construction of a ^{3}-D matrix that can provide an holistic display the deprivations and potentialities of a community's social capital and shed light on the policy modifications to engender improved public. An example of such is shown in Fig. 20. Analyses of such a matrix offers diagnostic information for generating curative policies for the fulfillment of exogenous needs and for transformative changes for stronger social responsibility among the population. The value of this methodology is best understood through experiencing its application. Max Neef has given a rather thorough outline of the procedure in his book, Human Development; and Cruz et al. 2009[41] have elaborated it further. A condensed form follows

Fig. 20. Matrix of Needs and Positive Satisfiers. Examples of satisfiers descriptors are shown in the internal panels located at the intersections of the Existential Needs (horizontal axis) and the Axiological Needs (vertical axis). The axiological needs are differentiated between those imposed internally and those externally. An additional, existential need (Emoting) is inserted to identify the feelings created by those negative Satisfiers that can generate certain social pathologies (see text). In practice, these satisfiers are composed and prioritized using consensus-building methodologies environment are subjectively experienced, and consequently they cannot be cannot be directly measured monetarily, but can be measured relatively through extrapolative and comparative studies of a complex array of social responses to them.

Matrix of Needs and Satisfiers

			A		B		C		D		E
		Existential Needs / Axiologica Needs	BEING (qualities)	Rank	HAVING (things)	Rank	DOING (actions)	Rank	INTERACTING (CONECTIONS)	Rank	EMOTING (satisfation level)
Exogenous needs from other than yourself	1	Subsistence	Health Stress Ineresets	2 2 3	Food, Shelter Job	4 2 1	Rest, Work, Excericse	1 3 2	Theater Friends TVSports	4 5 2	1
				7		7		6		6	1
	2	Protection	Shelter, justice, Public order		Health-care, Insurance, Savings, Civil Rights, Socoial Security		Health-care, Insurance, Savings, Civil Rights, Socoial Security		Family, Neigborhood, Roads		Content, Safe, Peace
	3	Affection	Appreciation Friends		Family, Affection, Relationships		Express Loving Emotions,, Care for Others, Apprciate Nature		Intimcy, Apreciation, Playing together		Loved, Connected, Generous
	4	Understanding	Accsess to information, Community activities		Literature, News, Education		Questioning, Listening, Studying, Investigating' Critiquing, Synthezing		Schools, Public Radio, Museums		Informed, Capable, Self- confident
Enodogenous needs internal to yourself	5	Participation	Adaptability, Willingness to Cooperate Opportunities		Rights, Responsibilities, Priviages, Discussions		Cooperating, Discussing opinions, Cooperating, Protesting, Resolving		Community Work Coaching Sports, Church Activites		Content, Happy, Cooporative, Sense of Belonging
	6	Leisure	Imagination, curiosity, meditation		Slience, Special Places, peaase of mind		Relaxing, Playing Contemplating, Enjoying,		Walking in Park Mediation, Movies		At Ease, Capable, Cooporative, Creative
	7	Creation	Cooperation, Passion, Dedication		Abilities, Challenges, Technics		Composing, Building, Interpreting, Inspiring		Writing, Playing, Constructing		Sense of Purpose, Generous, Cooperative
	8	Identiy	Solitude Recognition		Habits, Customs, Religion, Language		Knowing Yourself, Building Self-Confidence, Expressing Yourself		Expressing Myself, Spirituality, Helping Others		Free to Rest & Contemplate, Free to Futz
	9	Freedom	Self-esteem Authenicity Autonomy		Equal Rights		Developing Awareness, Disenting, Choosing, Taking Risks		Protesing for Justice, Choosing my Activites, Traveling Opportunities		Gratitude, Freedom of Expression & Activity

6.10b. Implementation Procedure. The reader can find more complete descriptions of procedure and time allotments for the activities in Max Neef's works[46] ref and descriptions of actual experiments conducted on several nations in Barriera[45]

1) Matrix Workshop Organization. The workshop should allow several days and be conducted by a workshop facilitator trained in the methodology and assistants capable of leading a consensus building process. In order to have a bottom-up and a less-subjective process, the basic needs of a community can be understood through a process of having a representative group of citizen volunteers of about 40-60 residents for the workshop. To ensure the transdisciplinary requirement, the participants should be fairly well distributed between citizens experiencing unfulfilled needs and those involved in providing the satisfiers that should be addressing them. Of course, the size of workshop can be modified according to the size of the community served.

2) Plenary Information. The workshop begins with a comprehensive presentation of the concepts, matrix methodology, and goals of the exercise, and discussions of the purpose and of the expected outcomes. Fig. 20 illustrates an example of such a matrix where each grid indicates the satisfiers for its axiological needs in the context of its existential need. It also provides an instructional tool for constructing such matrixes and to serve as a framework for analysis of how the host community functions in terms of its deprivations and potentialities, and of how the community might find synergistic policies for improving community's social capital.

3) Construction a Situational Matrix. This exercize allows the participants look at their community from the point of view of exploring and identifying the needs and satisfiers of their community. The participants divide into round-table groups of around 8 to 10. Each group would have a leader who is familiar with Consensus Building Processes[8]. To serve as an initial exercise a matrix is constructed of the host community by the participants using their perceptions of negative satisfiers relevant to the current situation. This lets the participants look at their community from the point of view of exploring and identifying the needs and satisfiers of their community. Each table-group does this independently of the other tables to further randomize the diversity of impressions. The goal is to select those elements that are inhibiting or degrading the community's wellbeing, and list these by descriptors according to type of satisfier (see below).

4) Filing-in the Matrix. The recommended procedure for filling in the Matrix is to start with the grid A1 (BEING) column for the existential need with suggested satisfiers that are relevant with the axiological need (Subsistence). Each satisfier must be decided by a consensus of

the table participant and should be limited to three. After filling the A (BEING) to A9, then proceed to fill in the B (HAVING) column, and continue using the same procedure for the rest for the three other existential needs until reaching D39. In the adjacent narrow column a ranking number for the user's judgement of satisfier's effectiveness for each satisfier with 1 to 5, making 3 neutral for each satisfier as shown in Row 2 of the figure.

5) Grid Content. Satisfiers are expressed as attributes using nouns for the needs of BEING pertaining to the Subsistence need, as examples shown in Fig.20. This is continued in the same way for the HAVING column expressed as institutions, instruments, norms, using a short phrase, the DOING column expressed, as actions using verbs, and the INTERACTIONS expressed, as social or personal connections, as settings, nature, environment, family, schools, using a short descriptors.

6) Editing Matrices. Finally, the group should collectively edit their situation Matrix. They should replace any Satisfiers that are roughly synonymous, with a single descriptor. For each axiological need, they should average the ranking given to satisfiers of each axiological need and note the frequency of its mention in the last column. The respective sum of these two numbers indicates its ranking in terms of urgency and importance. After completing the situation matrix, the participants should rep

7) Synthesis Matrix of Negative Satisfier Matrices. These matrices of each Table need to be consolidated to express a synthesis of the worst satisfiers that are not meeting the community's needs. To consolidate them into a consolidated matrix the participants reorganize the participants into nine groups for each of the axiological needs. The goal is to determine for each grid the several 'worst' satisfiers for each existential need and entry into a blank synthesis Matrix This can be done by amalgamating and listing all the satisfiers from each of the of the table-groups for each of the four grids of their existential need. They then can reach consensus on eliminating the highest ranking ones (three or five), taking in consideration any potential for negative synergistic effects between satisfiers. Switching back to four groups participants candid and cross check the grids by for pertinence to the four existential needs, including the dominant emotions relating to them. The results of the Synthesis Matrix can be presented and discussed and interpreted, plus the associated feelings for the Emotion column that may contribute to a community pathologies, and to what the reveal abut the lack of 'good' satisfiers and how they might be changed. .

8) Constructing a Propositional Matrix of Satisfiers. The situational and synthesis Matrices demonstrate and clarifies the extent to which the present community is not meeting the citizens needs. This matrix helps validate much of what many citizens already concerned about. However, this information is not useful unless it can guide policy and public behavior. For this reason Max Neef proposed that it should be compared to what the community would like it to be. This requires making a propositional matrix consisting of the practical positive satisfiers that the

community would like to have. This can be drafted by a group of volunteers preferably those representing or concerned with the lowest ranking satisfiers, after leaving a short time to allow for reflection, before assembling for constructing a draft Matrix from which they edit to form a synthesis Propositional Matrix. The proposed satisfiers should reviewed and discussed by each of the Tables again using the consensus methodology for each. They should then edit them giving preference to synergistic and single satisfiers in order to optimize the efficiency of the combined set of policy changes that emerge from the exercise.

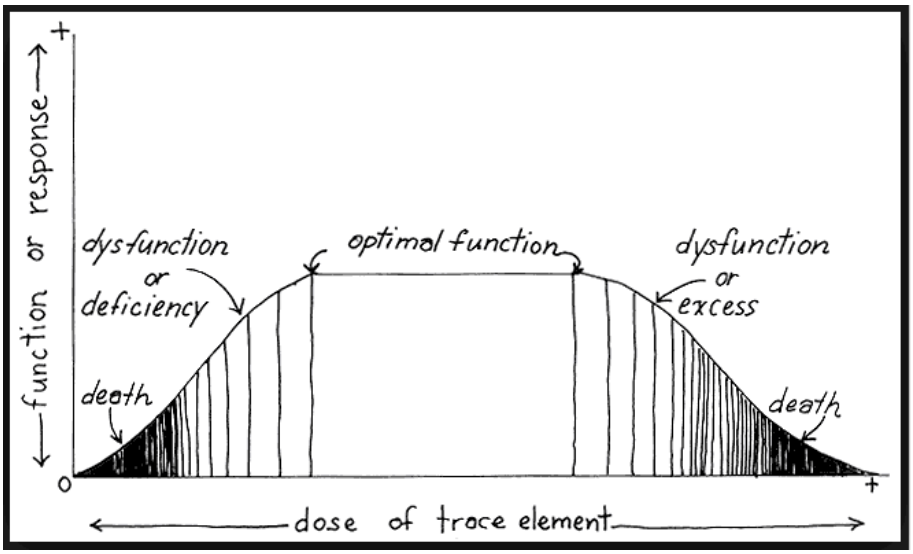
6) The Situational vs. Propositional Comparison. Comparing the two synthesis matrixes, grid by grid, is a type of editing process to identify priorities and improve policy efficacy and efficiency of policy for the problematic aspects for each axiological and existential need. Adding the rankings gives a rough gage of effectiveness for each grid. Similarities between a satisfier of two different grids indicates a 'bridging', that offers a potential for synergistic satisfier. Special attention is needed to differentiate and take in to account those satisfiers imposed by external from internal governance internal potential. The satisfiers imposed by the community should be designed to complement or add supplementary positive satisfiers in order to balance any negative exogenous satisfiers. The changes in the basic emotions between the two matrixes should be discussed in the sense of generating wellbeing and social responsibility in a community. As noted the value of this exercise is mostly in the participation. Greater detail in the methodology can be found in references in the Max-Neef's article

6.10c Comments on Value. Such evaluations of human behaviorioral needs and satisfiers can more accurately assist in reviving social capital for a more sustainable society. One needs knowledge of how and when external stresses upset the sense of satisfaction so that they can be minimized. Individuals and communities have limits to external stresses, within which they can adapt and accept. If these limits are exceeded or overlap with the limits of other stresses, they tend to, lead to social withdrawal or degradation of mood, health, and unwillingness to cooperate. For example, an individual directly suffering from economic poverty generates other stresses due deprivation of the social aspects of his own condition (e.g., health issues, depression, etc. Therebythe poverty and depression of one person generates stresses for those in the community that are not directly experiencing poverty. The effects of multiple stresses are negatively synergistic and are known to create personal or communal pathologies that cannot be cured easily by simple medical treatments.

When a society lacks its existential needs, services, it loses its Social Capital; and if it lalso looses good governance' it loses its Built Capital and then spirals into deprivation and oppression. In such situations, a bootstraping procedure between governance and Social Capital is needed to transform their relationships and gain a sufficint some level of balance so as atain a mutulistic reationship with Natural and Finacial Capitals. Such so that be bolstered up to

collaborative actions for redressing its limitations and stresses and relieve the web of deprivation in a balanced manner.

Similar analysis of planetary boundaries for the community of nations is needed. A striking observation is that the Max-Neef threshold (cf. E.5.3.a) was reached in the 70s-80s when the humanity was passing its carrying capacity and the accumulating financial wealth was no longer making the population happier! This removes the angst that populations cannot live happily at sustainable levels of consumption, of peace, about human freedoms: freedom to realize the full potential of every human life, not just of a few, nor of most, but of all lives in every corner of the world—now and in the future. To ensure human development for everyone, the Report asserts that merely identifying the nature of and the reasons for the deprivation of those left out is not enough. Some aspects of the human development analytical frame work and assessment perspectives must be brought to the forefont to address issues that prevent universal human development



Figure, 36 Example of a Dose curve. The chart portrays the response of a system as a function of toxic it dose such as iodine. The benefit is optimal for a middle range of dose, and deteriorates to damaging or lethal with lower or higher levels of the dose[9]

The only way humanity can save itself is to appreciate the attributes of sharing cooperation and love of others.