



Degrowth and public health in Cuba: lessons from the past?

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ABSTRACT

After the collapse of the Communist Bloc in the 1990s Cuba experienced a severe economic crisis. In its drastic reduction in fuels, its negative economic growth data due to declining production and consumption rates and in its adaptations to shrinking resources and to local and labor-intensive production modes, this so-called *Special Period* had elements of an experiment in degrowth. Looking at economic, social and agricultural reactions to the crisis, this paper identifies a consistent commitment to social services, a shift in agricultural methods and a high level of social capital as main reasons for this outcome. Balancing this result with negative implications of the crisis, notably the lack of political freedom and of long-term sustainability, the paper seeks to draw lessons for future degrowth scenarios.

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1. Introduction: the special period and degrowth

The concept of degrowth emerged in the 1970s when scholars like Nicholas Georgescu-Roegen and Herman Daly challenged the conventional economic concept that unlimited economic growth was possible on a finite planet (Georgescu-Roegen, 1971; Daly, 1977).

In 1972 the *Limits to Growth*, written mainly by Dennis and Donella Meadows at the Massachusetts Institute of Technology, concluded that continued trends in resource utilization and waste production would eventually lead to socio-economic collapse. It called for drastic changes in production and consumption patterns in order to prevent such a crisis (Meadows et al., 1972).

Degrowth was meant to offer such a strategy. Beyond that, it is vague: a vision of a socio-economic system which has never existed and of which, consequently, we have no detailed knowledge. Rather than a description of a well-defined regime, sustainable degrowth is understood as “an umbrella vision, like equality, that brings together under a common framework a number of specific demands” (Kallis, 2011). As key elements, the concept entails a voluntary downscaling of the economy, notably its material production, consumption and waste, a voluntary, socially equitable

and globally just simplicity which defines human well-being in terms of non-material meaning to life (Jackson, 2009; Kallis, 2011; Demaria, 2011). Clearly, this vision differs from economic recession, i.e. a GDP decline in an economy otherwise geared towards growth (Kallis, 2011).

Nevertheless, economic crises are not irrelevant to degrowth scenarios. Occasionally, degrowth scholars regard crises as something of a trial run for a long-term change in economic system, arguing, for instance, that the “economic crisis of 2008–09 has resulted in a welcome change to the totally unsustainable trend of increasing carbon dioxide emissions.” (Martinez-Alier, 2009). Sometimes, crisis is considered as a possible, albeit undesirable starting point. Schneider et al. (2010) wondered “how positive would degrowth be if instead of being imposed by an economic crisis, it would actually be a democratic collective decision, a project with the ambition of getting closer to ecological sustainability and socio-environmental justice worldwide?” We can only imagine that it would be nicer than one born from the desperation of economic collapse. But will it happen? Kallis (2011) insists that a radical reorganization of societies will be possible through democratic means and as a result of a collective effort. Others, like van den Berg (2011), are less optimistic.

Ironically, if the recent accumulation of crises periods signals the beginning of a more general collapse of the existing economic system, it may also stand in the way of a gentle introduction of degrowth structures. Matthey (2010) has found that disappointments experienced during times of crisis decrease, rather than

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increase, people's willingness to lower aspirations for future material well-being, making them less receptive to ideas of degrowth than during prosperous periods. There is a real possibility that economic crisis will not only foreshadow but will BE the real-life version of degrowth, where changes in production and consumption are made not because people choose to but because they no longer have a choice. And even in the best of cases having a vision of a better, more just and sustainable world – though crucial – will not save us from a period of transition before getting there. Transitions are rarely easy, and any glimpse into what could be a possible trajectory into a degrowth scenario is worth scrutiny.

Cuba's "Special Period" of the 1990s is one instance worth analyzing: it lasted for almost a decade, it involved fundamental socio-economic changes and, unlike other crises of comparable scale, it succeeded in safeguarding, in some instances even improving public health.

2. Material and methods

This paper analyzes how the Cuban society adapted to a prolonged economic crisis and how the coping strategies allowed a remarkably positive health outcome. The focus is principally on health, because public health in Cuba at the period of difficult economic transition offers some impressive successes worth considering. It also provides a plausible indicator of well-being in general. Health, with its combination of material, physical, social and psychological aspects, is a reasonably comprehensive concept, qualifying as one of the factors that "satisfy the condition that they tend consistently in the same direction as the welfare they are indicating" (Huetting, 2010).

The paper uses economic and public health data from the WHO mortality database, the Main Aggregates Database for GDP growth rates, the UN Population Division data and Cuban authorities. To illustrate the positive quality of some health outcomes, some data are juxtaposed to those in Russia, which was experiencing a similar economic crisis at that period (for a detailed comparison see Borowy, 2011). In addition, relevant information has been taken from existing studies. Whenever available, the paper uses age-adjusted data, i.e. data recalculated according to a fictitious static age structure, and crude mortality rates otherwise.

3. Results

3.1. The crisis

In 1989, the collapse of the Soviet Bloc abruptly upset a Cuban economy, which relied heavily on foreign trade, conducted at preferential terms within the Soviet Bloc. Almost overnight, Cuba saw the end of a system which had supplied 85 percent of its imports. Between 1990 and 1993, overall imports shrank by 75% and oil imports were cut in half (Table 1). This loss of oil was doubly disastrous because since 1983 Cuba had resold part of the oil imported at below-market price which had turned into a major source of foreign currency needed to pay for other imports. Between 1989 and 1993 Cuba lost 70% of its import capacity. Domestic output in many sectors came to a virtual standstill. Sugar production, the mainstay of the Cuban export-dependent economy, declined drastically leading to the closure of about half the sugar mills (Meso-Lago, 2005). Depending on sources, by 1993 Cuban GDP had shrunk to 65.2 percent (Nayeri and López-Pardo, 2005) or a little over half (Funes, 2002) of its 1989 size. At any rate, the "break up of the Soviet Bloc in 1989 plunged Cuba into the worst economic crisis of its history." (Murphy, 1999) For several years, Cuba experienced negative growth rates similar to those in Russia, whose breakdown had triggered that of the Cuban economy (Fig. 1).

Table 1
Health-related factors.

| | Before 1990 | 1990–1995 | After 1996 |
|--|-------------------------|-------------------------|------------------------|
| Imported oil | 13 million tons (1989) | Six million tons (1993) | |
| % of population with access to chlorinated water | 98 (1988) | 26 percent (1994) | |
| Per capita calorie consumption | 2899 (1989) | 1863 (1993) | |
| Sugar production, | 8.1 mio. Tons (1989) | 4.2 mio. Tons (1993) | 2.2 mio. tons (2003) |
| Imports of drugs and medical equipment | \$ 227.3 million (1989) | \$ 67 million (1993), | \$ 112 million (1997). |
| % of physically active people ^a | 30 (Havana) (1987) | 70 (1991–95) | 67 (2001) |
| Gini-coefficient | 0.25 (1989) | 0.55 (1995) | 0.41 (1999) |

^a Defined as engaged in "at least 30 min of moderate or intense physical activity at least 5 days per week." (Franco et al., 2007). Sources: Garfield and Santana, 1997; Franco et al., 2008; Nayeri and López-Pardo, 2005; Carranza Valdés, 1996; Meso-Lago, 2005; Hoffmann, 1996; Sixto, 2001; PAHO, 1998.

After 1996 the country experienced a tenuous recovery, interrupted by new plunges. Its extent is contested and a precise assessment of economic performance is complicated by changes in the Cuban statistical system (Meso-Lago, 2005). Any definition of an end of the crisis is somewhat arbitrary. For the sake of orientation, this paper chooses 1996 as turning point for tables and graphs (Table 2).

The situation was further exacerbated by two hurricanes, by the decline of world prices for sugar and by several acts of the US Congress which tightened the already existing embargo. The Torricelli Bill (1992) and Helms–Burton Act (1996) prohibited all trade between all subsidiaries of US companies and Cuba (70% of which had been food and medicines) and put severe pressure on other countries to end trade with Cuba (Murphy, 1999; Nayeri and López-Pardo, 2005). With little preparation and forward warning Cuba was thrown back on its own resources. Without perceiving it in those terms, it was forced to live according to degrowth rules: produce and consume locally, refrain from credits, change from energy-intensive mechanized to low-energy, labor-intensive production methods, replace long distance with face to face communication and live a simple, low consumption life-style.

To many, the experience was hardly uplifting. Thousands of Cubans tried to leave the country between 1990 and 1994, risking their lives on flimsy boats. On 5 August 1994 angry demonstrators protested against the government, threw stones against public buildings and shouted anti-Castro slogans. While eventually the degree of violence was very limited the event made clear the need to find effective coping strategies (Hoffmann, 1996). Cuban

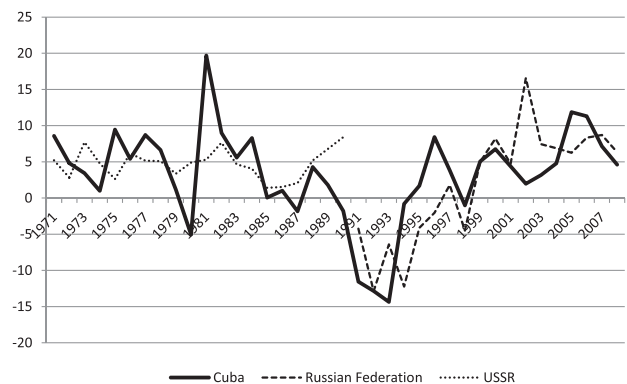


Fig. 1. GDP growth rate at constant 1990 prices in percent, 1971–2008. Data Source: UN National Accounts Main Aggregates Database: <http://unstats.un.org/unsd/snaama/downloads/Download-GDPgrowth-USD-countries.xls>.

Table 2
Health effects.

| | Before 1990 | 1990–1995 | After 1996 |
|---|--------------------------|---------------------|---------------------------------|
| Maternal mortality per 100,000 live births | From 31.6 (1990) | 32.6 (1995) | 31.3 (2003) |
| Mortality of pop aged over 65 per 1000 | 48.4 (1989) | 55.7 (1993) | 49.7 (2000) |
| Infant mortality per 1000 live births | 11.1 (1989) | 9.4 (1993 and 1995) | 6.5 (2000) |
| Mortality from diarrheal diseases per 100,000 | 2.7 (1988) | 6.8 (1994) | – |
| Rate of newborns weighing less than 2500 g | 7.3% (1989) | 9% (1993) | 7.3% (1996) |
| % of population recorded as undernourished | 8% (1990/92) | – | 17% (1997/99) 3% (2000/2002) |
| Obesity (>30 BMI) rate (Havana) | 11.9% (1982) | 5.4% (1994) | 9.3% (1998) |
| Obesity (>30 BMI) rate (Cienfuegos) | 14.3% (1990) | 7.2% (1995) | 12.1% (2001) |
| Tuberculosis incidence per 100,000 | 5.1 (1990) | 14.2 (1995) | 13.3 (1996) |
| Age-adjusted malignant tumor mortality | 116.6 per 100,000 (1990) | – | 111.0 per 100,000 (1996) |

Sources: Nayeri and López-Pardo, 2005; Meso-Lago, 2005; Garfield and Santana, 1997; UNDP, 2002, 2005; PAHO, 1998.

authorities took several reform measures: the legalization of the dollar in Cuba, of private remittances from other countries, of joint ventures, of small restaurants and of private (self-) employment for a list of professions. Some of these reforms were cut back when the economic situation seemed to improve, while others, such as investment in tourism, were increased. In many ways it was a conservative policy in the sense that its goal was to get back to a growth mode on the basis of an export-oriented economy (Burchardt, 2001a; Mesa-Lago, 1996).

3.2. Public health

Conditions for public health were difficult enough. Shortages of chlorine lowered the percentage of the population with access to chlorinated water and mortality from diarrheal diseases increased (Garfield and Santana, 1997). Average per capita calorie consumption and protein intake declined drastically leading to undernutrition (UNDP, 2002, 2005). Consequently, the rate of underweight newborns increased and between 1992 and 1994 more than 51,000 Cubans suffered from an epidemic of neuropathy, a rare eye disease causing blindness associated with vitamin deficiencies which was only brought under control after the distribution of vitamin supplements (Franco et al., 2008; Nayeri and López-Pardo, 2005). At the same time, there was a tangible decrease of the immunization rate for several infectious diseases between 1989 and 2002 as well as an increase in tuberculosis incidence (Meso-Lago, 2005).

However, the impairment of several indicators proved short-lived, and others remained stable or even improved. Remarkably, infant, perinatal and child mortality rates all remained the same or improved slightly even during the worst years of the crisis and improved tangibly afterwards (Meso-Lago, 2005). Maternal mortality rates and undernutrition decreased rapidly after the peak of the crisis (Nayeri and López-Pardo, 2005; UNDP, 2005). Even more unexpectedly, some health indicators improved during or after the crisis. Obesity levels in Havana and Cienfuegos dropped markedly during the crisis. Accordingly, some years later, between 1997 and 2002 age-adjusted diabetes mortality decreased by 51% and age-adjusted stroke mortality decreased by 35% (Franco et al., 2007). This benign impact on mortality data is hardly self-evident, as obvious in a comparison with the health development in Russia during that period, where a combination of a “shock

therapy” of an overnight embrace of free-market policies in combination with a breakdown of social services, a rise in crime and alcoholism all contributed to a mortality crisis, particularly among Russian men (Borowy, 2011). In Cuba, the rise of crude mortality of the 1980s was stopped during crisis years and reversed afterwards (Figs. 2 and 3).

Accordingly, life expectancy continued its long-term upward trend, even increasing its growth rate during the years of the crisis. This development was reflected in mortality due to cardiovascular diseases, the most important cause of death in Cuba Fig. 4.

Indeed, the age-adjusted mortality due to cardiovascular diseases declined even during the crisis (PAHO, 1998). Changes in mortality patterns are visible in diabetes mortality, which fell abruptly after 1996. Its scale was too small to have a decisive effect on overall mortality but it is closely related to nutrition and physical exercise and is therefore indicative of life-style changes that also affect other causes of death, notably cardiovascular diseases and some types of cancer Fig. 5.

Deaths due to external causes may show most impressively the degree to which social stability was maintained during crisis years Fig. 6.

External causes comprise deaths from accidents and violence, notably homicide and suicide. These causes typically reflect social circumstances rather than health conditions in a narrow medical sense. Drastic increases in accidents and especially of violence result from the breakdown of interpersonal relationships, of individual and collective care, and of trust and cohesion. In a nutshell, they indicate that a society fails to protect its members from avoidable dangers and from themselves.

Overall, it seems that several years of living a life of economic decline and changed life-styles left people similarly healthy or healthier than before.

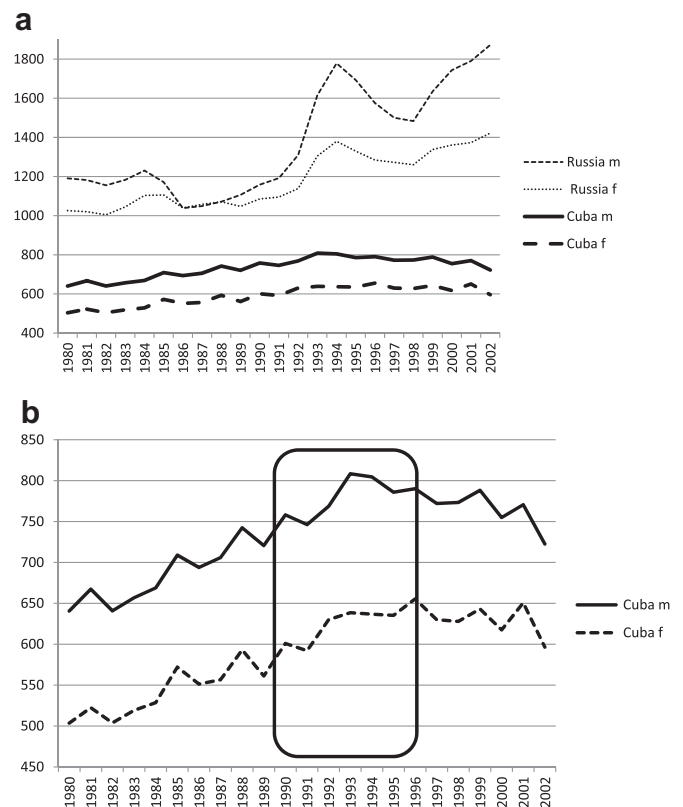


Fig. 2. a, b Crude all cause mortality. Unless stated otherwise the graphs denote deaths per 100,000 people. Data Source: WHO Mortality Database.

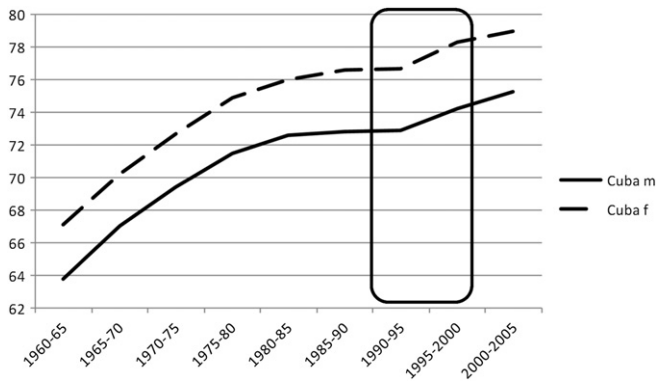


Fig. 3. Life expectancy at Birth. Data Source: UN Population Division, World Population Prospects: The 2008 Revision Population Database, <http://esa.un.org/unpp/p2k0data.asp>.

In order to explain this outcome, the analysis will focus on selected factors that were, on the one hand, central risk factors for cardiovascular diseases and external causes of death and, on the other hand, important elements both of the specifics of the Special Period in Cuba and of a possible degrowth transformation: health care, food, transportation, and social cohesion.

4. Discussion

4.1. Health care

A consistent commitment of the government to universal access to high quality health care reflected a commitment to Socialist humanitarianism but was also tied to the political agenda of the post-1959 government where public health was adopted as an arena for national prestige and as a foreign policy instrument. Achieving excellent public health data and creating a modern, universal and effective health care system were seen as priority challenges after the 1959 revolution and undeniable successes became prime arguments in ideological debates (Cooper et al., 2006; Feinsilver, 1993). An active health policy included programs of universal immunization, an elaborate medical structure, based on a system of polyclinics, and, after 1984, a dense network of family doctors and nurses, complemented by secondary hospital care. It resulted in impressive, sometimes spectacular successes in reducing infectious diseases, while a combination of anti-hypertension therapy and state-of-the-art acute care in myocardial infarction held mortality for cardiovascular diseases in check (Cooper et al., 2006). An intensive program of maternal and prenatal care reduced infant mortality to a rate lower than that in the United State (Sixto, 2001).

The economic crisis mainly represented a disruption of material provisions. The US embargo meant a lack of drugs and of components of specialized therapy, such as pacemakers or film for X-ray machines (Table 1). Imports of drugs and medical equipment declined sharply and humanitarian aid from international organizations compensated for only a fraction of these lost resources. Electricity supply also declined, restricting laboratory and clinical operations, notably surgeries. There were also disruptions in running water and shortages in supplies, ranging from medical textbooks to soap (Sixto, 2001; PAHO, 1998).

These material deficiencies were met in part by increases in manpower: between 1990 and 2003 the number of health care personnel rose by 36%, including an increase of doctors by 76%. Similarly, the number of hospitals, polyclinics, research institutes, elderly day-care centers and other care facilities increased. Obviously, this strategy had its limits. No amount of extra care could replace missing film for X-ray machines. It was also costly, reserving for personnel costs funds which were also needed elsewhere. Thus, the increase in personnel tied into efforts to avoid unemployment, though it did not totally avoid a situation that some doctors were forced to seek other types of work (Meso-Lago, 2005; Sixto, 2001). Generally, these efforts were reflected in consistently high public expenditures for health care, though inflation severely depreciated those sums so that real expenditures declined by about a third between 1989 and 1999 (Nayeri and López-Pardo, 2005; PAHO, 1998; Sixto, 2001).

Nevertheless, the overall maintenance of secondary and tertiary care, which relied on complex medical equipment, along with an expansion of primary care and strong intersectoral cooperation at a time of severe economic crisis was remarkable. The fact that 99.8 percent of all children attended early child services is believed to have been largely responsible for consistently low child mortality (WHO, 2008). In addition, the health care system included the cooperation of a dense network of volunteer community workers, whose contribution is even more difficult to quantify but should not be underestimated (Nayeri and López-Pardo, 2005). Meanwhile, despite the rise of tourism-related prostitution, HIV infections were kept firmly under control through a policy that combined the coercive hospitalization of patients with intensive treatment (Hansen and Groce, 2003; Barry, 2000).

Overall, the development demonstrated the significance of political prioritization as well as the benefits and limits of substitution of material through services.

4.2. Food

By 1989 Cuba had a long tradition of not producing its own food. Since colonial times its agriculture had been designed to produce plantation items grown in monocultures and then exported to Europe and North America. This system survived into post-colonial

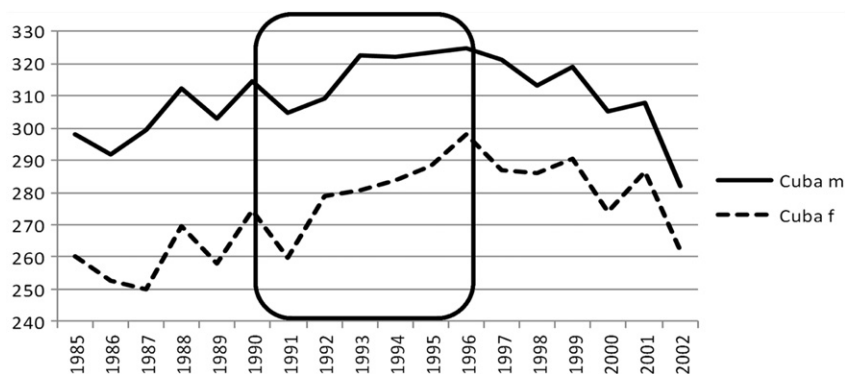


Fig. 4. Crude death rates from diseases of the circulatory system, ICD 9 25-30/ICD 10 I100-I199.

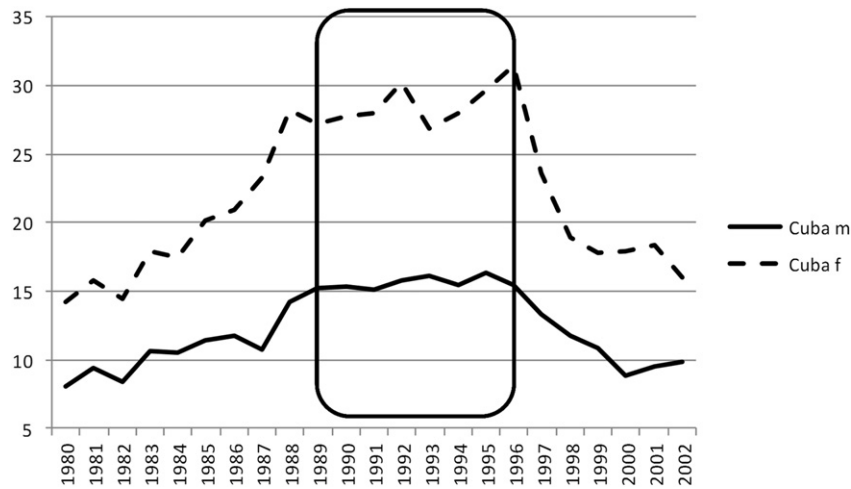


Fig. 5. Crude death rates mortality from diabetes mellitus, ICD 9 181/ICD 10 E10 – E14.

capitalist as well as into post-capitalist communist times. After 1959, about eighty percent of cultivable land became state property, mostly organized into vast agro-industrial complexes, which required huge amounts of imported fuel, machinery, spare parts, herbicides, pesticides and fertilizers as well as financial subsidies. By 1989 only 43% of the land was cultivated for local food needs and food imports accounted for 55% of calories, 50% of protein and 90% of fat consumed on the island (Wright, 2009; Burchardt, 2001b; Funes, 2002).

While the production model remained the same after 1959, the revolution resulted in a profound change in food policies. Changing

from a pure market economy, in which access to food depended on purchasing power and was unevenly distributed, the state took over large part of the responsibility for food distribution through rationing and through a variety of offers including special cafeterias for workers and free meals in schools, childcare centers and hospitals. Thus, by 1970 roughly a third of the population received some food free of charge or below cost. As a result, per capita calorie intake is estimated to have increased since the mid-1960s until it reached almost 2900 in 1981, the highest number in Latin America except for Argentina. Gradually, Cuba developed a problem of over-rather than under-consumption. In 1973, a study in the Marianao district of Havana found 20.2 percent of children in day-care centers to be obese (Valdés; Wright, 2009).

After 1989 these agricultural and nutritional systems disintegrated. Between 1989 and 1992, imports of fertilizers declined by 81%, animal feed by 72%, pesticides by 62% and agricultural fuels by 92% (Mesa-Lago, 1996). As purchasing power for food imports also collapsed food security was seriously jeopardized (Meso-Lago, 2005; Altieri et al., 1999). Decreases in availability affected mainly those foods which depended on imports of animal feed, i.e. poultry, eggs, beef and all dairy products, but also wheat and beans, both part of the traditional Cuban diet. The problem was serious since sufficient food was necessary not only for the Cuban population but also for the budding tourism industry which, it was hoped, would provide the foreign currency formerly earned with exports (Deere, 1991). In January 1990, rising bread prices and lines in front of bakeries marked the difficulty of the situation (Deere, 1991). Over 10,000 state establishments selling subsidized meals virtually disappeared. Between 1989 and 1993 average calorie intake declined by 32 percent (Wright, 2009; Rodríguez-Ojea et al., 2002). Cuba thus faced the multiple challenges not only of finding alternative production mechanisms for food for its population in ways that broke with familiar methods of the last decades but, lacking fuels and imported resources, to do so in decentralized a manner all over the country and on the cheap with locally available resources (Altieri et al., 1999).

Strategies included an ill-fated *plan alimentario* and a reform that broke up large state-owned estates into cooperatives, so-called *unidades básicas de producción cooperativa* (UBPCs). The UBPCs were only moderately successful, but they added an important element to diversifying production schemes, ranging from state via semi-private to private. A crucial stimulus resulted from the decision in 1994, taken shortly after the protests and mass-emigration in August 1994, to re-legalize farmers' markets (temporarily already allowed in the 1980s) where food could be sold at free-market

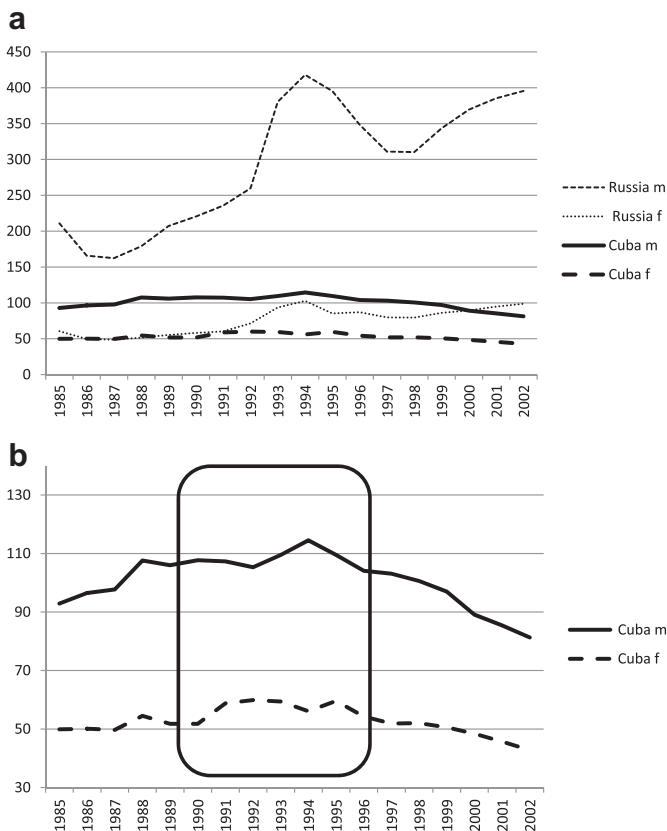


Fig. 6. a. External causes, ICD 9 47-56/ICD 10 V01-Y89: Cuba and Russia. b. External causes, ICD 9 47-56/ICD 10 V01-Y89: Cuba.

prices. Growers with a state contract could sell surplus goods produced beyond a state contingent, reserved for the rationing system, while private producers could sell for profit merely paying a modest sales tax (Wright, 2009; Burchardt, 2001b; Murphy, 1999).

In the process, lack of fuel, machinery, fertilizer and pesticides forced a shift from industrial to organic agriculture: oxen replaced tractors, bio-pesticides replaced agro-chemicals, compost, crop rotation, polyculture and worms replaced industrial fertilizer, and manual labor replaced machinery. It was a remarkable development, and hardly an easy one in a country so far dedicated to high-technology, industrialized agriculture. It was spurred by crucial international support and by a rich infrastructure of Cuban scientific institutions whose research focus could adapt to new demands of bio-ecological expertise. Still, it is difficult to see how this form of labor-intensive agriculture could have evolved if it had faced competition of cheap crops from high-technology farming in North America so that in this respect the US embargo had the positive effect of protecting the new form of sustainable agriculture (Funes, 2002; McKibben, 2008; Wright, 2009).

Its most spectacular and best known form is the unplanned growth of urban agriculture. After 1990, “urban gardens began to spring up all over Cuba, especially in Havana, as a massive popular response of residents themselves to the food shortages.” (Altieri et al., 1999) Faced with hunger, people spontaneously began planting vegetables on any vacant ground they could lay their hands on. They received help from the Australian Conservation Foundation, an NGO which disseminated knowledge about permaculture through a series of grassroots projects in Havana between 1993 and 2001 (Altieri et al., 1999; Hearn, 2008). By 1993 state authorities realized the potential of urban farming and began providing substantial support so that eventually, Cuban urban agriculture evolved as a form of public–private partnership. In 1994, the Ministry of Agriculture created an Urban Agriculture Department, extended in 1997, which cooperated with municipal authorities to make public and unused private land available for people who cultivated it. People who received land plots or who gained usufruct ownership rights worked individually, in families or in neighborhood cooperation. Groups of farmers could organize as UBPCs, while enterprises formed *areas de autoconsumo*, plots that produced food for their own workers, while cooperatives and peri-urban state farms also became part of a growing sector of urban agriculture. Municipal agents provided training and counsel to new growers. Seed Houses sold crucial material such as seeds, tools, books, biofertilizers, worms and biological pest-control organisms. By 1997, more than 26,000 people worked in 5000 gardens in Havana alone, reflecting the rapid growth of the movement but still representing a small minority in a city of two million inhabitants. Most constituted so-called popular gardens cultivated privately, mainly for self-provisioning, although many were expected to donate to childcare centers, hospitals etc. as a way of repaying the community for supplying the land (Altieri et al., 1999; Murphy, 1999; Koont, 2009; Bourque and Cañizares, 2005). Inevitably, this transformation reduced the chemical contamination of the ground and the food, though so far no systematic study has provided data for an assessment of this aspect.

The relative importance of this movement for food in Cuba is difficult to quantify. A 2005 study estimated that “some areas” were “already producing 30% of their caloric intake.” By 2000, the Cuban Ministry of Agriculture declared that 64% of the national rice production and 58% of vegetables were produced through urban agriculture (Bourque and Cañizares, 2005) whereas Wright (2009) estimates that it never provided more than five percent of food consumed. Probably its more important impact was in quality rather than quantity, increasing intake in fresh vegetables and fruit.

Besides, the true value of the urban agriculture program went beyond food security. Using manual instead of mechanical labor urban agriculture mitigated unemployment by providing work. By strengthening neighborhood cohesion, solidarity, morale and community pride it helped soften the psychosocial impact of the crisis. By turning vacant spaces into greenery it improved the ecology of cities (Altieri et al., 1999). Crucially, urban agriculture also increased access to food by making it available at numerous places directly at or near several production sites inside the cities (Koont, 2009). It therefore reduced the need for fuel-consuming transportation and the carbon footprint of consumed food.

Overall, the transformation of agriculture helped supply the population with healthful food, though it never succeeded in making the country self-sufficient.

4.3. Transportation

Lack of oil drastically reduced mobility, which presented a serious health problem. Until 1989, the population depended on long distance transportation for food, especially in urban centers where cuts in fuels translated into cuts in food deliveries. As described, this problem was mitigated by decentralized forms of agriculture. But fuel shortages also affected other crucial transportation such as ambulances and garbage trucks, leaving piles of garbage in the streets (Sixto, 2001). Besides, people needed to get to their places of work, of study or of social contact, all of which are central to people’s health and overall well-being. The establishment of tourist centers exacerbated this problem by creating demand for labor tied to specific places. Authorities addressed the issue with improvised vehicles carrying large groups of people and by making it mandatory for drivers to take hitch-hikers along. In addition, more than a million bicycles were distributed, partly imported from China (Deere, 1991). This measure had distinct health benefits: although the Pan-American Health Organisation noted an increase of deaths due to traffic accidents involving cyclists (PAHO, 1998) overall deaths due to road accidents decreased markedly (Fig. 7). Clearly, it also contributed increased physical activity among Cubans, leading to the reduction of obesity and deaths due to diabetes and cardiovascular diseases, noted above (Table 1). Indeed, the increased physical exercise may even have helped mitigate the stress inevitably created by the crisis.

4.4. Social cohesion (unemployment, inequality and social capital)

Social cohesion, defined as degree of social stratification, and inclusion or exclusion, is a prime determinant of health (Wilkinson and Marmot, 2003). Clearly, the Special Period was a time when it was severely tested as rising unemployment and inequality formed prominent challenges.

The drastic decline of industrial production inevitably resulted in excess available workers. For reasons of ideology and social stability the government sought to prevent or mitigate unemployment (Burchardt, 2001a). By 2003, government measures had evolved into an elaborated system. According to Mesa-Lago some 760,000 people were involved in various labor-absorbing activities, designed to obscure 5% to 28% effective unemployment, including more or less formal, labor-intensive agriculture, paid work at home, “study as work” programs etc. These strategies resulted in “a drastic change in the composition of the work force by sectors of activity between 1991 and 2002” with tangible decreases in manufacturing (–4.1%), construction (–3.6%), transport and communications (–1.3%) and mining as opposed to increases in community, social and personal services (7.8%), agriculture (1.2%) and commerce, hotels and restaurants (0.7%). Mesa-Lago criticizes this strategy on economic grounds since “most jobs were created in community,

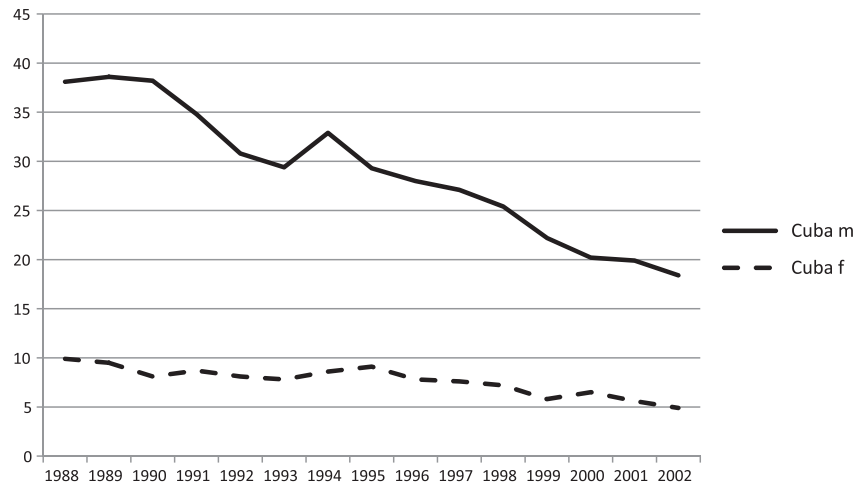


Fig. 7. Age-adjusted mortality due to road accidents: Cuba. Deaths per 100,000. Data Source: Estadística de Salud, La Dirección Nacional de Registros Médicos y Estadísticas de Salud del MINSAP, from : Infomed, http://www.sld.cu/galerias/pdf/sitios/dne/accidentes_transporte.pdf

social and personal services (which grew by 68%), but this was the sector that suffered the biggest drop in average productivity (–3.7%) demonstrating “the often excessive priority given in Cuba to social over economic goals” (Meso-Lago, 2005).

Indeed, in neo-classical economic thinking this policy is counter-productive to economic recovery since it prioritizes just those sectors with the least potential for growth in GDP. This, however, is precisely one of the strategies required in a degrowth system, since it decouples economic activity from material output, stressing human labor input (Jackson, 2009). Admittedly, if in a full-blown degrowth or steady-state economy the social sector would be used for absorbing the labor made redundant by technological progress, in 1990s Cuba it absorbed the unemployment of a recession. In theoretical and long-term perspective this may be a crucial difference, since the first describes a comprehensive, sustainable system of labor and income distribution while the other depicts an unsustainable subsidy of work within an unadapted system. But in real-life terms, the policy stabilized a society in crisis and redirected labor from a resource-intensive to labor-intensive sectors.

However, the reliance on tourism as labor-absorbing sector also demonstrates that transformation choices may come with painful prices. In 1990, 340,000 foreigners had visited Cuba, by 2000 the number had increased to 1,774,000. Within years, international tourism generated up to 43% of Cuba’s balance of payments. But it also created new problems, such as dollarization of the economy, increasing social inequality and the spread of a consumer culture, certainly effects that contradict degrowth principles. It divided the population into those with and those without access to dollars and thereby to foreign currency stores, and it privileged some regions over others. In fact, by providing services to foreigners which were unavailable to Cubans, virtually turning Cubans into second-class citizens in their own country. It also devalued education by making menial jobs financially far more attractive than professional positions (Hearn, 2008; Sanchez and Adams, 2008; Taylor and McGlynn, 2009). However, gradually Cuban authorities took steps to mitigate some of the negative outcomes of tourism, especially through health education and participatory programs, leaving communities, which adopted tourism at a later stage, better equipped to deal with its burdens than earlier counterparts (Spiegel et al., 2007).

The purely economic side of rising inequality is captured by the estimated rise of the gini-coefficient between 1986 and 1999 (Table 1) “while the percentage received by the richest quintile rose from 33.8% to 58.1%” (Meso-Lago, 2005). Income inequality has

been shown to be related to overall mortality levels (Wilkinson and Marmot, 2003; Navarro, 2002). Since mortality levels did not rise during this period, some factor(s) must have compensated for this effect. Supposedly, the fact that essential services, notably health care and education, remained universally available irrespective of income was one such compensatory factor. It insulated health care from money and prevented income inequality from translating into health inequality.

A similar, and related, role seems to have been played by the high level of social capital found in Cuba. Social capital describes the value of collective interpersonal relationships, often defined as the level of social trust and of civic engagement. Both have been shown to have a strong inverse correlation with mortality (Kawachi et al., 1997). Studies on Cuban society consistently confirm that the average individual benefits from participation in several layers of social networks, which coexist in ambivalent mixtures of competition and mutual reinforcement. Families, neighborhoods, state associations in various forms of local, municipal, party and special interest organizations, as well as religion in its Roman Catholic, *santería* and mixed forms all combine to provide material and psychological support. Apparently, the crisis served to intensify this pre-existing network of contacts as government agencies sought to integrate non-state initiatives by tying them to government or party institutions. A case in point was the 1991 decision to allow religious believers into the Communist Party, thus breaking with a long-time taboo. In addition, local and/or foreign NGO initiatives aimed at strengthening neighborhood cohesion and addressing social ills such as drug abuse needed and usually found the support of local governmental agencies as well as that of non-state community organizers, resulting in a “process of public-private relationship building” (Hearn, 2008). Kummels (1996) has described how the informal cooperation between party officials and black market organizers developed into an illicit symbiotic relationship which both undermined and stabilized the political and social system. At the same time a lot of government distributions of food and other everyday products, often requiring time-consuming standing in line or early information about the arrival of scarce goods, functioned only because it was accompanied by a second system of self-organized procurement and re-distribution. Thus, it seems that the material well-being of the population depended only partly on government regulations and similarly on mainly female networks of informal welfare that mixed socialist ethics of equity with capitalist entrepreneurship, religious charity

and motherly humanitarianism. Together with the decline in road traffic accidents, these conditions helped keep mortality due to external causes in check.

This interlocking system of state and non-state groups provided social support but also entailed an element of state control. Cuba has never been a free society and those who choose not to cooperate with state institutions or to openly criticize the party line or even to question socialism at large have run the risk of being imprisoned, sometimes mistreated, prevented from finding work or forced to leave the country. The situation became tenser during the early 1990s when widespread dissatisfaction led to an increase of critical voices. A nervous government, already threatened by economic instability, reacted with increased repression, forcing a form of false cohesion (Schumann, 2001).

In this context, emigration played an ambivalent role. During the Special Period, emigration steadily increased although for most of the time Cuban authorities acted to prevent people from leaving the country. But as living conditions became increasingly difficult, more than 45,000 people in less than five years preferred to try reaching Florida on makeshift boats rather than wait for better times in Cuba. When the Cuban state capitulated and temporarily allowed all departures in August 1994, more than 30,000 people left within four weeks (Hoffmann, 1996). This episode may have been a relief to a society struggling to cope, but it also serves as a sobering reminder of the limits within which it can stand as an example for developments elsewhere.

5. Relevance to degrowth

Can the Special Period in Cuba serve as a model for a degrowth scenario that presupposes economic crisis as an entry? The Cuban reaction to a drastic decline in material resources and finances, a reliance on local economies, promotion of labor-intensive activities and reduction of any type of consumption, resonates with visions of a socially and environmentally sustainable economy. Indeed, key policies look eerily like the “macro-economic interventions needed to achieve ecological and economic stability in the new economy” postulated by degrowth scholar Tim Jackson:

- Structural transition to service-based activities;
- Investment in ecological assets; and
- Working-time policy as a stabilizing mechanism (Jackson, 2009).

Notably the impressive development of organic urban agriculture seemed like a promising strategy to solve several of Cuba's pressing problems of the time which may be the pressing problems of the future: feeding people with fewer (fossil) resources, providing labor-intensive employment, enhancing the environment for growing urban populations and stimulating social inclusion through community building. In addition, the most positive lesson of this episode may be that despite the disastrous conditions in which it had to develop it brought about life-style changes with tangible health benefits. However, there are several points to keep in mind:

1. Despite its beneficial effects the Special Period also had distinct negative aspects such as massive emigration reflecting substantial despair, tangible government repression and rising social inequality, which are clearly problematic for degrowth perspectives.
2. 1990s Cuba presents in many ways a unique case, not easily imitated elsewhere. Cuba could build on a firm tradition of high priority for health care. Cuba also had a highly educated population and a network of state organizations in which further

training could be communicated efficiently to its citizens. Transition policies were facilitated by the relatively small size and homogeneity of the population (ca. 11 million people without pronounced geographical or ethnic differentiation). A rich infrastructure of social capital supported government policies of group support but also group control in ways that had been familiar to citizens for decades. These initiatives helped turn the crisis into a group experience instead of merely individual hardship.

3. The immediate crisis was brought on by external forces. Thus responsibility could be projected on outside forces so that authorities could focus on how to cope with these difficulties while largely escaping blame for causing painful socio-economic changes. Besides, the circumstances of the crisis depended on a unique combination of outside factors which made it clear to everybody that drastic changes were inevitable. Thus, it should be noted once more that key measures, such as the adoption of urban agriculture, were adopted not out of a sense of ecological responsibility but as a matter of despair. The Special Period was not meant to be, nor was it primarily perceived as the beginning of a new era but as a time of exceptional hardship. Consequently, many of the effects, both positive and negative, are over: the country is back on track of economic growth, and the recovery depends heavily on fuel-intensive long distance tourism and remittances from relatives in capitalist Florida. Under-nutrition has all but disappeared but people also threw away their Chinese bicycles and returned to more sedentary lives, and with it obesity levels have also re-increased, though not to their original levels. The “the largest conversion from conventional agriculture to organic and semi-organic farming that the world has ever known” (Murphy, 1999) also failed to transform the national food basis. Food, especially meat, milk, rice and beans, continues to be imported, after 2002 mainly from the USA, and between 1997 and 2003 the production of poultry meat fell by 45%, beef by 20%, milk by 7%, fish and shellfish by 45% and rice by 26% (Meso-Lago, 2005). More important, it failed to change general attitudes, as numerous farmers continued to use fossil fuels and agro-chemicals, when they could, and many declared they would use more if they had more (Wright, 2009). Today, living standards fall short of many people's expectations and the well educated search for opportunities elsewhere (Carroll, 2010).

However, conditions might well be different if it was widely accepted that a return to the status quo ante was no option.

6. Conclusions

Accepting the Cuban Special Period as one degrowth trajectory provides some valuable lessons for possible transitions:

1. Cuba was able to maintain public health even under extremely difficult circumstances because health was an uncontested priority. Safeguarding human well-being during a transition period will require a strong sense of priority which guides difficult policy decisions.
2. To a large extent fossil fuels could be replaced by biological energy (walking, cycling, animal traction) even in a short period of time and with positive life-style. But there were limits for some forms of transportation such as ambulances and garbage removal. For these, alternative energy sources will have to be found.
3. Social cohesion could largely be maintained through a combination of government and NGO activities. Such programs will be crucial, albeit preferably without the repression that accompanied it in Cuba.

4. The government retained control over central aspects of socio-economic life but allowed for some private initiative and problem-solving. Any transition will need both, though the relative importance of the public sector is debatable. Governmental programs are important to absorb surplus labor but may not solve the long-term problem of transferring labor to sustainable activities.

However, the example also provides some inconvenient questions:

1. What is the role of the pressure coming from having one's back against the wall?

Cubans adopted low-fossil-fuel transportation and decentralized organic agriculture because they had to. They changed because not changing was not an option (McKibben, 2008). The positive lesson is that Cubans reacted to a desperate situation with creativity and ingenuity and, given similar pressure, presumably so might others. The frightening aspect is to imagine what similar collapse would mean on a larger, possibly global, scale. If a thirty percent drop in GDP is what it takes to get people to change this outlook should worry us.

2. What is the role of authoritarianism and democratic freedom?

In Cuba, political decisions about food rationing, work programs and other policies could be implemented comparatively quickly through simple governmental decision while possible dissenting voices could be subdued. In democracies, a similar process is likely to include time-consuming discussions, resistance by stake holders and lobby competition about shrinking resources. Historically, democracies have achieved fundamental changes from normality and peaceful distributions of scarce resources when facing outside enemies, i.e. in times of war. The Special Period was similar in that its character as an external challenge could make internal disagreements appear secondary. But empirically, this seems to need a challenge of credible warlike proportions. A "moral equivalent of warfare", as postulated by Jimmy Carter during the oil crisis in the USA, proved insufficient. The question is therefore how a sufficiently credible challenge can be communicated within a democratic system that safeguards personal freedoms.

3. Assuming that new ideas and initiatives will be vital in any transition phase, how can they be encouraged and rewarded without spurring social inequality with its damaging social and health effects?

It was a question that plagued the Cuban tourist industry as much as urban farmers, who wanted to sell their produce. Any efforts to insulate elementary services from market forces, which may be crucial to maintain social equity, may also threaten to smother urgently needed innovation and ingenuity. Finding a creative balance may prove the principal challenge.

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