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Adam Smith and Karl Marx Under the Sustainability Eye: Pointing Out and Comparing the Sustainability Gaps Behind these Two Great Simplification Failures.

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Abstract

Adam Smith stated the foundations of modern economics by simplifying reality dramatically in order to make development an economy only driven process. Karl Marx advanced the foundations of red socialism by simplifying really heavily too in order to state development as a society only driven model. And this set the stage for a long and well-known clash of paradigms, bare capitalism vs red socialism. Surprisingly, their oversimplification of reality has led to paradigm death and paradigm shift in both cases almost around the same time because of the sustainability gaps they created. First the world of Karl Marx came crashing down when the Soviet Union fell apart in 1991 for avoiding to close its economic sustainability gap opening the doors for socio-economic models like that of China. Recently the model of Adam Smith, the traditional market, fell out of grace when the Bruntland commission called in 1987 for it to be fixed through sustainable development means to incorporate social and environmental concerns, opening the doors for eco-economic models or green economy market models as the one being championed today by international organizations and western countries and formalized in RIO 2012. Among the goals of this paper is to highlight the sustainability gaps that have led to demise of the world views of these two once great thinkers.

Keywords: Adam Smith, Karl Marx, Paradigm Death, Paradigm shift, Paradigm Mergers, Sustainability Gaps, Sustainability Markets, Traditional Market, Red Man, Red Economic Man, Economic Man, Green Economic Man, Paradigm Clash, Soviet Bloc, China, capitalism, socialism, eco-economic market, green market, sustainability deficits, knowledge gaps, red market, maximization, optimization

Introduction

a) The sustainability world

In the word of sustainability the role of every component of the system counts and it is included in the model in active or dominant form. This can be appreciated better in Figure 1 below:

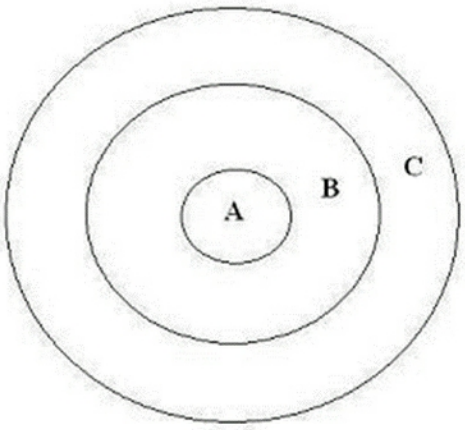

Figure 1 The world of sustainability

Figure 1 above says that sustainability requires the presence of social(A), economic(B) and environmental(C) systems in active form at the same time as shown by their capital letters and by their continuous line circles. In other words, under sustainability there are no externality neutrality assumptions as it is a fully inclusive system.

Here conjunctural decision making is key to ensure full inclusion and optimization. The fully dominant structure of sustainability was very recently pointed out in detail (Muñoz 2012).

b) The world of Adam Smith

In the world of Adam Smith only the economy(B) matters as society(a) and environment(c) are there only for the use of the economic man. This world is summarized in Figure 2 below:

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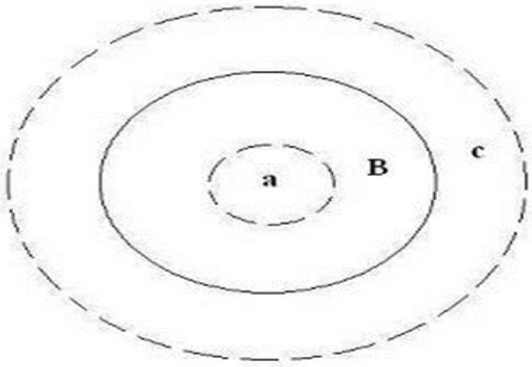

Figure 2 The world of Adam Smith

Figure 2 above says i) that the traditional market of Adam Smith requires only the presence of economic(B) systems in active form as shown by the capital letters in the case of the economy(B) and its continuous line circle; and ii) that the model needs the presence of social(a) and environmental(c) systems in passive form at the same time as indicated by the lower case letter in the case of society(a) and environment(c) and their broken line circles.

In other words, under Adam Smith's model, the traditional market, there is a full externality assumption as both society(a) and environment(b) are left out of the model and therefore, economic development(B) can take place outside of social and environmental considerations; and let someone else deal with the cost of those consequences. In other words, the traditional market model of Adam Smith is a fully exclusive system. So in here independent decision making is needed to ensure full social and environmental exclusion and economic maximization. It is clear in Figure 2 above that Adam Smith's model is an over simplification of the sustainability reality in Figure 1, a fact that was recently highlighted analytically and graphically while indicating that Adam Smith perhaps missed the opportunity to use the full reality to state the foundations of sustainability markets (Muñoz 2015a).

c) The world of Karl Marx

In the world of Karl Marx only society(A) matters. The formal economy(b) and the environment(c) do not matter and they exist only for the use of the red man. This world is summarized in Figure 3 below:

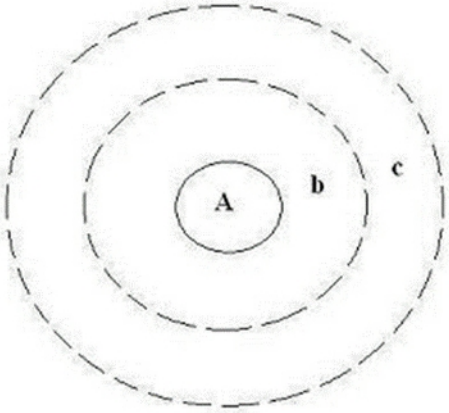

Figure 3 The world of Karl Marx

Figure 3 above indicates i) that the red socialist model of Karl Marx needs only the presence of society(A) systems in active form as shown by the capital letters in the case of society(A) and its continuous line circle; and ii) that the model needs the presence of the economy(b) and environmental(c) systems in passive form at the same time as indicated by the lower case letters and their broken line circles.

In other words, under Karl Marx's model, red socialism, there is a full externality assumption too as both the economy(b) and the environment(c) are left out of the model and therefore, social development(A) can take place outside of economic and environmental considerations; and let someone else deal with the cost of those consequences. In other words, the red socialism model of Karl Marx is also a fully exclusive model. But in here collective decision-making is the key to ensure environmental and economic exclusion and social welfare maximization.

It is clear in Figure 3 above that Karl Marx's model too is an over simplification of the sustainability reality in Figure 1, where society only drives the system. It is well-known that Karl Marx advocated communist ideas, which spread like wild fire to vast areas and large number of people becoming an international force (Mazlish 1984, Pp 14-20).

d) Two great thinkers, two great simplification failures

The death of Karl Marx's model came in 1991 with the fall of the Soviet Bloc, a direct consequence of the decision of Soviet leadership to avoid the introduction of capitalism,

even in a controlled manner, for too long. The fall of Karl Marx's model signal the end of the bare capitalist-red socialist cold war; and the beginning of socially friendly capitalism in China and in all the former Soviet Bloc states (Muñoz 2010). Now in these former socialist countries we have a red economic man taking the place of the old red man and driving the new red market paradigm.

The death of Adam Smith model started in 1987 when the Bruntland Commission highlighted it was not working both in social and environmental terms and it needed to be fixed through sustainable development means (WCED 1987), a paradigm dying process that was formalized in 2012 at the RIO conference when a green growth or eco-economic model took its is place (UNCSD 2012a; 2012b). So now we do not have an economic man, we have a green economic man in the market. In other words, in former capitalist countries we have a green economic man taking the place of the old economic man and driving the new green market paradigm.

It is important to point out that the death of both Karl Marx's world and Adam Smith's world are both consistent with paradigm death and shift expectations under no win-win situations and under win-win situations respectively(Muñoz 2016) and they signal to different paths towards sustainability. It has been highlighted that paradigm evolution is leading us towards sustainability(Muñoz 2013) and that as long as there is time step by step evolution is fine(Muñoz 2015)

e) The role of sustainability gaps and paradigm death and shift

No much is written about why both Adam Smith's paradigm and Karl Marx's paradigm, once strongly competing views of the world die almost at the same time, and it all seems to be the result of specific sustainability gaps created when the structure of both paradigms was originally conceived and implemented. One of the goals of this paper is to highlight and compare the sustainability gaps that led to the demise of each of these paradigms.

The goals of this paper

This paper has three goals:

i) To highlight the sustainability gaps within Adam Smith's world and the role they were expected to play and that they played in the death of this paradigm and its related paradigm shift towards the eco-economic model;

ii) To point out the sustainability gaps within Karl Marx's world and the role they are expected to play and that they played in the death of this paradigm and its associated paradigm shift towards socially friendly capitalism; and

iii) to compare their paradigm structures and sustainability gap implications

The methodology

First, the qualitative comparative terminology used in this paper is shared. Second, some paradigm merging rules are provided. Third, the nature and consequences of sustainability and its association with socially and environmentally responsible capitalism are highlighted.

Fourth, the nature and consequences of Adam Smith's model and its association with the rise of bare capitalism are stressed.

Fifth, the nature and consequences of Karl Marx's model and its association with the rise of red socialism are pointed out. Sixth, the sustainability gaps undermining each model are identified and their nature, consequences, and implications are stressed.

Seventh, a summary and food for thoughts are shared. And finally, some relevant conclusions are given.

The qualitative comparative terminology

A = Active social system	a) Passive social system
B = Active economic system	b) Passive economic system
C = Active environmental system	c) Passive environmental system
S = Full sustainability	s = Full unsustainability
T = Adam Smith's model	K = Karl Marx's model
SG = Sustainability gap	SD = Sustainability deficit
SSG = Social sustainability gap	SSD = Social sustainability deficit
ECSG= Economic sustainability gap	ECSD = Economic sustainability deficit
ESG = Environmental sustainability gap	ESD = Environmental sustainability deficit
SKG = Sustainability knowledge gap	EEKG = Eco-economic knowledge gap
SEKG = Socio-economic knowledge gap	PS = Paradigm shift

Paradigm merging rules

If "A" and "B" are dominant characteristics; and "a" and "b" are their dominated or passive counter parts, the following is expected:

a) Merging under dominant-dominant interactions

Under these conditions, dominant or active state prevails as indicated:

(AA) → A (BB) → B (AA) (BB) = (AB)(AB) → AB

b) Merging under dominated-dominated interactions

Under these conditions, the dominated or passive form prevails as shown:

(aa) → a (bb) → b (aa) (bb) = (ab)(ab) → ab

c) Merging under dominant-dominated interactions and win-win solutions

Under these conditions, the dominant or active system prevails as the system merge as shown below:

(Aa) → A (bB) → B (Aa) (bB) = (AB)(ab) → AB

d) Merging under dominant-dominated interactions and no win-win solutions

Under these conditions, the dominated or passive system prevails and the system collapses as shown below:

(Aa) → a (bB) → b (Aa) (bB) = (AB)(ab) → ab

The sustainability model(S)

i) The nature

Analytically the model indicated in Figure 1 above can be expressed as follows:

S = ABC

The model above says that the necessary and sufficient condition for sustainability(S) to take place is the presence of society(A), the economy(B), and the environment(C) in active form at the same time. It is an optimal development model.

ii) The consequences

Economic agents are no longer here making independent rational decisions now they are making fully conjunctural rational decisions in order to optimize profits.

iii) The rise of socially and environmentally friendly capitalism

Socially and environmentally friendly capitalism does not exist yet, but we will get there. As indicated in the introduction paradigm shift evolution puts sustainability markets in the perhaps very long-future.

Adam Smith's model (T)

i) The nature

Analytically the model shown in Figure 2 above can be stated as follows as only the economy(B) is relevant:

T = aBc

The model above says that in the traditional market of Adam Smith(T) the necessary and sufficient condition for development to take place is the presence of the economy(B) only in active form. It is an economic monopoly model.

ii) The consequences

Here economic agents are making independent rational decisions following the behavior that maximizes profits. See that here economic agents are aiming at maximizing social welfare by indirect means; if it is good for them it is good for society.

iii) The rise of bare capitalism

Since the industrial revolution until 1987 when the Bruntland Commission criticized it Adam Smith's model(T) has been the body and soul of bare capitalism, a deep economic development model. According to sustainability gaps in its market structure the future of bare capitalism is limited by social and/or environmental sustainability gaps, its two sources of unsustainability.

Karl Marx's model(K)

i) The nature

Analytically the model described in Figure 3 above can be indicated as follows as only the society(A) matters:

K = Abc

The model above says that in the Karl Marx's model(K) the necessary and sufficient condition for development to take place is the presence of society(A) only in active form. It is a social monopoly model.

ii) The consequences

Here red agents are making collective rational decisions following the behavior that maximizes social welfare. Notice that here the red man is aiming at maximizing social welfare through direct means.

iii) The rise of red socialism

Karl Marx's world became the body and soul of socialist movements all over the world as highlighted in the introduction, a deep social development model. According to sustainability gaps in its market structure the future of red socialism is limited by economic and/or environmental sustainability gaps, its two sources of unsustainability.

Identifying the sustainability gaps (SG) undermining each model

Sustainability gaps (SG) are the markers that indicate the sources of unsustainability limiting the life of paradigms. Below there is a detailed description of their nature and role within sustainability, within Adam Smith's model and within Karl Marx's model:

a) There are no sustainability gaps undermining sustainability(S)

i) The nature

There is no component neutrality assumption under sustainability as all components are reflected in active form and therefore, there are no sustainability gaps.

To show analytically that there are no sustainability gaps (SG) under sustainability(S) we contrast the sustainability model(S) with itself as done below following the merging rules provided:

S.S = (ABC)(ABC) = (AA)(BB)(CC) = (A)(B)(C) = ABC

The expression above shows the under sustainability there are no sustainability gaps as dominant factors merge (AA--→A ; BB--→B ; CC--→ C) and at the end they maintain the original conjunctural combination.

ii) The consequences

If our economic models includes all components of reality in active forms there are no sustainability gaps and as development takes place it follows the optimization route. In other words, under sustainability markets there are not sustainability gaps as there is full inclusion and optimization is the goal.

iii) The implications

The sustainability man is a socially and environmentally responsible economic man

iv) The expectation:

Sustainability markets are stable markets as they operate without sustainability gap pressures and under optimization rules to achieve fully inclusive economic development.

v) Paradigm change knowledge gap

The shift from any model towards sustainability step by step or at once means that there will be a paradigm change knowledge gap as the new sustainability market needs updated thinking. So the coming of sustainability markets creates a sustainability market knowledge gap (SKG).

Sustainability market based economies needs sustainability based microeconomic and sustainability based macroeconomic tools as the old microeconomic and old macroeconomic ways no longer hold. This knowledge gap affects all universities, big and small, all over the world.

b) The sustainability gaps undermining Adam Smith's model

i) The nature

To determine the nature of the sustainability gaps(SG) affecting Adam Smith's model(T) we have to contrast it with the sustainability model(S) as follows:

S.T = (ABC)(aBc) = (Aa)(BB)(Cc) = (Aa)B(Cc)

If we make SSG = Aa and we make ESG = Cc, then the following holds true:

S.T = (SSG)B(ESG).

From the expression above we can see that there are two sustainability gaps(SG) affecting Adam Smith's model, the social sustainability gap(SSG) and the environmental sustainability gap(ESG).

ii) The consequences

When Adam Smith created his traditional market world (T) by simplifying reality he also created the two sustainability gaps (SSG and ESG) that as economic development take place and follows the maximization rule will get worse and worse in terms of accumulated social deficits (SSD) (e.g. poverty/inequality) and accumulated environmental deficits(ESD) (e.g. environmental pollution/degradation); and one of them or both at the same time will lead to the death of his paradigm in the long-term and to the birth of new paradigms.

iii) The implications

The economic man cannot create poverty forever and the economic man cannot pollute forever; and therefore, the closing of one sustainability gap (SG) or the closing of both gaps at the same time will lead to paradigm death and to the birth of new paradigms.

iv) The expectation

Adam Smith's model is expected to collapse due to either accumulated social sustainability deficits (SSD) deficits or accumulated environmental sustainability defects (ESD) or both at the same time.

As pointed out in the introduction, it was only the environmental sustainability deficits(ESD) that led to the death of Adam Smith's model(a fact formalized in RIO 2012 as indicated in the introduction); and the closing of this environmental sustainability gap meant a shift towards today's eco-economic or green market model.

Therefore, the collapse of Adam Smith's model means the death of the economic man and the birth of the green economic man and the birth of green markets.

v) Paradigm change knowledge gap

The sudden shift from Adam Smith's model to the eco-economic or green market model means that there is a paradigm change knowledge gap as the new green market needs updated thinking. In other words, this paradigm shift has created an eco-economic or green economic knowledge gap (EEKG). Green economies needs green microeconomic and green macro-economic tools as the old microeconomic and macroeconomic ways no longer hold to maintain the

theory-practice consistency principle. This knowledge gap affects all universities, big and small, all over the world.

c) The sustainability gaps undermining Karl Marx's model

i) The nature

To find the nature of the sustainability gaps(SG) affecting Karl Marx's model(K) we have to contrast it with the sustainability model(S) as follows:

S.K = (ABC)(Abc) = (AA)(Bb)(Cc) = A(Bb)(Cc)

If we make ECSG = Bb and we make the ESG = Cc, then the following holds true:

S.K = A(ECSG)(ESG)

ii) The consequences

When Karl Marx created his red socialism world(K) by simplifying reality he also created the two sustainability gaps(ECSG and ESG) that as social development take place and the maximization principle is followed will get worse and worse in terms of accumulated economic deficits(ECSD) (e.g. poverty/inequality) and/or accumulated environmental deficits(ESD)(e.g. environmental pollution/degradation). And one of them or both at the same time will lead to the death of this paradigm in the long-term and open the door for the coming of new paradigms.

iii) The implications

The red man cannot live under capitalism deficits forever and the red man cannot pollute forever; and therefore, the closing of one sustainability gap (SG) or the closing of both gaps at the same time will lead to paradigm death and to the birth of new paradigms.

iv) The expectation

Karl Marx's model is expected to collapse due to either accumulated economic sustainability deficits (ECSD) or accumulated environmental sustainability deficts (ESD) or both at the same time. As pointed out in the introduction, it was only the economic sustainability deficits(ECSD) that led to the death of Karl Marx's model in 1991; and the closing of this economic sustainability gap(ECSG) mean a shift towards socially friendly capitalism like the one we have in China and former Soviet Bloc countries today. In other words, the death of Karl Marx's model means the death of the red man and the birth of the red economic man and birth of the red economic market.

v) Paradigm change knowledge gap

The sudden shift from Karl Marx's model to the socio-economic model or socially friendly capitalist model means that there will be a paradigm change knowledge gap as the new socio-economy model needs updated thinking. In other words, this shift created a socio-economy knowledge gap (SEKG). Socially friendly economies needs socially friendly microeconomic and socially friendly macro-economic tools as the old microeconomic and macroeconomic ways no longer hold to maintain the theory-practice consistency principle. This knowledge gap affects too all universities, big and small, all over the world.

Summary of similarities and differences:

a) There are no sustainability gaps within sustainability markets so the system works under full inclusion and optimal conditions. And the coming of sustainability markets creates the current sustainability market knowledge gap (SKG).

b) There two sustainability gaps within Adam Smith's model, a social sustainability gap (SSG) and an environmental sustainability gap (ESG). It was the accumulation of environmental deficits (ESD) what is behind the death of Adam Smith's model and the reason for the current shift to eco-economic markets or green markets as indicated in the introduction. And this sudden shift has created the current eco-economic or green economic knowledge gap (EEKG).

c) There two sustainability gaps within Karl Marx's model, an economic sustainability gap(ECSG) and an environmental sustainability gap(ESG). It was the accumulation of economic /capitalism deficits (ECSD) that is behind the death of Karl Marx's model; and reason for the current shift to socio-economic markets or socially friendly capitalist markets in China and former Soviet Bloc Countries indicated in the introduction. And this sudden shift has created the current socio-economic knowledge gap (SEKG).

d) There is an economic man in Adam Smith's world trying to maximize social welfare through indirect means; and there is a red man in Karl Marx's world acting to maximize social welfare through direct means.

e) Both the economic man of Adam Smith and the red man of Karl Marx are now as we knew them dead as we have a green man in old capitalist countries and a red economic man in new capitalist countries.

f) The shifting of paradigms creates paradigm change knowledge gaps as it takes time for theory to catch up with the sudden change in reality; and currently there is a green market knowledge gap, a red market knowledge gap, and a sustainability market knowledge gap.

Food for thoughts

If economic thought would had been based on sustainability markets and theory from Adam Smith's time to now:

a) The birth of red socialism may not have happened;

b) Current levels of poverty may have been avoided

c) Current levels of environmental pollution/ degradation may have been avoided

d) The world would be a better place in social, economic, and environmental terms in the history books

e) There would not be paradigm change knowledge gaps today

Conclusions

First, it was highlighted that like DNA markers the failure of Adam Smith's and Karl Marx's models was encrusted in the sustainability gaps created by their simplification of reality. Second it was stressed that it was the economic sustainability gap the one that brought down Karl Marx's world; and the whole red socialist system opening the door for the paradigm shift towards socio-economic capitalism. Old capitalist countries were very loud about this paradigm death and shift. Third, it was shown that albeit the social sustainability gap and/or environmental sustainability gap were capable of bringing down the world of Adam Smith as maximization principles were followed, it was only the environmental sustainability gap that did it, leading to the current paradigm shift, the eco-economic model or green market model. Old capitalist countries have been very quiet about this paradigm death and shift.

Fourth, it was indicated that the above means that now in the old pure capitalist countries we have a green economic man instead of the old economic man ruling the markets; and in new socio-capitalist countries we have a red economic man instead of the red man driving development programs. Fifth, it was indicated that there are currently three types of knowledge gaps created by paradigm shifts: The socio-economic knowledge gap, the eco-economic knowledge gap, and the sustainability market knowledge gap. And finally some food for thoughts were shared indicating that had sustainability market and theory been in place since Adam Smith's time the world would be a better place today in social and environmental terms and there would be no worries of paradigm shift knowledge gaps.

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