ACCESS TO HUMAN HEALTH, FREEDOMS AND OTHER STANDARDS OF LIVING DEVELOPMENT IN CUBA

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The World Health Organization (WHO)'s definition of health as a "state of complete physical, mental and social wellbeing, and not only the absence of disease or infirmity,"[2] embraces basically the same principles associated with human rights and development, since all three seek to improve both the human condition and the fulfillment of the human potential. In the 1990s the interrelationship between democracy, development, and rights was agreed by consensus in the United Nations (UN). The symmetry of the rights framework was embodied in the proposition that "all human rights are universal, indivisible, interdependent and interrelated" and must be treated "globally and in a fair and equal manner, on the same footing, and with the same emphasis,"[3] including the right to comprehensive health care and integral health state.

Integral health state can be viewed within this social context as a high complexity function of multiple physical, mental and social ability and wellbeing factors, specific to each individual, family and community, and of general societal and medical factors. Within it, population-based health is the result of the interaction of health factors at each level of human organization with broad factors such as all living standards of development, as well as health care. This includes personnel, infrastructure, scientific base, drugs, technologies and management factors. Different forms of interaction among these factors can improve, preserve or worsen integral health state.

In 2009–11 Cuba was ranked among the top countries worldwide in sub-indexes derived from the "human development index" (HDI), by the U.N. Development Program (UNDP) measuring health and education together. Such sub-indexes exclude economic growth dimensions, in which Cuba lagged significantly.[4] The UNDP has said that "Cuba's substantial achievements were possible because of the

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2. WHO. *Constitution of WHO*. NY: WHO, 1946; WHO Health Level Measurement. *WHO Tech Rep* 1957;137:1–32.

3. Fuenzalida-Puelma HL, Scholle Connor S. *The Right to Health in the Americas*. Washington, DC: Pan American Health Organization, 1990; Sen A. *Development as Freedom.* 1st edn. NY: Alfred A. Knopf, Inc, 1999; Mann JM, Gruskin S, Grodin MA, Annas GJ. *Health and Human Rights.* NY: Routledge, 1999; Przeworski A, Alvarez ME, Cheibub JA, Limongi F. *Democracy and development 1950–90*. NY: Cambridge University Press, 2000; Gruskin S, Grodin M, Annas G, Marks S. *Perspectives on Health and Human Rights.* NY: Routledge, 2005; Gatti A, Boggio A. *Health and Development: Toward a Matrix Approach.* NY: Palgrave Macmillan, 2009.

4. The UNDP social sub-indexes derived from the HDI truncating income are: "positive income per capita rank minus HDI rank" in 1997–2009, 2011 (first place in the whole world), and "non-income HDI value" in 2010–2011 (first place in the developing world). UNDP. *Human Development Reports* 1990–2011; UNDP. *Human Development Report 2010*. The Real Wealth of Nations: Pathways to Human Development. NY: UNDP, 2010; Klugman J, Rodríguez F, Choi H. *The HDI 2010: New Controversies, Old Critiques*. Human development research paper 2011/01. NY: UNDP Publ., 2011.

slow growth of its income was separated from the processes determining progress in other non-income dimensions of human development." Although since 1992 Cuba opposed the construction by the UN of human rights indicators, in 2010 the UNDP measured them in 156 nations. With respect to these indicators, Cuba scored 0 in the dimension of democracy (scale 0–2); 3 in rights violations (scale 1–5); and 94 in violations of freedom of the press (scale 0–116), with 22 journalists imprisoned, first place in the world with respect to number of reporters jailed relative to population. With the collapse of Soviet-style totalitarian-socialism in 1989, the world was reoriented to democratic-capitalism and with it to the less violent and effective human values, principles, institutions and paths for gradual development, increasing dignity, justice, peace and equity. North Korea and Cuba maintained the obsolete system. Unsurprisingly, North Korea integrally involuted, but Cuba's "health achievements" are paradoxical.[5]

The hypothesis in this paper is that universalization of the access to partial healthcare and education does not justify the sacrifice of human rights, democracy, and development. Cuba in 1728–1958 showed exceptional trends on integral growth of ideas, institutions, medicine, health, education, freedoms and other living standards. Even with slow GDP per capita (GDP-p) growth after the U.S. Great Depression in the 1930s, Cuba's health and education levels were high in 1958. Cuba, unlike the USSR, China and Korea had a long tradition of scientific health care. UN statistics show that Cuba's health, education and other living levels grew under a system of U.S.-style democratic-capitalism during 1902–58 (including dictatorships in 1929–33, 1952–58).[6]

In the Moncada Manifesto (1954), Fidel Castro stated that at the time Cuba had extremely low health and other living levels. Its author, in power since 1959, has taken credit for building and upgrading Cuba's health facilities. Since the Soviet-style system was implemented in Cuba in 1959, the political focus changed from self-sustainable development to exporting of this model to all neighboring nations. In the meantime the former Yugoslavia and later China abandoned this system due to scarce practical efficiency and lack of economic coherence.

In 1980, analysts at the U.S. Bureau of the Census detected an unpublicized rise in infant mortality rate (IMR) in 1970–77 in the USSR. The life expectancy at birth (LEB) and of elderly (LEE) had also been falling since 1965, when the USSR had the world's highest density of physicians per population. This showed that a large number of physicians is not a sufficient condition to preserve health. At about this time, Cuba was reporting an apparent "first health miracle" improving IMR and LEB. The world's left movement shifted to Cuba to showcase socialist-style universal healthcare "supposedly comprehensive, free, and equal for all with high humanitarian solidarity." In 1983, Cuba endorsed the Soviet theory of social advances and happiness with slow income growth. In the 1990s, Cuba's economic collapse, liquidity problems, scarcity of credits, and lack of political will to set free its captive people and adapt its

5. Susser M. Health as a human right: an epidemiologist's perspective. *Am J Public Health* 1993,83(3):418–26; Figueras MA. *[The Reality of the Impossible: Public Health in Cuba].* Habana: Ciencias Sociales, 1998; Bravo EM. *Development Within Underdevelopment?* Habana: Inst. Cub. Libro, 1998; MacDonald TH. *A Developmental Analysis of Cuba's Health Care System since 1959*. Queenstown: Edwin Mellen Press, 1999; Yong Kim J. et al., eds., *Dying for Growth.* Monroe: Common Courage Press, 2000. 331–357; Sixto FE. An Evaluation of Four Decades of Cuban Healthcare. Cuba in Transition. Proc ASCE Conf 2002: 325–43; Spiegel JM, Yassi A. Lessons from the Margins of Globalization: Appreciating the Cuba Health Paradox. *J Public Health Policy* 2004;25(1) :96–121; Ranis G, Kosack S. Growth and Human Development in Cuba's Transition. Coral Gables: UM ICAAS CTP, 2004; Torre E, Márquez M, Gutiérrez JA, López-Pardo C, Rojas-Ochoa F. *[Health for All is Possible].* Habana: Soc. Admistración Salud, 2005; Cooper RS, Kennelly JF, Orduñez P. Health in Cuba. *Int J Epidemiol* 2006;35(4):817–24; Kath E. *Social relations and the Cuban health miracle*. New Brunswick: Transaction Press, 2010; Drain PK, Barry M. Global health. Fifty years of U.S. embargo. *Science* 2010;328(5978):572–3.

6. Nelson L. *Cuba: The Measure of a Revolution*. Minn.: University of Minnesota Press, 1972; Díaz-Briquets S. *The Health Revolution in Cuba.* Austin: University of Texas Press, 1983; Eberstadt N. *The Poverty of Communism.* New Brunswick: Transaction Books, 1988; Bureau of Inter-American Affairs. *Zenith and Eclipse*, 1998. McGuire JW, Frankel LB. Mortality Decline in Cuba, 1900–1959. *Latin American Research Review* 2005:40(2):83–116.

economy to follow world trade rules, consciously reanimated an insane class war, and exacerbated chronic malnutrition, poverty, helplessness, and oppression. This caused the return of old epidemics and the emergence of others, at the population physical and psychosocial health levels.

In 1993, new transparency in Russia after the end of the Soviet regime exposed a greater decline in LEB than previously estimated.[7] Meanwhile, oppressed and impoverished Cuba reported an apparent "second health miracle," still lowering IMR and rising LEB thanks to "top political will maximizing health with minimum costs." Hidden behind these claims were decades of political violence by an oversize government on freedoms, health, education, income per capita, and other living levels of Cubans, justifying most failures by U.S. aggressions and blockades.

What are Cuba's reported health achievements? Many outsiders think that they are "high degree of equity in access to good health care and better health status through a commitment by the state to public health through a top cost-effective system, with continuous evaluation and community participation." The views of many respectable foreign scholars are based on censored and biased reports about Cuba's alleged "healthy, educated, equally poor, stable, and resilient society."

There has been much research about the contribution of improved living standards on health and vice versa by health income, but relatively little on the effect of long-term worsened living standards on health. The impact of Cuba's half-century of totalitarian-socialist very slow development on health care and health status has not been studied yet.[8] The aims of this study are: to examine the relationships between Cuba's access to integral health, freedoms, other living standards, development systems, and health achievements in 1902–58 and 1959–2010; to identify the political will to prosper and violence to redistribute integral health, freedoms, and other living standards; to calculate measures of freedom for both periods, reformulate, and calculate a freedom-adjusted HDI for four nations; to compare the HDI and its dimensions of democratic and totalitarian Cuba with those of colonial Korea and democratic South Korea

FACTS, DATA AND METHODS

The author lived firsthand the changing facts of access to health, education, freedoms and other living standards as a citizen, patient, and physician in Cuba in 1945–2010. He experienced health exchanges assistance offered from abroad—(COMECON) Moscow 1982, 84; (WHO) Geneva, Bangkok 1999–2001; and other cities' institutions 1996–99. He served as a consultant in Managua 1988–90, accessing the UN, WHO, and Harvard University libraries. In 2000–10, he conducted anthropological and epidemiological research on Cuba's health policies, systems and outcomes, complementing them with available statistics for 1492–1958 and 1959–2010. Censored University of Havana, Cuban Academy of Sciences, and UN libraries were also consulted, as well as world databases despite the difficult access to

7. Davis C, Feshbach M. *Rising infant mortality in the USSR in the 1970s*. US Bureau of the Census, *Series P*-95;1980;74; articles of Eberstadt N. The health crisis in the USSR, Davis C. Commentary: the health crisis in the USSR: reflections on the Nicholas Eberstadt 1981 review were published in the *Int J Epidemiol* 2006;35(6):1384–94 and 1400–5; Aldereguía-Henriques J. [Salutology today] ,Universidad de la Habana, 1996; Castro F. *The World Economic and Social Crisis: Report to the 7th Summit Conference of Non-aligned Countries*. Havana: State Council, 1983.

8. Landes DS. *The Wealth and Poverty of Nations.* NY: W.W. Norton & Co, 1999; Moss M. *Measurement of Economic and Social Performance.* NY: Columbia University Press, 2003; Fogel RW. *The Escape from Hunger and Premature Death, 1700–2100.* NY: Cambridge University Press, 2004; Sachs JD. *The End of Poverty.* NY: Penguin Press, 2005; Easterly W. *The White Man's Burden.* NY: Penguin Press, 2006; Clark G. *A Farewell to Alms.* Princeton: Princeton University Press, 2007; Maddison A. *Contours of the World Economy, 1–2030 AD.* Oxford: Oxford University Press, 2007; Romeu JL. "Statistical Thinking and Data Analysis: Enhancing Human Rights Work." In J Asher, D Banks, F Scheurer eds. *Statistical Methods for Human Rights.* NY: Springer Publish Co., 2007; Betancourt RR. Human Rights and Economic Growth. Proc Cuba in Trans ASCE Conf 2007;(17):305–314; Libby RD. A Rights-Based Analysis of Reproductive Health in Cuba. UM Open Access Theses. Paper 345. 2011.

the Internet, and some results were published.[9] The author maintained private exchanges of information with hundreds of health, science, and education officials in Cuba as well as with hundreds of U.S. and other foreign professionals visiting or analyzing Cuba. In 2010–12, the data was verified with unlimited and uncensored access to the Internet and the UM Richter and Calder Libraries.[10]

The study rests on six basic concepts: (1) education and (2) health defined by UNESCO and WHO, 1945, 1946; (3) human rights-freedoms defined in the U.N. universal declaration, and covenant on economic, social and cultural rights, 1948, 1960; (4) UN definitions and measures of 13 standards of well-being, 1954, 1961; and UNDP definitions of (5) human development and of (6) HDI 1987–2011.[11] Cuba's population access to health and other living standards' variables were included in the study with an approach to observe the degree of their balance with the results of Cuba's systems focused on self-sustainable growth or on foreign military-ideological goals. They allowed assess results on physical, mental and social ability, wellbeing and health changing levels over the years in a framework of facts with trend analyses and predictions, to understand how diverse development models have worked. Due to lack of data, public equity, inequity, and secret inequity of access to health and other living levels were qualitative-quantitatively estimated, within and among the main population social groups in Cuba in 1902–58 and 1959–2010 with nominal-ordinal scales. Each right-freedom was evaluated according to violation or not with a dichotomous scale (1,0). This was done collecting and analyzing the perceptions of facts in both periods of Cuban officials and foreign observers; of the author and wife personally; and of several Cuban independent on-the-ground sources through books, papers, and online reports about the freedoms and living levels defined.[12] The HDI used in 1987–2009 was reformulated integrating in it proportionally a fourth human development core dimension: mean percent of real access to rights-freedoms. Freedom-

9. Stusser RJ. Progress on health care, research, education; 10 years scenarios. Digest of lectures given to US PTPI. Havana, 2002; Stusser RJ, Dickey RA, Norris TE. Enhancing global rural health with comprehensive and e-primary health and life care and research. Working Paper. Havana, Wake Forest, Washington Univ., 2007; Stusser RJ. Demystifying the Cuban health system: Insider´s view. Proc Cuba in Trans ASCE Conf 2011;(21):222–234.

10. Nelson L. *Rural Cuba.* Minn.: University of Minnesota Press, 1950; Ginsburg NS. *Atlas of Economic Development.* Chicago: University of Chicago Press, 1961; Stusser RJ. [Forecast of Cancer Prevention. Cuba 1985–2000]. Havana University Doctorate Thesis, 1987; Statistical Office. [*Statistical Yearbooks of Cuba 1980–2010*]. Havana, 1981–2011; UNICEF. State of the World's Children Statistical Tables, 1990–2012; Statistical Office. [*Life Expectancy. Cuba and Provinces 2005–2007*]. Havana: Develop Studies, 2008; Henshaw SK, Singh S, Haas T. The Incidence of Abortion Worldwide. *Inter Fam Plan Persp*. 1999;25(Suppl):S30–S38; Loudon I. *Death in Childbirth 1800–1950.* NY: Oxford University Press, 1992; WHO. World Health Statistics 2010. Geneva: WHO Press, 2010.

11. UNESCO. Constitution of UNESCO. London: UNESCO, 1945; U.N. Universal Declaration of Human Rights, and Covenant on Economic, Social and Cultural Rights. NY: U.N. 1948, 1960; U.N. Report on International Definition and Measurement of Living Standards and Levels, and Interim Guide. NY: U.N. Publ., 1954, 1961.

12. Marks SP. *Health and Human Rights.* Cambridge: Francois-Xavier Bagnoud Ctr, 2006; Bollen KA. Political Rights and Political Liberties in Nations 1950 to 1984. *Hum Rights Quar* 1986;8:(Sp Iss):577; Brown CJ, Lago AM. *The Politics of Psychiatry in Revolutionary Cuba.* NY: Transaction Publishers, 1991; Donate M. [Living conditions in Cuba: psychosocial effects. Parts 1 & 2]. Proc Cuba in Trans ASCE Conf 1994;(4); Donate M. [Psychosocial costs of the Cuban revolution achievements]. Proc Cuba in Trans ASCE Conf 1995;(5):302–310; Biscet OE, Muñoz R. [Rivanol: A method to destroy life]. Havana: Lawton Foundation. Apr. 1998; The Danish Centre for Human Rights. *Human Rights Indicators 2000.* Copenhagen: Danish Ctr Human Rights, 2000; Mendoza D. [*Dengue!. Fidel Castro's Secret Epidemic*]. Miami: Rodes Print., 2001; Bofill R. [Human Rights in Cuba]. Proc Cuba in Trans ASCE Conf 2002;(12):196–197; U.N. High Commissioner for Refugees. Statistical Yearbook Country Data Sheet -Cuba 2005; Hirschfeld K. 'Sociolismo' and the Underground Clinic. Proc Cuba in Trans ASCE Conf 2006;(16):335–350; U.N. High Commissioner for Human Rights. Report of Activities and Results 2009; Molina H. [My Truth: from the Cuban Revolution to Disenchantment]. Buenos Aires: Planeta, 2010; US Department of State, 2010 Country Reports on Human Rights Practices - Cuba, 2011; Freedom House. Freedom in the world, 2007, 2010, 2011; Heritage Foundation. Indexes of economic freedom. WCAS, 2007, 2010, 2011; Human Rights Watch. Annual News, Reports and World Reports on Cuba's Rights Violations, 2011; Amnesty International. Annual Report 2011 The state of the world's human rights. Human Rights in Republic of Cuba; Reporters without Borders. World Press Freedom (and Internet) Index and Information on Cuba, 2011.

adjusted HDI estimates were calculated and their variations contrasted with crude HDI estimates for Cuba, China, South Korea and UK in 2007, using homogenous national estimates of mean individual freedoms for 2006. Weighted HDIs by LEB, adult literacy percent, and GDP-p for Cuba in 1800, 1900, 1957; and Korea in 1900, 1957 were estimated with the simplest formula UNDP used in 1987–90.[13] Influence of depressed living wellbeing levels in the quantity, duration, and quality of health and life development in Cuba is discussed, as well as the not full yet association between WHO health statistics and definition.[14]

RESULTS

The Health Paradox Begun in Democracy Was Accentuated in Totalitarianism

Table 1 shows how democratic Cuba (1902–57) had reached excellent ranking worldwide in mortality reduction: 14th-17th and 25th place in low IMR and maternal mortality ratio (MMR), and 32nd in high LEB. Totalitarianism (1959–2007) worsened Cuba's performance, rising to 34th place in IMR and 68th in MMR, and to 43rd in LEB. It also stagnated in 36th place with respect to low birth-rate, reached the 4th place in high abortion ratio and an unknown (but very high) place in women sterilization-ratio (both compulsory); Cuba ranked in 170th place, driving down a top MMR/IMR dimensionless ratio from 3.5 to 10.

In 1902–57, Cuba occupied 5th place in the Americas and 26th place worldwide regarding physician density per population; 3rd and 16th places regarding dentists; 3rd and 14th places regarding midwives; 5th and 26th regarding pharmacists; and 6th regarding nurses and 3rd regarding hospital beds (public plus private) in the Americas, all devoted to serving the health needs of Cubans. Cuba reached one of the world's top places regarding physician density per population (2003–present) and also of troops (1962, 1990)—a high percentage rented to perform humanitarian-ideological, and mercenary slave work abroad. Cuba's GDP-p doubled in 1902–57, reaching the 31st-44th places worldwide, while in 1959–2007 it worsened to the 97th-110th places, despite heavy subsidies and failure to pay a large external debt since 1986. Estimated violations of freedoms-rights in 1902–1952 fell from 75% to 13%, with 10 freely-elected presidents. In 1959–2007, violations increased to 90% under a left-wing dictatorship. One of Cuba's democratic governments (1948–1952) was a promoter and signatory of the UN declaration on universal human rights, while the left-wing dictatorship (1959–2012) did not sign the UN human rights covenants of 1976 until 2008.

Since 1990, whereas the IMR and LEB continued very slow improvement, Cuba re-suffered at the physical health level: epidemic optic and peripheral neuritis (not seen since Weyler's "Reconcentration" during of the Independence War in 1898); epidemic dengue fever (not seen since the 1950s; it returned hemorrhagic in 1977 and it seemed eradicated in 1981); epidemic hemorrhagic conjunctivitis (considered eradicated in the 1970s); and quarantinable cholera outbreaks in 2012 (not seen since 1882). Cuba has also suffered an increase in morbidity of tuberculosis, syphilis, viral hepatitis, leptospirosis, and other infectious and parasitic diseases. In addition, at the psychosocial health level, Cuba has suffered other types of epidemics: hopelessness, despair, definitive emigration by sea, often at the risk of life, and tem-

13. State of the World Liberty Project. Indexes, Rankings 2006. www.stateofworldliberty.org/report/rankings.html; UNDP. Human Development Interactive Calculator, 2011. http://hdr.undp.org/en/statistics/data/calculator/

14. The black boxes of Cuba's healthcare, bio-pharmaceutical, and informatics industries still remain with censure, limiting the data accuracy. This has required a constant verification of the reliability of Cuba's statistics, contrasting them with world sources and perceptions of the reality lived in Cuba. The author's estimates will be adjusted as more data become available, when Cuban officials can report openly the statistics without fear of retaliation. Mesa-Lago C. Availability and Reliability of Statistics in Socialist Cuba. 1st and 2nd parts. *Latin American Research Review* 1969;4:1:53–91 and 4:2:47–81; Mesa-Lago C. Cuba in the Human Development Index in the 1990s. Proc Cuba in Trans ASCE Conf 2002;(12):450–463; Pérez-López J, Mesa-Lago C. Cuban GDP Statistics Under the Special Period. Proc Cuba in Trans ASCE Conf 2009;(19):153–167; Locay L. Cuban Socioeconomic Indicators before the Revolution. Proc Cuba in Trans ASCE Conf 2009;(19):146–152; and Ward M, Devereux J. The Road Not Taken: Pre-Revolutionary Cuban Living Standards. *J Economic History* 2012;72: (01):104–132.

Table 1. Demographic, Health, and Socioeconomic Indices, and World Rankings, Cuba 1800–2007

System	Colony		Democracy	Totalitarianism
Index / Year	1800	1902	1957	2007
Life expectancy at birth (year)	~28*	32	64.2	78.5
(World highest LEB rank)	(38th)*	(35th)	(32nd)	(43rd)
Infant mortality rate (x10³ live births)	~300*	185–195	32–39	5.3
(World lowest IMR rank)	(30th)*	(20th–23rd)	(14th–17th)	(34th)
Percent of pregnancies aborted	—	~10*	~20*	> 59
(World highest rank)	—	—	—	(4th)
Birth rate (x10³ inhabitants)	~47*	~43*	26	10
(World lowest birth rank)	—	—	(32nd)	(36th)
Maternal mortality ratio (x10⁵ live births)	~800*	~600*	125	53
(World lowest MMR rank)	—	—	(25th)*	(68th)
MMR/IMR (dimensionless) ratio	—	3.1*	3.5	10
(World highest ratio rank)	—	—	—	(170th)
Physician density (1x inhabitants)	2000*	1286	999	156
(World highest density rank)	—	—	(26th)	(1st)
Military-paramilitary troop dens. (1x inh)	150*	67*	86*	~20~10
(World highest density rank)	—	—	—	1962 (1st)* 1990
Percent of adult literacy	20	46	79	99
(World highest ratio rank)	—	—	(32nd)	(32nd)
GDP-p International Geary-Khamis $	~700*	~1000*	2406	3625
GDP-p estimate-World Bank norm	—	—	—	~3000*
World highest GDP-p rank)	(22nd)*	(28th)*	(31st–44th)	(97th–110th)
Human development index (scale 0–1)	0.19*	~0.32*	~0.658*	0.863
(World highest HDI rank)	—	~(35th)*	~(32nd)*	(51st)
% of rights and freedoms violated	90*	75* (1894)	13* (1952)	90*

Source: LEB: Life expectancy at birth. IMR: Less than 1 year infant mortality rate. MMR: Maternal mortality ratio. GDP-p: gross domestic product per-capita measured in 1990 international Geary-Khamis $ dollars. HDI=human development index. *Author's preliminary estimates; other figures are official national and/or international estimates. See sources cited in text.

poral emigration for purportedly humanitarian missions, but really ideological and mercenary in other nations, though these epidemics have been endemic in Cuba since 1959.

Redistribution of Access to Fragmented Health, Freedoms and Other Living Standards

Table 2 shows high and gradual improvements in distribution of access to health and other living levels achieved in 1902–58 for each Cuban population stratum: poor (~66%), middle (~33%), and affluent (~1%). There was a narrowing of differences between strata at both ends, with a growing middle stratum. In 1760, all world nations had a high degree of inequity: ~1% affluent and ~99% extremely poor, with high equity at the bottom. In Cuba, the poor included African slaves, who were freed during 1868–80, Caribbean and Latin American immigrants, and creoles. In 1902–58, the size of Cuba's extreme poverty layer fell, with many moving to moderate and borderline-levels of poverty as a result of increasing employment and living levels. At the same time, there was also positive movement within the middle stratum from the low to the high layer, which encompassed high-wage workers and those who owned small-medium businesses. The affluent stratum composed of European immigrants and selected creoles was newly populated by entrepreneurs and individuals associated with the top businesses.

Cuba's poor workers gradually gained access to increasing quantity, duration, and quality of integral health—measured indirectly by demographic, morbidity—through growing access to health care and other indexes, with the latest U.S. vaccines, sanitation and therapeutic means increasingly available to them. Prospering through social mobility was the main determinant of the growing access to resources,

Table 2. Estimated Trends of Access To Living Levels Within and Among Social Strata According to a Democratic, Multi-Party, and Private-Public Property System, Cuba 1902–1958

Access of individual by strata to community living standard and level*	Cuban poor (~66%) Inequity falling because of rising social mobility from extreme to moderate to mild poor†	Cuban middle (~33%) Inequity falling because of rising mobility from poor to middle, increasing average equity†	Cuban affluent (~1%) Inequity falling because of rising mobility from poor, middle to rich, and vice versa†
1. Health, including demographic conditions	Rising integral health, LEB, LEE, new clinics and means; falling IMR, MMR, EAMR, bio-psychosocial disability/suffering	Rising integral health, LEB, LEE, bio-psychosocial ability/wellness and modern clinics, tests/ procedures and drugs; falling IMR, MMR, EAMR	Rising integral health, LEB, LEE, bio-psychosocial ability/wellness and best deluxe clinics/means; falling IMR, MMR, EAMR
• Community health/hospital care of pregnant, newborn, early infant	Rising integral pre- and post-natal care coverage and abortion; hospital care from low to medium quality	Rising from medium to high quality of care levels and abortion; top home personal, family care and top clinics	Rising to top quality care levels and abortion; top home personal, family care and top clinics
• Community health outpatient/ ambulatory care	Rising integral vaccination of children/pregnant; few but well trained /paid MDs with means	Rising from medium to high levels of quality of care, many well trained/ paid GPs/specialists with latest means	Rising to highest quality care levels, numerous best trained/ paid M.D.s with latest resources
• Wellness/health care before/after motherhood, after early infanthood	Rising care from low to medium quality of community physical health and over human survival	Rising care from medium to high quality of personal/family physical, mental/ social wellness/health compared even to the U.S.	Rising care to top quality integral / optimum personal/family wellness/ health, even compared with the U.S.
• Wellbeing/welfare/health care of elder, adult and older children	Rising care from low to medium quality of community physical health and over human survival	Rising care from medium to high quality of personal/family physical plus mental/social health and wellness, compared even to top U.S. hospitals	Rising care to highest quality of personal/family integral human optimum health and wellness, even compared to top U.S. hospitals
• Hospital emergency and critical care	Rising care low-medium quality / standard M.D.s technologies/ facilities	Rising care medium-high quality/ best GPs/specialists, technologies/ facilities	Rising care to top quality /best M.D.s. technologies/facilities
• Hospital inpatient care	Rising care low-medium quality / standard M.D.s, technologies/ facilities	Rising care medium-high quality / best GPs/specialists, technologies/ facilities	Rising care to highest quality/ best M.D.s technologies/facilities
2. Food consumption and nutrition	Rising nutrition/consumption, Cuba' s limitless/cheap supply of quality food for human consumption, rich in protein, fat, sugars (except famine 1929–33)	Rising nutrition/consumption, Cuba/ foreign limitless/expensive supply of best quality food for human consumption rich in protein, fat, sugars, vitamins and minerals.	Rising nutrition/consumption, Cuba/ foreign limitless supply of top/ finest quality food for human consumption richest in all macro and micro nutrients
3. Education, including literacy and skills	Rising literacy/enrollment, urban/ rural primary/technical public schools, initiative and creativity, well trained-paid teachers	Rising high school/higher education in 4–5 state/religious universities, better trained-paid teachers; rising education in U.S./ Europe universities	Rising higher education comparable to US /Europe universities, best-paid teachers, rising fellowships and trainings in U.S. universities
4. Housing, including household facilities	Rising modest apartments/houses for rent; potable running water, sanitary septic, gas, kerosene/ electricity, radio/TV	Rising new standard apartments in buildings/houses, exclusive suburbs in town/city, beach/farm, electricity, gas, radio/record player/ TV.	Rising new deluxe apartments in high rise buildings, exclusive neighborhoods, all best quality facilities by top US standards
5. Employment situation and working conditions	Rising non-discriminatory jobs, factories/protection, mean-wage (at Norway levels); paid overtime, incentives, benefits	Rising new attractive private/ public jobs and owners of new small-medium enterprises, joint ventures, compensated overtime, incentives and benefits.	Rising owners of new big enterprises, joint ventures, transnational firms, modern conditions and top benefits.
6. Social security and pensions	Rising access to low subsidy/ pension for men, women, blacks, according to skills and trade union	Rising access to good subsidy/ pensions, to Canadian/US life insurance, Cuban/foreign bank account savings	Rising access to top U.S. life insurance policies, plenty of savings in Cuban and U.S. bank accounts

Table 2. Estimated Trends of Access To Living Levels Within and Among Social Strata According to a Democratic, Multi-Party, and Private-Public Property System, Cuba 1902–1958 (continued)

7. Consumption & savings	Small rise in consumption and savings according offer/demand, private /public jobs' stability/wages	Moderate rise in consumption and savings in national/U.S. banks, according to private jobs/own enterprises profits	Rise in consumption and savings in U.S. banks, according to big enterprises profits
8. Clothing and footwear	Rising access to Cuban/ foreign cheap products; limitless supply.	Rising access to good-quality Cuban/foreign best products; limitless supply	Rising access to luxury Cuban// foreign products; limitless supply
9. Recreation and entertainment	Rising cheap night clubs, social clubs, lodges, theater/movies, beaches, sport facilities, motels/ hotels, etc	Rising access to marinas, clubs, beaches, sport facilities, hotels, cabarets and tourism Cuba/ overseas	Rising luxurious yacht/country charity clubs and sport facilities, casinos and tourism Cuba/overseas
10. Population and labor force	Fast growth, slow aging 4.3 million poor; inflow of immigrants	Slow growth, fast aging 2.1 million mid-class; immigration of businessmen	Slowest growth, fastest aging 64,000 well-known rich-class
11. Income, expenditures and investments	Rising lower income/expenses.	Rising middle income/expenses and investments.	Rising higher income/expenses and investments.
12. ICT and transportation	Rising in quality; paid by all	Rising in quality; paid by all	Rising in paid; paid by all
• mass communications	Rising openly to all journal, newspaper, book, film, radio/TV station uncensored until 1957	Rising faster to all national/foreign journal, newspaper, book, film, radio/TV stations, amateur devices	Rising fastest to all journal, newspaper, book, film, radio/TV stations, top amateur devices
• post/telecommunications	Rising top-quality mail, fixed-phones national/world networks	Rising top-quality mail, fixed-phones national and international networks	Rising top-quality mail and fixed-phones national/world networks
• transportation	Rising strict-schedule private top quality bus/train/ship/airplane cheap tickets; limitless cheap bike/ motorcycle/car/boat, etc	Rising private top-quality bus train/airplane/ship expensive tickets; limitless expensive car, yacht, boat, airplane, helicopter, gasoline, etc	Rising private top-quality train/ airplane/ship expensive tickets; limitless luxurious car, yacht, boat, airplane, helicopter, etc
13) Human rights and freedoms (total of 157 in 30 articles)‡	Access to rights rose to ~137 (87%) rights. Yet ~20 (13%) rights not permitted by society and state	Access to rights rose to ~137 (87%) rights. Yet ~20 (13%) rights not permitted by society and state	Access to rights rose to ~137 (87%) rights. Yet ~20 (13%) rights not permitted by society and state
• civil rights (66 in 15 articles: 1–13, 15, 16)	Access rose to 56 (85%) rights. Yet 10 (15%) rights not permitted by society and state	Access rose to 56 (85%) rights. Yet 10 (15%) rights not permitted by society and state	Access rose to 56 (85%) rights. Yet 10 (15%) rights not permitted by society and state
• political rights (35 in 8 articles: 14, 18–21, 28–30)	Access rose to 35 (100%) rights.	Access rose to 35 (100%) rights.	Access rose to 35 (100%) rights.
• social rights (17 in 2 articles: 22, 25)	Access rose to 9 (47%) rights. Yet only 8 (53%) rights not permitted by society and state	Access rose to 9 (47%) rights. Yet 8 (53%) rights not permitted by society and state	Access rose to 9 (47%) rights. Yet only 8 (53%) rights not permitted by society and state
• cultural rights (22 in 2 articles: 26, 27)	Access rose to 20 (91%) rights. Yet only 2 (9%) rights not permitted by society and state	Access rose to 20 (91%) rights. Yet 2 (9%) rights not permitted by society and state	Access rose to 20 (91%) rights. Yet only 2 (9%) rights not permitted by society and state
• economic rights (17 in 3 articles: 17, 23, 24)	Access rose to 17 (100%) rights.	Access rose to 17 (100%) rights.	Access rose to 17 (100%) rights.

Source: LEB=life expectancy at birth. LEE= life expectancy of elderly (>60 yr). MMR=maternal mortality ratio. EAMR=elder/adult mortality rates. CAM= complementary and alternative medicine. GP=general practitioner. WB=World Bank. ICT=information/communication technologies. * Universal community living standards are U.N. defined. † Author's percent (%) estimates of inequity perceived among three population groups accessing living standards; freedoms are broken down in types (1951). ‡ Rights violation figures are from author's computed data. Estimate of rising trend of rights observation, Cuba 1902–52; 10 presidents result of multi-party elections; western-style 1901 and 1940 Constitutions. See sources cited in text.

which encouraged higher productivity and sustainable development. This system resulted in better living standards and little emigration. Rights violations declined from about 75% in the colony to 13% in democratic Cuba.

Table 3 shows the sharp redistribution in 1959 of access to integral health and other living standards

Table 3. Estimated Trends of Access to Living Levels within and Between Narrow Spectrum Social Strata According to a Totalitarian, Unique-Party and Public-Property System, Cuba 1959–2010

Access of individual by strata to community living standard and level*	**Cuban mass** (~99%) Inequity rose by generalized/forced dispossession of all personal rights and private properties, returning to 1760´s high equity at the bottom†	**Cuban leaders** (~1%) Inequity rose by boosted/forced elite expropriation of all personal rights and private and public properties, worse than in 1760†
1. Health, including demographic conditions	Rising physical health, LEB, LEE, bio-psychosocial disability/suffering; discordant stagnated MMR, EAMR; deteriorating confiscated clinics/ hospitals, scarce means and CAM; banned private doctors, only public lacking last info and means	Rising integral health, LEB, GLE, bio-psychosocial ability/wellness; falling MMR, EAMR; secret/restricted/confiscated deluxe clinics with best tests/drugs/ procedures; private/best doctors, even with last US info and means
• Community health/hospital care of pregnant, newborn, early infant	Rising forced pre-natal and postnatal sterilization/ abortions, hospital care of low-medium quality	Rising to highest quality of care with top home personal/family care and clinics care
• Community health outpatient/ ambulatory care	Rising forced vaccines in children/pregnant; miserable GPs with minimum info and means	Rising to top-quality, best trained/paid in species specialists with last info and means
• Wellbeing/health care before/after motherhood , after early infanthood	Declining care to bottom-quality of community physical health and minimum human survival	Rising care enhancing to top-quality personal/ family integral wellness/health
• Wellbeing/welfare/health care of elder, adult and older child care	Declining care to bottom-quality of community physical health and minimum human survival	Rising care enhancing to top-quality integral wellness and health, even in top US hospitals
• Hosp.urg/emergency and critical care	Declining to bottom-quality human survival	Rising to top-quality/best M.D./technologies
• Hospital inpatient care	Declining to bottom-quality human survival	Rising to top-quality and 5 stars plus levels
2. Food consumption and nutrition	Declining nutrition, fell supply of protein, fat, Kcal in rationed subhuman quality sugar, rice, beans, liqueur, etc; 2 famines 1961–67, 1991–95.	Rising nutrition, covert bills expensive quality food/liqueur secretly served at home/offices from top protocol stores or finest restaurants
3. Education, including literacy and skills	Rose compulsory literacy/enrolment, farming work, heavy censure/indoctrination; banned initiative-creativity and religious/private schools; confiscated schools falling, poorly trained/paid teachers	Rising top-level education with confiscated deluxe schools, best trained/paid teachers; controlling all foreign grants for education overseas in best European and US schools and universities
4. Housing, including household facilities	Declining confiscated housing, 2–3 families living overcrowded; banned sale/rent of state owned; going down/unmaintained, lack of fluent and safe water, thick sanitary septic, blackouts, misery	Rising several old, confiscated, private, deluxe apartment/houses per each familiar in Cuba and overseas, exclusive neighborhoods, all top quality facilities as US affluent stratum
5. Employment situation and working conditions	Rose jobs with sub-employment; banned private jobs; mean wage-daily fell to US$ 0.50¢; forced unpaid voluntary unprotected/unsanitary work	Rising party/state bosses/owners of enterprises, joint ventures, secret private transnational firms, covert most modern conditions and benefits.
6. Social security and pensions	Rose subsidies of US$ 10¢ to 13¢ daily and pensions US$ 23¢ to 50¢ for top professionals	Rising secret access to plenty of good/service and million US$ in secret bank accounts
7. Consumption and savings	Declining consume and no savings: 80% family expenses are for survival in black market food	Rising consume secretly for free; top leaders have secretly US$ billions in Swiss banks
8. Clothing and footwear	Declining to rationed miserable, 2nd-3rd hand quality; since 1990 out of rationing only in US$	Rising covertly to top Western quality (i.e., use of US$4000 suit) in Cuba and abroad gratis
9. Recreation and entertainment	Declined to bottom quality confiscated theater-movie, club/sport fac.; banned hotels; risen camping facilit., smoking/drinking rum in street	Rising furtively exclusive sports /trips to Cuba 's and foreign international tourism resources, spending all the public treasure in US$ for free
10. Population and labor force	Growing emigration of ~2 million inhab. includ. entrepreneur/labor and 10,9 million poor aging;	Small growth 110,000 covert rich-class, aging faster with top good/services and facilities/means
11. Income, expenditures and investments	Declining income/expenses due to huge secret % of public treasure expenses in repression and propaganda, frozen wages with Cuban peso in 1961 secretly deflated in 95% from US$1 dollar to 5¢ - and declined PPP. Banned all investments	Rising income with no expenses out-of-pocket; possess all the island properties, enslaved all of its people, spend only from public treasure personally and maintaining power without costs. Unique national/ multinational investors
12. ICT and transportation	Declining to a bottom quality, always paid	Rising to a top quality, always for free
• mass communications	Fell and 50–yr censored newspaper/journal /book, radio/TV station, film; banned all foreign media	Rising secretly uncensored all foreign media, film/ video and all TV stations by dish/cable, etc

Table 3. Estimated Trends of Access to Living Levels within and Between Narrow Spectrum Social Strata According to a Totalitarian, Unique-Party and Public-Property System, Cuba 1959–2010 (continued)

• post/telecommunications	Fell and 50–yr censored mail/phone; banned long distance/fax/PC/cell/WWW, webmail; censored/ limited professional WWW, email	Rising secretly phone/fax, walkie-talkies, car radio-plant/PC/cell/broadband WWW, webmail; messenger, Skype, etc, uncensored and for free
• transportation	Declined to wretched/fitful schedule state paid bus/ train/plane; banned sale of private transport; political rationed Soviet car, gas, spare parts, etc	Rising secretly top confiscated/new official-tourism luxurious western car, yacht, jets, premium gas, spare parts, gratis from the public treasure
13. Human rights and freedoms (total of 157 in 30 articles)‡	~142 of ~157 rights were suppressed by the state decrees/forces, only allowing 15 (10%)	~157 of ~157 rights were allowed [explicitly ~15 (10%), furtively ~142 (90%)] (100%)
• civil rights (66 in 15 articles: 1–13, 15, 16)	Not allowed 61 rights of 15 articles (1–13, 15, 16) only 5 rights permitted (8%)	All 66 rights permitted [5 openly (8%), 61 surreptitiously (92%)] (100%)
• political rights (35 in 8 articles: 14, 18–21, 28–30)	Not allowed 34 rights of 8 articles (14, 18–21, 28–30), only 1 right permitted (3%)	All 35 rights permitted [1 openly (3%), 34 surreptitiously (97%)] (100%)
• social rights (17 in 2 articles: 22, 25)	Not allowed 13 rights of 2 articles (22, 25), only 4 rights permitted (24%)	All 17 rights permitted [4 openly (24%), 13 surreptitiously (76%)] (100%)
• cultural rights (22 in 2 articles: 26, 27)	Not allowed 18 rights of 2 articles (26, 27), only 4 rights permitted (18%)	All 22 rights permitted [4 openly (18%), 18 surreptitiously (82%)] (100%)
• economic rights (17 in 3 articles: 17, 23, 24)	Not allowed 16 rights of 3 articles (17, 23, 24), only 1 right permitted (6%)	All 17 rights permitted [1 openly (6%), 16 surreptitiously (94%)] (100%)

Source: LEB=life expectancy at birth. LEE=life expectancy of elderly (>60 yr). MMR=maternal mortality ratio. EAMR=elder/adult mortalities rates. CAM=complementary and alternative medicine GP=general practitioner WB=World Bank. ICT=information/communication tech. * Universal community living standards U.N. defined. †Author's percent estimates of inequity perceived among two groups accessing living standard; rights are broken down in types. ‡ Rights violation percents are from author's computed data. Estimate of falling rights observation, Cuba 1959–2010; one leader, no elections 1959–75/one-party elections 1976–2010; Soviet-style Constitution of 1976. See sources cited in text.

achieved in democracy for the two Cuban population strata that were prevalent after the revolution: mass (~99%) and leaders (~1%). The previous powerful middle and affluent strata had their freedoms and properties limited and were essentially eliminated and agglutinated with the poor, in a very large and amorphous mass of poorer people. This mass has suffered a half-century of deprivation and of declines of previous living levels they had achieved. Meanwhile the newest affluent totalitarian socialist leaders enjoy high and rising living levels. The social mobility mechanism changed from contributing to Cuba's integral progress to absolute loyalty to a leader in power, unethically justifying depressing living levels with actions against the regime by the United States.

The captive mass gained universal access to a physician—trained in large numbers, with very scarce scientific exchanges abroad—poorly equipped, using WHO vaccines, old and scarce means, due to the elite's diversion of funds for other purposes. In 1959 Cuban patients lost access to the latest clinical tests, drugs and procedures, except for some women when pregnant and some newborns and infants. In spite of an exclusive 21–month intensive care formula for pregnancies and newborns, the improvement of the IMR, MMR, LEB and LEE indexes has slowed down at the same time that there has been stagnation and rise of elder and adult mortality rates (EAMR), especially in men, whose care is very poor after four years old. The mass has suffered from increased rationing of food and other basic needs: sub-nutrition camouflaged with excess of sugarcane, declining husked rice, and scarce proteins; misinforming and below-par education; overcrowding in unfurnished, run-down housing, endless blackouts and lack of running water; generalized under employment, with a US$0.50 mean daily-wage, unpaid forced overtime; poverty-level pensions of US$0.10 per day; low-quality, secondhand clothes; primitive recreation activities—smoking and drinking rum in streets; young workers emigrating to wherever there is an opportunity to go; expropriation of bank accounts and reduction in the value of the Cuban peso since 1961 from US$1 dollar to

US$0.05; misinforming and censored media; cell phones were banned until 2009 (they are extremely costly) and access to the Internet is still banned; scarce and unscheduled subhuman transportation; and state regulated suppression of 90% of human freedoms, particularly political, economic and civil rights. Meanwhile Cuba's leaders, and their families, have unlimited access to the best clinics, specialists, the latest tests, drugs and procedures, even covertly performed in top U.S. hospitals. They secretly enjoy all the living comforts of the world's richest people in the "supposed paradise of social justice and equity," avoiding the eyes and ears of the deprived mass, and buying the silence of Cuban officials and journalists. They secretly recreate luxuriously in isolated keys (banned to the masses) of Cuba's archipelago and in valuable properties bought abroad. The Gini coefficients underestimate Cuba's secret income inequality, which could be over 0.95. The leaders enjoy ~157 rights-freedoms at 100%: openly ~15 that are also allowed to the masses plus another ~142 to which the masses have no access.

Differences between Original HDI and Freedom-Adjusted HDI in Four Countries

In Box 1, the UNDP HDI is reformulated as a multi-dimensional (tetra-dimensional) measure, adjusting the original HDI to incorporate a measure of freedom. In addition to calculating a freedom-adjusted HDI for Cuba, the same has been done for China, South Korea and the United Kingdom. For Cuba, freedom-adjusted HDI showed a reduction of 24% from the original HDI value (0.863 to 0.653), worsening Cuba's ranking from 51st place to 131st place, while China showed a reduction of 22% of the HDI, worsening from 92nd to 136th place; South Korea showed a very small reduction of 0.4%, worsening two places; and the UK showed a small increase of 1.4%, improving from 21st to the 12nd position.

Cuba's Fragmented Underdevelopment and South Korea's Comprehensive Development

Table 4 shows that Cuba's LEB in 1900 doubled to 64 years by 1957, 11 more than South Korea; yet in 2007, it was 78 years, one less than South Korea's. Cuba's literacy rate in 1900 was almost doubled to 79% in 1957, about the 5th highest in the developing world, twice South Korea's; yet in 2007, both were 99%. Cuba's GDP-p in 1900 was doubled to $2,406 in 1957, twice South Korea's $1,206; yet in 2007, Cuba's $3,764 was one-fifth of South Korea's $19,614.

Cuba's development in 1902–57 with a U.S.-style system doubled its original HDI to 3rd place in the Third World after Argentina and Uruguay. With a Soviet-style system, in 2007 Cuba had 131% of its 1957 HDI, worsening from about 32nd place to 89th in 1994 and to 51st since the late 1990s. Korea's doubled its HDI from 1900 to 1957, to a level only 67% of Cuba's. In 1945 Korea was divided; the South adopted a U.S.-based development model and in 2007 its HDI was twice the level in 1957, reaching 12th place in the world in 2010. North Korea–which adopted the Soviet model—has been developing nuclear arms but meanwhile its HDI fell to the bottom, with famines in 1991–97.[15]

DISCUSSION

Universal Access to Fragmented and Distorted Health in Captivity, Hunger and Misery

The 1990–2011 HDI reports showed high non-income development for Cuba combined with low and slow growing income. This behavior deserves a comprehensive analysis to understand in depth what has really happened in Cuba. Censored and misinforming official reports and media communication on "health and education achievements" conceal the disintegrated nature of Cuba's health and education contrary to the WHO and UNESCO definitions, which assume the countries are living in freedom. This is a main cause of most biased healthcare studies of Cuba. While there are some challenges related to the accuracy of the GDP-p's, the challenges in measuring Cuba's health and education dimensions are even higher. It is one thing to have universal access to a physician and a teacher in an environment of cap-

15. Haggard S, Noland M. *Famine in North Korea.* NY: Columbia University Press, 2007; Kunzig R. Cities are the solution. They may be the best way to lift people from poverty. *National Geographic Magazine* 2011:220:6:124–47.

Box 1. Original and Freedom-Adjusted Human Development Index, 2007

UNDP Original Crude HDI Formula

UNDP original (tridimensional) HDI formula (1991–2009 Reports): HDI = ⅓ (LEB index) + ⅓ (education index) + ⅓ (GDP per capita index)
Where:
LEB index = LEB–25 / 85 - 25
Education index =2/3 adult literacy index [AL–0 / 100–0] + 1/3 gross school enrollment index [GE–100 / 100–0]
GDP per capita index = log (GDP-p)–log (100) / log (40,000)–log (100)

Freedom-Adjusted HDI Formula

Freedom-adjusted (tetra-dimensional) HDI formula: HDI = ¼ (LEB index) + ¼ (education index) + ¼ (GDP-p index) + ¼ (freedom index)
Where:
LEB index = LEB - 25 / 85 - 25
Education index =2/3 adult literacy index [AL - 0/100–0] + 1/3 gross school enrollment index [GE–100 / 100–0]
GDP per capita index = log (GDP-p)–log (100) / log (40,000)–log (100)
Freedom index = ∑ % of equity of access to human rights (civil, political, social, cultural, economic)–0 / 100–0

Experimental Calculations of Freedom-Adjusted HDI and Variations from Original Crude HDI

Four examples of HDI calculations for 2007 (UNDP 2009 Report), adjusted with average access to all U.N. human individual freedoms (State of the World Liberty Project), and world ranking:

-Cuba's original HDI for 2007 = 0.863 (world 51st place)
-Cuba's Freedom-Adjusted HDI for 2007 = ¼ (0.891) + ¼ (0.993) + ¼ (0.706) + ¼ [2 - 0 / 100 - 0]
= ¼ (0.891) + ¼ (0.993) + ¼ (0.706) + ¼ [0.020]
= 0.223 + 0.248 + 0.177 + 0.005 **= 0.653** (-24 % lower than the original) (131st place)

-China's original HDI for 2007 = 0.772 (world 92nd place)
-China's Freedom-Adjusted HDI for 2007 = ¼ (0.799) + ¼ (0.851) + ¼ (0.665) + ¼ [10 - 0 / 100 - 0]
= ¼ (0.799) + ¼ (0.851) + ¼ (0.665) + ¼ [0.100]
= 0.2 + 0.213 + 0.166 + 0.025 **= 0.604** (-22 % lower than the original) 136th place)

-South Korea's original HDI for 2007 = 0.937 (world 26th place)
-South Korea's Freedom-Adjusted HDI for 2007 = ¼ (0.904) + ¼ (0.988) + ¼ (0.92) + ¼ [92 - 0 / 100 - 0]
= ¼ (0.904) + ¼ (0.988) + ¼ (0.92) + ¼ [0.920]
= 0.226 + 0.247 + 0.23 + 0.23 **= 0.933** (-0.4% lower than the original) (28th place)

-United Kingdom's original HDI for 2007 = 0.947 (21st world place)
-United Kingdom's Freedom-Adjusted HDI for 2007 = ¼ (0.906) + ¼ (0.957) + ¼ (0.978) + ¼ [99.5 - 0 / 100 - 0]
= ¼ (0.906) + ¼ (0.957) + ¼ (0.978) + ¼ [0.995]
= 0.227 + 0.239 + 0.245 + 0.249 = 0.96 (1.4 % higher than the original) (12th place)

Source: HDI=human development index (scale 0–1). UNDP=United Nations Development Program. LEB=Life expectancy at birth. GDP-p=Gross domestic product per-capita. * The new dimension "leading to a completely free life," should have an upper goalpost of 100%, giving the whole population equal access to all UN human rights-freedoms, value of 1 (e.g., Switzerland) and a lower goalpost of 0%, value of 0, (e.g., North Korea). In order to facilitate international comparisons in the examples the mean individual freedoms estimated for each of all the countries in the State of the World Liberty Project, 2006 was used. See references cited in text.

tivity, poverty, and oppression of most rights and suppression of living levels; and another is to have access to universal coverage of comprehensive healthcare with world standard tests, medicines, and procedures, and to a comprehensive education with world standard information and communication. Unfortunately, the HDI does not capture the fragmented and distorted health and education. Improving the sensitivity of the HDI is the main reason to adjust the HDI for freedoms.

McGuire and Frankel in 2004 described integral health achievements in pre-revolutionary Cuba obtained in spite of slow growth rates of GDP-p. They

Table 4. Original and Selected Freedom-Adjusted HDIs for Cuba and South Korea, 1900, 1957 and 2007

Index Country/Year	Political-Civil and Economic Freedom and World Rank FH, HF, UNDP	LEB and World Rank, UNDP	% Adult Literacy, School Enrollment - World Rank, UNESCO	GDP-p† World Rank, Maddison/ WB-IMF	Original Crude HDI,‡ World Rank, UNDP	Freedom-Adj-usted HDI and World Rank, % Variation HDI
Cuba						
1900–02	~6+6* and 40*	32 (~35th)*	46	~1000* (~50th)*	~0.32*(~35th)*	0.653* (131st)*
1957	~3+3* and 50*	64.2 (32nd)	79 (32th)	2406 (31st-44th)	~0.658*(~32nd)*	(-24%)*
2007	7+7 not free 185th and 29.7 repressed 156th	78.5 (43rd) 79 (31st)	99 (35th) (100.8) Mean/Expected years	3764 (97–110th) GNI-p PPP	0.863 (51st) incalculable	
2010	60% rights violated	79.1 (31st)	schooling	No GNI data 5416	0.776 (51st)	
2011	7+6 not free 183th and 27.7 repressed 1s77th		(10.2) (17.7) (9.9) (17.5)	(102nd)		
South Korea						
1900–05	~7+7* and 30*	~28* (60th)*	~25*	~800* (90th)*	~0.22*(~55th)*	0.933* (28th)*
1957	~5+6* and 40*	52.5 (45th)	46 (70th)	1206 (82nd)	~0.444 (~45th)*	(-0.4%)*
2007	1+2 free 48thand 68 moderate free 37th	79.2 (26th) 79.8	99 (32nd) (98.5) Mean/Expected	19614 (24th) GNI-p PPP	0.937 (26th) 0.877 (12nd)	
2010	40% rights violated	80.6	years schooling	29518 (27th)	0.897 (15th)	
2011	1+2 free 48thand 70 moderate free 31st		(11.6) (16.8) (11.6) (16.9)	28230 (26th)		

Source: HDI=human development index. GDP-p=gross domestic product and GNI-p=gross national income, per-capita. PPP=parity purchasing power. FH=Freedom House. HF=Heritage Foundation. UNDP=United Nations Development Program. UNESCO=United Nations Educational, Scientific and Cultural Organization. WB=World Bank. IMF=International Monetary Fund. *Author's preliminary estimates; other figures are official estimates. † GDP-p in 1990 International Geary-Khamis $ dollars; GNI in PPP USD (current and constant prices). ‡ Author with interactive calculator and simpler formula for 1987–90; HDIs estimated from 1900 and 1957 HDIs See sources cited in text.

described a healthcare system, institutions and living conditions favoring integral health even when universal access to a physician was not yet achieved in distant rural areas. However, it had universal access to midwives trained in aseptic practices. These authors showed how the revolution, starting from a privileged baseline in health levels, slowed previously improving trends in IMR and LEB, but much more the MMR and EAMR. They noted that the comparatively minor advances during the revolution were in spite of what they interpreted as greater "political will" on a state-run healthcare than on the pre-revolutionary private-mutual-state healthcare. But McGuire and Frankel, as outsiders who never lived in revolutionary Cuba and did not experience the inferior status granted to citizens, were unable to understand that the main force acting was "political violence" instead of will. The revolution suppressed most rights that had been observed until the 1952 Fulgencio Batista coup, and depressed living standards (that had been growing even under the previous autocratic regime during until 1952–58), to levels below those humanly permissible.

Since the 1960s, misinterpretations of the lessons of Cuba's "political will" have proliferated, marked by the participation in healthcare of Soviet-style community paramilitary organizations and the popular power of the communist party, whose first goal is to spy and oppress the masses. Biased statistical contrasts of Cuba with the Philippines and other nations have been frequent. These studies have focused on physical survival indices of infants and pregnant women, ignoring Cuba's privileged health baseline in 1958 to measure improvement after the revolution. Most of these studies have been blind to the fragmented healthcare policies, inequality in access to integral health, freedoms and living standards, and to the collateral damage due to abandonment of older children, elder and adult mental and social health. A constant has been to blame U.S. policies and the trade embargo for all revolutionary failures, overstating their impact and justifying suppression of freedoms and living levels. These evaluations, supported by 53 years of anti-American propaganda, have obscured a fact: that Cuba's underdevelopment has been caused by the archaic and oppressive Soviet system.

Political Violence and Non-Income Human Development in Cuba's Totalitarian-Socialism

Klugman et al make the point that the UNDP HDI challenges economic growth-centric thinking. It balances income and non-income dimensions of wellbeing as the objective of development policies. But they point out: "Human development is a process of enlarging people's choices. In principle, the choices can be infinite and change over time. But at all levels of development the three essential ones are for people to lead a long and healthy life, to acquire knowledge and have access to resources needed for a decent standard of life. If these essential choices are not available, many other opportunities remain inaccessible."

A challenge faced by the UNDP is the lack of complete operationalization of the WHO health and UNESCO education definitions to allow the HDI to integrate long and integral healthy, educated and creative life in freedom, with progress of decent income and living levels. The UNDP does not recommend that nations try to maximize the HDI. But the Cuban Health Ministry in 2007 expressed as a directive the priority to guarantee a LEB of 80 years very soon. This was critical since the revolution faced the structural impossibility of developing decent living levels and GDP-p growth rates based on the Soviet experience.

In 1957–70 Cuba suffered a civil war, massive executions, famine and impoverishment due to the confiscation by the government of all lands, industries, businesses, and other properties coupled with other wrong-headed policies. These worsened IMR, LEB, MMR, EAMR, and LEE. In 1960, Cuba launched rural medical services and a compulsory literacy campaign. In 1968 it started a campaign to stop the rising IMR and falling LEB—both also targets of the U.S.-promoted Alliance for Progress. To this day, these indices for 1956–69 are absent in Cuba's health statistics reports. Over the period 1959–2010 Cuba suffered a setback in living standards greater than suffered by Myanmar, due to Cuba's higher baseline reached until 1958. Cuba has regressed—by constant political violence—from a succeeding civilization to worse than outdated slavery.

Comparing trends of Cuba and Korea's HDI measures it can be seen how Cuba's underdevelopment resembles North Korea's, also with an anachronistic Soviet-style system; meanwhile South Korea, starting from a lower baseline than Cuba in the 1950s, integrally developed under a U.S.-style development model. Cuba, allied with North Korea, fell to the third worst world place regarding rights and freedoms. If Cuba had freezing winters as does North Korea, it would have had in 1992–94 about a half-million deaths by a political inflicted famine. Cuba's HDI is reduced by a quarter when it is adjusted for freedom, falling from 51st place to 131st place; meanwhile, South Korea's HDI is reduced by 0.4% of HDI worsening from the 26th to the 28th place. South Korea's rights have greatly improved from non-free to moderately free, though the UNDP deemed it to be a democracy with 40% of violations.

The differences between South Korea and Cuba with respect to all of the freedom indexes are vast, with Cuba ranking in one of the world's last places in these dimensions. The UNDP reported that Cuba had only 60% of rights violations, instead of the 90% estimated here and even higher in other studies, apart from the violations of freedom promoted abroad exporting its oppressive ideology. The UNDP did not classify North Korea, but given its abysmal performance in freedoms (a score near to 0), its freedom-adjusted HDI would be 30% lower than whatever its HDI would be. The UNDP has focused its attention on Gini-style coefficients of income inequality and of other issues but has not considered freedoms. On the basis of studies by this author, if Cuba had not diverged from the democratic path it was following until 1952, it could have developed faster in integral health, education, and maybe in GDP-p, even than South Korea, Hong Kong and Singapore due its close relations with the U.S.

Interrelationships Between Health, Freedoms and All Other Living Standards

Physical health and demographic conditions, beyond the biomedical genetic and environmental view, and above all, the mental and social abilities, wellbeing and health levels, are strongly and directly interrelated with all other living standards, especially free-

doms. Over the period 1959–2010, Cuba's totalitarian-socialist government redistributed access to integral health and other living standards. It first worked violently to limit access to freedoms and then to comprehensive integral healthcare, education, income and other living standards from the relatively high average level reached by the middle class during the democratic period to a low level of a new huge poorer class, all in the name of social equity.

The right to an integral health standard cannot be fragmented and disconnected by political violence from other rights and living standards. All of them are positive or negative social determinants of human abilities, wellbeing and health progress or regression. Our results challenge the biomedical growth-centric thinking in public health and support a bio-economic-psychosocial model to better measure non-physical health dimensions. More research to operationalize health in a broader set of indicators to measure integrally its tri-dimensionality, especially the non-physical health ones, is needed. The amazing work done by the UNDP measuring human non-income development is the best example of what the WHO could begin to do.

In any society, high living levels are positive factors for progress of the health of individuals, families and communities. Low national living levels mean development delay. Increasing them can make a nation develop; the British in 50 years developed New Zealand and Australia and turned them into modern societies. In some instances, a country's living standards instead of progressing and benefitting the population may be depressed by a retrograde system that relies on foreign subsidies. This is the case of Cuba. Cuba evolved over 60 years applying the successful Western model, but involuted with the Soviet one, taking advantage from Soviet and more recently from Venezuelan subsidies. Discouraging and weakening the action mechanisms of positive living level factors, converts them into negative risk factors, with depressing effects on previously achieved modern integral living and health levels.

This unexplored setback of Cuba's rights and living levels has partially maintained physical health. Revolutionary Cuba has accentuated the first paradox begun in the republic, slowing improvements in IMR and LEB and GDP-p growth through selective policies. But it also has created a second paradox due to setback also of healthcare (hospitals, clinics, labs, etc) and public health infrastructure (water, sewage, sanitation services, etc.) and average health personnel preparation, allowing the return of physical health epidemics such as cholera even while maintaining progress in bio-pharmaceutical research and industries, and the emergence of psychosocial health epidemics (seen before in the Soviet Union, Germany, Italy and Japan).

The main cause of the psychosocial health epidemic is the constant class war. It has generated a spectrum of undiagnosed problems of the human cognitive, motivational and behavioral areas. These have lowered the integral health quantity—not measured yet—and the duration of periods of integral health, and have fragmented and distorted health quality. The problems range from mild to severe acquired and chronic mental and social health stagnation, regression, retardation, alienation, suffering and inability of adults and children to discern between fiction and reality, good and evil, to choose and act rationally. It has attempted to exterminate personal critical thinking, initiative, objective decision-making and action. It causes paranoid and fanatical hate for advanced nations' libertarian and prosperity symbols, ideas, institutions, and successful people, with thoughtless and automatic behavior, bordering on socially induced psychosis. The WHO's International Classification of Diseases (ICD) ICD has not included these disorders yet. Oppression of the poorest masses, chaotically surviving in fear, disintegrates human health, blocks contention, induces tolerance to inequities and acceptance of self-banishment, either definitive to any nation or temporal collaborating in other nations. Cuba's people have been erroneously considered of "high social resiliency and stability," by observers who have had no access to this unreported tragic health situation.

Cuba, instead of developing a holistic scientific medicine, has turned back from scientific medicine to pre-scientific holistic medicine. This cannot prevent or treat many health problems of a social or mental

nature, and even physical ones, created by high psychosocial tension and stress, due to the massive regression to a pre-modern social rhythm in a nation with blocked channels for effective progress. This unnecessary sacrifice of the quality of health and life of millions of people has been caused by an anachronistic dictatorship seeking to maintain power in the face of a Soviet system that does not work. The 20th century demonstrated that even before food and shelter, human beings need open, full and free flow of information and communication to be able to achieve the satisfaction of their needs.

Finally, the measurement of health could evolve toward a more health-centered and balanced system complementing the disease-centered one, transforming healthcare. Since the 17th century, population health has been monitored indirectly in relation with years of life and negative health indices, such as crude and adjusted demographic and morbidity-related indexes of acute and chronic infectious and non-infectious diseases.[16] It seems that a great devotion to vital statistics and *nosologies* from John Graunt to William Cullen has stagnated the health classifications and indexes. In this third era of health of Lester Breslow,[17] the health of patients and nations could be estimated numerically (scale 0–100) solving Paul Backer's patient's health equation, balancing positive health resources with strains.[18] An integral health quantity could be a complement to estimations of duration of healthy periods and health quality. A new set of health status indexes could be correlated with estimations of quality of care, time and costs, to increase the efficiency of the healthcare systems.

CONCLUSIONS

The evidence discussed in this paper supports the hypothesis that Cuba's 1959–2010 fragmented, distorted and slow-changing health and education achievements are residual effects of high revolutionary violence exerted on levels of integral living standards and professional development achieved by pre-revolutionary Cuba. Rights to health and education for all were disconnected by political violence from other rights and decent living levels that were suppressed. Cuba's oppressed, captive and impoverished masses have suffered—unlike their oppressors and wealthy leaders—a quasi-universal regression of living levels, greatest with regard to freedoms and income, but also significant with regard to integral health and education.

In 1967–95 Cuba achieved universal access to healthcare and education, through physicians and teachers working with scarce resources and information, along with miserable food, housing, transport, and living standards. Leaders' extreme political violence regarding most freedoms and living standards has led to psychosocial regression in Cuba, producing a chronic syndrome of terrified and quasi-psychotic masses, unable to detect the truth in official speeches and writings and to effectively rebel against oppression. While Cuba shifted from democratic-capitalism to totalitarian-socialism and in so doing fragmented its development, South Korea and other nations below Cuba's HDI baseline in 1958 adopted democratic-capitalism and launched fast, sustained, and integral development. The biomedical-centric model in healthcare is challenged by a bio-economic-

16. Stouman K, Falk IS. Health indices: a study of objective indices of health. *Quart Bull Health Org L.O.N.* 1936;5:901–1081; Swaroop S, Uemura K. Proportional mortality of 50 years and above. *Bull WHO* 1957;17(3):439–81; Logan R. Need to Evaluate Morbidity and Levels of Health. *WHO Pub Health* 1967:27; Stusser RJ. Multifactorial analysis of health areas' mortality. Havana University Biostatistics Specialty Thesis, 1977; Adler NE, Boyce T, Chesney MA, Cohen S, Folkman S, Kahn RL, Syme SL. Socioeconomic status and health. *Am Psychol* 1994;49(1):15–24; Eriksson M, Lindström B. A salutogenic interpretation of the Ottawa Charter. *Health Promot Int* 2008 Jun;23(2):190–9; Commission on Social Determinants of Health. Final Report. Geneva: WHO, 2008.

17. Breslow L. Health Measurement in the Third Era of Health. *Am J Public Health* 2006;(961):17–19; Stusser R. Reflections on the Scientific Method in Medicine. Oxford: UNESCO EOLSS Publ, 2006. www.eolss.net; Stusser R, Albert M, Rodríguez A, *et al.* [Vedado project: e-health in primary health care]. *Rev Cub Med Gen Int* 2006;22(4); Stusser RJ, Rodríguez A. [The informatization of primary health care]. *Rev Cub Med Gen Int* 2006;22(4); Stusser RJ. Research challenges of primary health care medicine progress, 2012. (Essay under review in UNESCO EOLSS)

18. Hollnagel H, Malterud K. From risk factors to health resources. *Med Health Care Philos* 2000; 3(3):257–64; Malterud K, Hollnagel H. The magic influence of classification systems in clinical practice. *Scand J Prim Health Care* 1997;15(1):5–6.

psychosocial model. Efforts could be made to improve the measure of integral health quantity, duration and quality of patients and nations.