

Paradigm Dynamics and The Future of Capitalism: Who Will Win the Next Cold War?

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Abstract

The death of Karl Marx's model in 1991 led to the paradigm shift from red socialism to red capitalism in China and the former soviet bloc republics bringing with it the rise of socially friendly capitalism. The death of Adam Smith's model formally in 2012 led to the shift from the traditional market to the green market bringing with it the rise of green capitalism. So there we have the two new components of the next cold war, red capitalism vrs green capitalism. Therefore, the future paradigm clash will be in the line of environmentally friendly capitalism against socially friendly capitalism and the winner of this clash will define i) the future of capitalist markets; and ii) open the way for the coming of one global socially and environmentally friendly capitalist system, the sustainability market. And this raises the question who will win the next cold war? Under which conditions? Among the goals of this paper is to provide an answer to these questions.

Key words

Karl Marx, Adam Smith, red market, pure economic market, green market, red economic man, green economic man, paradigm clash, paradigm death, paradigm shift, paradigm shift expectations, singular welfare function, partially non-singular welfare function, fully non-singular welfare function, cold war, capitalism, socialism, sustainability markets.

Introduction

a) The world of eco-economic markets or green markets(GM)

i) The nature

Analytically the eco-economic model or green market model(GM) can be stated as below as only the economy(B) and the environment(C) matter:

$$\mathbf{GM = aBC}$$

The model above says that the necessary and sufficient condition for eco-economic or green development(GM) to take place is the presence of the economy(B) and the environment(C) in active form at the same time. It is an economy-environment partnership based development model, where the choice structure is no longer based on independent choices, but partially

codependent choices. Now we have eco-economic choices/preferences not just economic choices/preferences, here only what is good for the eco-economy or green economy matters.

ii) The consequences

Therefore, in this model the eco-economic man or green economic man is making partially codependent rational decisions in order to partially optimize profits or jointly maximize profits. The eco-economic man or green economic man is working hard to jointly maximize eco-economic welfare, a partially non singular welfare function. In other words, notice that in this market maximization as in the pure economic model no longer works, partial optimization or joint maximization is the rule.

iii) The rise of environmentally friendly capitalism

The shift from the pure economy market($T=aBc$) to the eco-economic or green market($GM = aBC$) formalized in 2012(UNCSD 2012a; 2012b) to fulfill partially the Bruntland Commission's 1987 request for making the markets socially and environmentally responsible(WCED 1987) meant the death of the economic man as we know it and the birth of the eco-economic man or the green economic man. And this signals the birth of green capitalism in old capitalist countries. It was recently stressed that we shifted to green markets in 2012, but that was not the only option then(Muñoz 2016a). Today the development focus is on meeting the 8 millennium development goals(UN 2015) and the 17 sustainable development goals(UNDESA 2015) through green markets and green growth approaches(OECD 2015) providing green financing to the poor or developing countries(UNEP 2016a) to be able to build inclusive green economies(UNEP 2016b).

iv) The world of eco-economic markets or green markets graphically(GM)

Graphically the eco-economic market or green market(GM) has the structure summarized in Figure 1 below as only the economy(B) and the environment(C) are relevant:

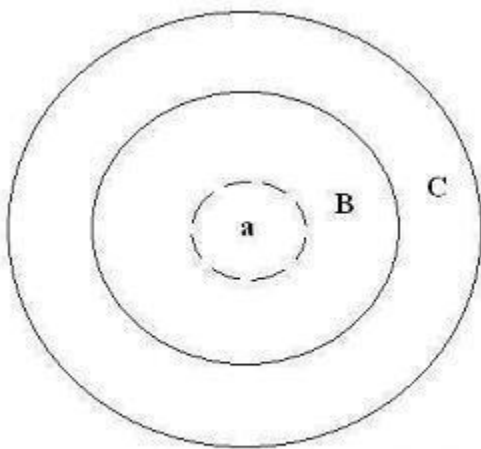


Figure 1 The green market model

According to Figure 1 above, the green market(GM) assumes social externality neutrality as indicated by the broken circle in the middle of the figure placing society(a) in passive form.

Only the economy(B) and environment(C) are in active form. In other words, the green market(GM) has a social sustainability gap limiting its performance. The structure of the perfect green market was recently pointed out in detail(Muñoz 2016b). **Notices here in Figure 1 above that environmental issues(C) are not externality issues anymore; and therefore, they can no longer be treated as externalities as now they are endogenous issues.**

b) The world of socio-economic markets(SEM)

i) The nature

Analytically the socio-economic model(SEM) can be expressed as follows as only the society(A) and the economy(B) are relevant:

$$\text{SEM} = \text{ABc}$$

The model above says that in the socio-economic market(SEM) the necessary and sufficient condition for development to take place is the presence of the society(A) and economy(B) only in active form. It is a socio-economy partnership based model, where the choice structure is no longer based in individual collective choices, but partially codependent choices. Now we have socio-economic choices/preferences not just social choices/preferences; and therefore, now only what is good for the socio-economy or red economy matters.

ii) The consequences

Hence, the socio-economic agent or red economic man is making partially codependent rational decisions following the behavior that partially optimize or jointly maximize profits. See here that socio-economic agent or the red economic man is working hard to jointly maximize socio-economic welfare, a partially non-singular welfare function. In other words, notice that in this market maximization as in the red socialist model no longer works, partial optimization or joint maximization is the rule.

iii) The rise of socially friendly capitalism

In 1991 when the soviet bloc collapsed under capitalism deficits(Muñoz 2010) there was a paradigm shift from red socialism($K = \text{Abc}$) to socio-economic systems($\text{SEM} = \text{ABc}$) in China and all the former soviet republics signaling the death of Karl Marx's world and of the red man as well as the birth of socially friendly capitalism and of the red economic man. The death of red socialism(Karl Marx's model) and shift towards socially friendly capitalism is consistent with paradigm death and shift expectations under no win-win situations(Muñoz 2016c). It is a fact that some former socialist countries have gone from non-economic systems in 1991 to major economic powers such as China(FE 2016) and Russia(BBC 2016).

iv) The world of socio-economic markets graphically

Graphically the structure of the socio-economic market(SEM)t can be indicate as in Figure 2 below as only the society(A) and the economy(B) are important:

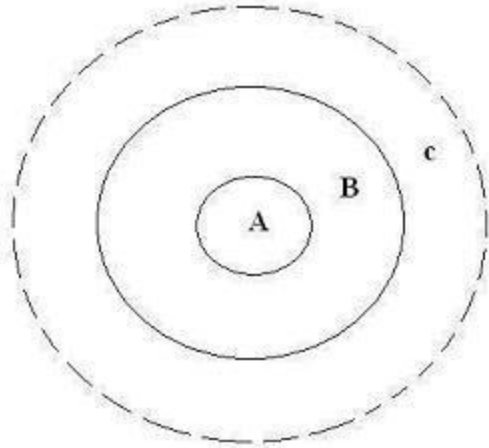


Figure 2 The socio-economic market

According to Figure 2 above, the socio-economic market(SEM) assumes environmental externality neutrality as indicated by the broken circle outside of the figure making placing the environment(c) in passive form. Only the society(A) and the economy(B) are in active form. In other words, the socio-economic model(SEM) has an environmental sustainability gap limiting its performance. **Notice here in Figure 2 above that economic issues(B) are not externality issues anymore; and therefore, they are being treated as endogenous issues as now they are not externality issues.**

c) The paradigm clash green markets(GM) vrs socio-economic markets(SEM)

We know paradigm clashes are real, the old paradigm clash between Adam Smith's model, the traditional market, and Karl Marx's model, red socialism, was won by the traditional market's paradigm(Muñoz 2016d). Therefore, based on the discussion above the future paradigm clash will be in the line of environmentally friendly capitalism against socially friendly capitalism and the winner of this clash will define i) the future of capitalist markets; and ii) open the way for coming of one global socially and environmentally friendly capitalist system, the sustainability market. And this raises the question who will win the next cold war? Under which conditions? Among the goals of this paper is to provide an answer to these questions.

The goals of this paper

The goals of this paper are: i) to highlight the structure of this new cold war paradigm clash in terms of their sustainability gaps; ii) to point out the dilemmas this paradigm clash brings to old capitalist countries and to new capitalist countries; iii) to stress based on the above which paradigm is expected to lose the clash under no win-win conditions and under win-win situations this time around; and iv) to share the idea that no matter who wins or who loses the future cold war the result will open the door to the shift towards sustainability markets.

The methodology

First, the qualitative comparative terminology used in this paper is shared. Second, some paradigm merging rules and operational concepts are provided. Third, the structure of the new paradigm clash, future cold war in terms of its sustainability gaps is given. Fourth, the dilemmas pose by this future paradigm clash to world leaders are highlighted.

Fifth, the expected winners and losers associated with this future paradigm clash under no win-win situation are pointed out. Sixth, the expected winners and losers associated with this future paradigm clash under win-win situation are stressed. Seventh, based on the discussion above the structure of future sustainability markets and its implications are shared both graphically and analytically. Finally, some food for thoughts and relevant conclusions are listed.

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

T = Adam Smith's model

S = Sustainability market

K = Karl Marx's model

SG = Sustainability gap

SSG = Social sustainability gap

ECSG= Economic sustainability gap

ESG = Environmental sustainability gap

SI = Sustainability inversegram

PMR = Paradigm merging rules

SEM = Socio-economic model

T = Traditional market

M = Model

Mi = Model "i"

X = System X

Xi = System Xi

SSG = Social sustainability gap

GM = Green market

SD = Sustainability deficits

Paradigm merging rules(PMR)

If “A” and “C” are dominant characteristics; and “a” and “c” are their dominated or passive counter parts, the following is expected:

i) Merging under dominant-dominant interactions

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

$$(AA) \rightarrow A \quad (CC) \rightarrow C \quad (AA)(CC) = (AC)(AC) \rightarrow AC$$

ii) Merging under dominated-dominated interactions

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

$$(aa) \rightarrow a \quad (cc) \rightarrow c \quad (aa)(cc) = (ac)(ac) \rightarrow ac$$

iii) 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:

$$(Aa) \rightarrow A \quad (cC) \rightarrow C \quad (Aa)(cC) = (AC)(ac) \rightarrow AC$$

$$a \text{-----} \rightarrow A \quad c \text{-----} \rightarrow C \quad (a)(c) = (ac) \text{-----} \rightarrow AC$$

iv) 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:

$$(Aa) \rightarrow a \quad (cC) \rightarrow c \quad (Aa)(cC) = (AC)(ac) \rightarrow ac$$

$$a \text{-----} \rightarrow a \quad c \text{-----} \rightarrow c \quad (a)(c) = (ac) \text{-----} \rightarrow ac$$

Operational concepts

i) Sustainability gaps expectations under no win-win situation

Let’s assume we have two components, A = society and C = environment; and so the three sustainability models possible based on their combination are: M1 = aC, M2 = Ac; and M3 = AC = S. Their position in the sustainability inversegram(SI) can be indicated as in Figure 3 below:

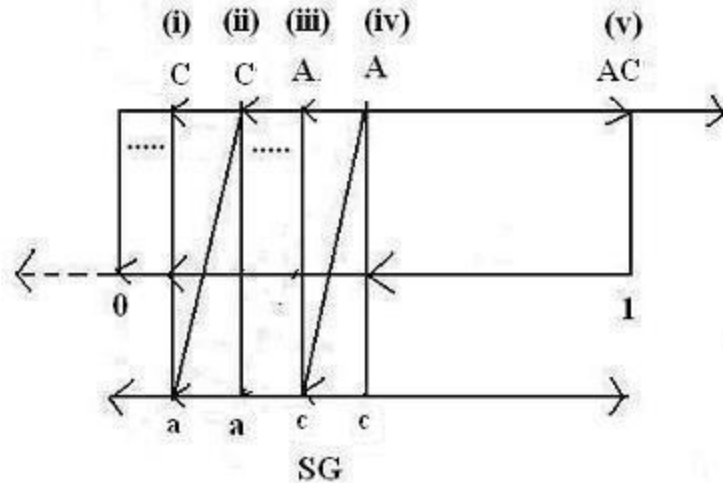


Figure 3 Paradigm death and shift expectations
 $M1 = aC$ $M2 = Ac$ $M3=AC$
 Under no win-win situation model M1 and M2 will expand and shift to the left until they are brought down by their associated sustainability gaps and then they will take the form of $M3=AC$

In Figure 3 above, Model $M1 = aC$ is at point (ii), model $M2 = Ac$ is at point (iv); and model $M3 = AC = S$ is at point (v). Model M1 has a social sustainability gap (SSG = a), model M2 has an environmental sustainability gap (ESG = c), and model M3 has no sustainability gaps (SG = 1).

It can be said based on the inversegram (SI) in Figure 3 above that if there are no win-win situations either model M1 or model M2 or both at the same time would collapse in the long term and lose their original structure as they and their sustainability gaps expand and shift constantly to the left and towards full unsustainability in Figure 3 above. And this can be used for the following generalization:

Expectation: *When there are dominant-dominated system interactions and there are no win-win situations or merging solutions there are sustainability gaps and sustainability debits/deficits, which sooner or later will lead to paradigm death and paradigm shift.*

a) The case of paradigm $M1 = aC$

We can see that it has a social sustainability gap (SSG = a), so it can be expressed as follows:

$$M1 = (SSG)C$$

And as system C in M1 continues to expand and expand to the left in Figure 3 above such as from point (ii) to point (i) and so on as there are no win-win situations, then the stability

its social sustainability gap tends to zero ($SSG = a \rightarrow 0$) and it continues to accumulate social sustainability deficits; and the system collapses and loses its original structure so we have the following expectation:

$M1 = [(SSG = a \rightarrow 0)C] \rightarrow 0 = M1$ collapses losing its original structure and then $M1$ shifts towards sustainability ($M1 \rightarrow S = M3$). So now the sustainability inversegram (SI) in Figure 3 would have only two models $M2$ and $M3$.

The paradigm shift after collapse towards new paradigm has the following structure:

$M1 = aC \rightarrow AC = S = M3$ as $M1$ closes its social sustainability gap ($SSG = a \rightarrow A$)

b) The case of paradigm $M2 = Ac$

We can see that it has an environmental sustainability gap ($ESG = c$), so it can be expressed as follows:

$M2 = A(ESG)$

And as system A in model $M2$ continues to expand and expand to the left in Figure 3 above such as from point (iv) to point (iii) and so on as there are no win-win situations, then the stability of its environmental sustainability gap tends to zero ($ESG = c \rightarrow 0$) accumulating environmental sustainability deficits; and the system collapses and loses its original structure so we have the following expectation:

$M2 = \{A[(ESG = c \rightarrow 0)]\} \rightarrow 0 = M2$ collapses losing its original structure and then $M2$ shifts towards sustainability ($M2 \rightarrow S = M3$). Now the sustainability inversegram (SI) in Figure 3 above would have only two models $M1$ and $M3$.

The paradigm shift after collapse towards new paradigm has the following structure:

$M2 = Ac \rightarrow AC = S = M3$ as $M2$ closes its environmental sustainability gap ($ESG = c \rightarrow C$).

c) The clash of $M1M2$

The clash of two competing and extremely opposite paradigms gives the feeling of so called cold wars, which turn out to be a clash between the state of competing sustainability gaps under no win-win situations, as indicated below system to system:

$M1.M2 = (aC) (Ac) = [(SSG)C][A(ESG)]$

Notice that the above expression is the same as the following system to system:

$$M1.M2 = (aC)(Ac) = (aA)(Cc) = [A(SSG)][(ESG)C]$$

And notice that the above expression is the same as the following, but as the system M as a whole if we make the $SSG = aA$ and we make the $ESG = Cc$:

$$M = M1.M2 = (aC)(Ac) = (aA)(Cc) = (SSG)(ESG)$$

The expression above simply says that the clash between M1 and M2 is simple a clash between sustainability gaps(SG). Therefore, this clash above is a clash between the social sustainability gap(SSG) in M1 and the environmental sustainability gap(ESG) in M2. In this type of conflict we can have two situations: i) If a paradigm in conflict sticks to no win-win situations to the end shifting left in Figure 3 above and accumulating deficits to the end then that paradigm will collapse and then shift towards sustainability as the dominant components will prevail($S = M3$); and the other paradigm will keep its structure intact after surviving the clash; and ii) if the paradigm in conflict suddenly see win-win alternatives it will die or lose its original structure and merge into a sustainability model as the dominant components will prevail($S = M3$); and the other paradigm will keep its structure intact after surviving the clash.

Expectation: *In modern economies when a conflict for dominance between social sustainability gaps(SSG) in one system and environmental sustainability gaps(ESG) in another system arises the system with the social sustainability gap and accumulated social sustainability deficits will not be able to buy social time fast enough to avoid collapse under no win-win situations. And therefore, the paradigm with the social sustainability gap will collapse and lose its original structure and shift toward sustainability($S = M3$); and the one without the social sustainability gap will retain its structure and survive the clash. In other words, in modern economies egalitarian capitalist systems will win a clash against very unequal capitalism systems as they would be socially more resilient to paradigm shift pressures when facing paradigm clashes*

Therefore in the clash M1M2 described above, $M1 = [SSG = a \rightarrow 0]C \rightarrow 0$ will collapse as originally structured as its $SSG = a \rightarrow 0$ and then M1 will shift towards sustainability($M1 \rightarrow S = M3$); and M2 will retain its structure, so the sustainability inversegram(SI) in Figure 3 above would have only two models M2 and M3.

The shift of model M1 after the collapse takes the following form:

M1 = aC → AC = S = M3 as M1 closes its social sustainability gap(SSG = a → A) after the collapse.

d) The clash of M1M3

The structure of this clash is below:

$$M1.M3 = (aC) (AC)$$

Since M1 has a social sustainability gap(SSG = a), the clash can be expressed as follows system to system:

$$\mathbf{M1M3} = (\mathbf{aC})(\mathbf{AC}) = [(\mathbf{SSG})\mathbf{C}](\mathbf{AC})$$

$$\mathbf{M1M3} = (\mathbf{aA})(\mathbf{CC}) = (\mathbf{aA})\mathbf{C} = [(\mathbf{SSG})\mathbf{A}]\mathbf{C}$$

Notice too that if we make SSG = aA, we can state the structure as the system M as a whole as follows:

$$\mathbf{M} = \mathbf{M1M3} = (\mathbf{aA})(\mathbf{CC}) = (\mathbf{aA})\mathbf{C} = (\mathbf{SSG})\mathbf{C}$$

The above says this is a clash between a system with one sustainability gap and another with no sustainability gaps.

Expectation: *In modern economies when a conflict for dominance between systems with sustainability gaps(SG) and systems without sustainability gaps takes place and there are no win-win situations, the system with sustainability gaps, in this case social sustainability gaps(SSG) will collapse and lose its original structure and then merge into a sustainability model. Only sustainability markets will prevail.*

Therefore in the clash M1M3 described above, M1= [SSG = a--→0]C----→0 will collapse as originally structured as its SSG ---→0 and then M1 will shift towards sustainability(M1---→ S = M3); and M3 will retain its structure, so the sustainability inversegram(SI) in Figure 3 above would have only two models M2 and M3.

The shift of model M1 after the collapse takes the following form:

M1 = aC--→AC = S = M3 as M1 closes its social sustainability gap(SSG = a--→A) after the collapse.

e) The clash M2M3

The structure of this clash is below:

$$\mathbf{M2.M3} = (\mathbf{Ac}) (\mathbf{AC})$$

Since M2 has an environmental sustainability gap(ESG = c), the clash can be expressed as follows system to system:

$$\mathbf{M2M3} = (\mathbf{Ac}) (\mathbf{AC}) = [\mathbf{A}(\mathbf{SSG})](\mathbf{AC})$$

$$\mathbf{M2M3} = (\mathbf{Ac})(\mathbf{AC}) = (\mathbf{AA})(\mathbf{cC}) = \mathbf{A}[(\mathbf{ESG})\mathbf{C}]$$

The above says this is a clash between a system with one sustainability gap and another with no sustainability gaps.

And if we make $ESG = cC$, then the structure for the whole system M can be stated as:

$$M = M2M3 = (Ac)(AC) = (AA)(cC) = A(cC) = A(ESG)$$

Expectation: *In modern economies when a conflict for dominance between systems with sustainability gaps (SG) and systems without sustainability gaps takes place and there are no win-win situations, the system with sustainability gaps, in this case environmental sustainability gaps (ESG) will collapse and lose its original structure and then merge into a sustainability model. Only sustainability markets will prevail.*

Therefore in the clash $M2M3$ described above, $M2 = \{A [ESG = c \rightarrow 0]\} \rightarrow 0$ will collapse as originally structured as its $ESG \rightarrow 0$ and then $M2$ will shift towards sustainability ($M2 \rightarrow S = M3$); and $M3$ will retain its structure, so the sustainability inversegram (SI) in Figure 3 above would have only two models $M1$ and $M3$.

The shift of model $M2$ after the collapse takes the following form:

$M2 = Ac \rightarrow AC = S = M3$ as $M2$ closes its environmental sustainability gap ($ESG = c \rightarrow C$) after the collapse.

ii) Sustainability gaps expectations under win-win situations

Let's assume again we have two components, $A =$ society and $C =$ environment; and so the tree sustainability models possible based on the combination of them are: $M1 = aC$ and $M2 = Ac$; and $M3 = AC = S$, then their positions in the sustainability inversegram can be indicated as shown in Figure 4 below:

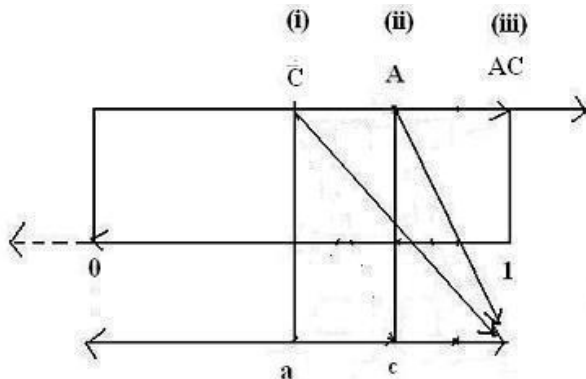


Figure 4 Paradigm merger and shift expectations
 $M1 = aC$ $M2 = Ac$ $M3 = AC$
 If there are win-win situations model $M1$ and model $M2$ will close their respective sustainability gaps and die and shift to right to take the form of $M3 = AC$

Based on Figure 4 above if there are win-win situations model M1 at point (i) or model M2 at point (ii) or both at the same time would close their sustainability gaps and shift to the right towards full sustainability at point (iii). And this leads to the following generalization:

Expectation: *When there are dominant-dominated system interactions and there are win-win situations paradigm mergers and shift take place leaving no sustainability gaps.*

a) The case of paradigm M1= aC

We can see that it has a social sustainability gap(SSG = a), so it can be expressed as follows:

$$M1 = aC = (SSG)C$$

And as model M1 sees win-win situations in closing its social sustainability gap(SSG = a---→1) it will shift towards full sustainability we have the following expectation:

$M1 = [(SSG---→1)]C----→1 = M1$ as originally structured dies and merge and then M1 shifts towards sustainability($M1 = aC--→S = AC= M3$). So now the sustainability inversegram(SI) in Figure 4 above would have only two models M2 and M3 as now $M1 = M3$.

The shift of model M1 under win-win situations takes the following form:

$M1 = aC--→AC = S = M3$ as M1 closes its social sustainability gap(SSG = a--→A) to move to a full sustainability structure.

b) The case of paradigm M2 = Ac

We can see that it has an environmental sustainability gap(ESG = c), so it can be expressed as follows:

$$M2 = Ac = A(ESG)$$

And as M2 sees win-win situations in closing its environmental sustainability gap(ESG = c ---→1) it will move to full sustainability we have the following expectation:

$M2 = [A(ESG ---→1)] ---→1 = M2$ as originally structured dies and merge and then M2 shifts towards sustainability($M2 = Ac---→S = AC= M3$). So now the sustainability inversegram(SI) in Figure 4 above would have only two models M1 and M3 as now $M2 = M3$

The shift of model M2 under win-win situations takes the following form:

$M2 = Ac---→AC = S = M3$ as M2 closes its environmental sustainability gap(ESG = c--→C) to move to a full sustainability structure.

c) The case of the clash of M1M2

The clash of opposing paradigms has the following structure system to system:

$$M1.M2 = (aC)(Ac) = [(SSG)C][A(ESG)]$$

$$M = M1.M2 = (aA)(Cc) = [(SSG)A][C(ESG)]$$

Notice that if we make $SSG = aA$ and we make $ESG = Cc$, the following is true for the whole system:

$$M = M1.M2 = (aA)(Cc) = (SSG)(ESG)$$

Under win-win situation both models M1 and M2 have an incentive to close their respective sustainability gaps at once and merge and then both shift towards sustainability as the one who does not do it will be left behind.

Expectation: *In modern economies when a conflict for dominance between social sustainability gaps(SSG) in one system and environmental sustainability gaps(ESG) in another system arises and there are win-win situations both systems will have an incentive to close their respective sustainability gaps and merge and shift structure towards sustainability. The paradigm with the social sustainability gap will close it and shift toward sustainability(S = M3); and the paradigm with the environmental sustainability gap will close it and shift towards sustainability too. In other words, in modern economies egalitarian systems in clash against very unequal systems will merge and shift toward sustainability if there are win-win situations.*

In the case of M1, as the $SSG \rightarrow 1$ then M1 will shift to the right in Figure 4 to the full sustainability position closing its social sustainability gap($SSG = a \rightarrow A$) and the following is true:

$$M1 = aC \rightarrow AC$$

In the case of M2 as $ESG \rightarrow 1$, then M2 will shift to the right too in Figure 4 above to the full sustainability position closing its environmental sustainability gap($ESG = c \rightarrow C$) and the following is true:

$$M2 = Ac \rightarrow AC$$

So after closing the sustainability gaps the merger has the following form since $M1 = M2 = AC$

$$M = M1.M2 = (AC)(AC) = AC = M3 = S$$

And notice that under win-win situations the following expectations is also true:

$$M = M1.M2 = (aC)(Ac) \rightarrow (AC)(AC) = AC = S \text{ as } a \rightarrow A \text{ and } c \rightarrow C$$

$$M = M1.M2 = (aA)(Cc) \rightarrow (AA)(CC) = AC = S \text{ as } a \rightarrow A \text{ and } c \rightarrow C$$

$$M = M1.M2 = (aA)(Cc) \rightarrow AC = S \text{ as } aA \rightarrow A \text{ and } Cc \rightarrow C$$

d) The case of the clash of M1M3

The clash between systems with and without sustainability gaps has the following structure:

$$M1M3 = (aC)(AC) = [(SSG)C](AC)$$

$$M1M3 = (aA)(CC) = (aA)C = [(SSG)A]C$$

Notice that if we make $SSG = aA$ we can state it as the structure of the whole system M as follows:

$$M = M1M3 = (aA)(CC) = (aA)C = (SSG)C$$

When there are win-win situations system with sustainability gaps will merge to join systems with no sustainability gaps.

Expectation: *In modern economies when a conflict for dominance between systems with sustainability gaps(SG) and systems without sustainability gaps takes place and there are win-win situations, the system with sustainability gaps will die and then merge into a sustainability model. Only sustainability markets will prevail.*

Therefore in the clash M1M3 described above, $M1 = \{[SSG = a \rightarrow 1]C\} \rightarrow 1$ will die as originally structured as its $SSG \rightarrow 1$ and then M1 will merge and shift towards sustainability($M1 = aC \rightarrow AC = S = M3$); and M3 will retain its structure, so the sustainability inversegram in Figure 4 above would have only two models M2 and M3.

The merging of these paradigms after the death of M1 takes the following form since now $M1 = AC$ after closing its social sustainability gap($SSG = a \rightarrow A$):

$$M1M3 = (AC)(AC) = AC = S$$

Notice that under win-win situations the following expectations are also true:

$$M1M3 = (aC)(AC) \rightarrow (AC)(AC) = AC = S \text{ as } a \rightarrow A$$

$$M1M3 = (aA)(CC) \rightarrow (AA)(CC) = AC = S \text{ as } a \rightarrow A$$

$$M = M1M3 = (aA)(CC) = (aA)C \rightarrow AC = S \text{ as } aA \rightarrow A$$

e) The case of the clash of M2M3

The clash between systems with and without sustainability gaps has the following structure:

$$M = M2M3 = (Ac)(AC) = [A(SSG)](AC)$$

$$M = M2M3 = (AA)(cC) = A(cC) = A[(ESG)C]$$

Notice that if we make $ESG = cC$ we can state the above for the whole system M as follows:

$$M = M2M3 = (AA)(cC) = A(cC) = A(ESG)$$

When there are win-win situations system with sustainability gaps will merge to join systems with no sustainability gaps.

Expectation: *In modern economies when a conflict for dominance between systems with sustainability gaps(SG) and systems without sustainability gaps takes place and there are win-win situations, the system with sustainability gaps will die and then merge into a sustainability model. Only sustainability markets will prevail.*

Therefore in the clash M2M3 described above, $M2 = [A[(ESG = c \rightarrow 1)]] \rightarrow 1$ will die as originally structure as its $ESG \rightarrow 1$ and then M2 will merge and shift towards sustainability($M2 = Ac \rightarrow S = AC = M3$); and M3 will retain its structure, so the sustainability inversegram in Figure 4 above would have only two models M1 and M3.

The merging of these paradigms after the death of M2 takes the following form since now $M2 = AC$ after closing its environmental sustainability gap($ESG = c \rightarrow C$):

$$M2M3 = (AC)(AC) = AC = S$$

Notice that the following expectations also hold true under win-win situations:

$$M2M3 = (Ac)(AC) \rightarrow (AC)(AC) = AC = S \text{ as } c \rightarrow C$$

$$M2M3 = (AA)(cC) \rightarrow (AA)(CC) = AC = S \text{ as } c \rightarrow C$$

$$M = M2M3 = (AA)(cC) \rightarrow AC = S \text{ as } cC \rightarrow C$$

iii) General paradigm death and paradigm shift expectations

When there are sustainability gaps(SG) and there are no win-win situations or win-win situations are avoided for too long, there will be paradigm deaths and paradigm shifts. And this is because as sustainability gaps tend to zero ($SG \rightarrow 0$) as unsustainability tends to full

unsustainability the whole system will collapse and new paradigms will re-align around the dominant components to form new paradigm shifts combinations:

a) Paradigm death and the case of deep paradigms:

i) Pure economic / capitalistic models will collapse under social sustainability gaps(SSG) and/or environmental sustainability gaps(ESG) as they cannot live accumulating social and/or environmental deficits forever.

ii) Pure social / red socialist models will collapse under economic sustainability gaps(ECSG) and/or environmental sustainability gaps(ESG) as they cannot live accumulating economic and/or environmental deficits forever.

iii) Pure environment / green models will collapse under social sustainability gaps(SSG) and/or economic sustainability gaps(ECSG) as they cannot live accumulating social and/or economic deficits forever.

b) Paradigm death and the case of partnership based paradigms

i) Socio-environmental / socio-ecology models will collapse under economic sustainability gaps(ECSG) as they cannot live accumulating economic deficits forever.

ii) Socio-economic / socio-capitalist models will collapse under environmental sustainability gaps(ESG) as they cannot live accumulating environmental deficits forever.

iii) Eco-economic / green capitalist models will collapse under social sustainability gaps(SSG) as they cannot live accumulating social deficits forever.

iv) Generalizing paradigm mergers and paradigm shift expectations

When there are sustainability gaps(SG) and there are win-win situations there will be paradigm mergers and paradigm shifts. And this is because as sustainability gaps tend to one (SG--→1) then unsustainability tends to full sustainability and whole system merger will take place; and new paradigms will re-align around the dominant components of the merging paradigms to form new paradigm shift combinations:

a) Paradigm merger and the case of deep paradigms:

i) Pure economic / capitalistic models and pure social /red socialist models under win-win situations will merge to form socio-capitalist models after closing associated social sustainability gaps(SSG) and economic sustainability gaps(ECSG).

ii) Pure social / red socialist models and pure environment/green models will merge under win-win situations to form eco-socialist models after closing associated social sustainability gaps(SSG) and environmental sustainability gaps(ESG).

iii) Pure environment / green models and pure economic / capitalist models will merge under win-win situations to form eco-economic models or green market models after closing associated economic sustainability gaps(ECSG) and environmental sustainability gaps(ESG).

iv) In summary: Under win-win situations any two deep paradigms will merge to form a new partnership paradigm after closing associated sustainability gaps.

b) Paradigm merger and the case of partnership based paradigms

i) Socio-environmental / socio-ecology models and socio-economic/socio-capitalist models under win-win situations will merge and form a sustainability market model after closing associated economic sustainability gaps(ECSG) and environmental sustainability gaps(ESG).

ii) Socio-economic / socio-capitalist models and eco-economic / green market models under win-win situations will merge and form a sustainability market model after closing associated social sustainability gaps(SSG) and environmental sustainability gaps(ESG).

iii) Eco-economic / green capitalist models and eco-socialist models will merge under win-win situations to form a sustainability market model after closing associated social sustainability gaps(SSG) and economic sustainability gaps(ECSG).

iv) In summary: Under win-win situation two different partnership paradigms will merge to form a sustainability market model after closing associated sustainability gaps.

The structure of the new paradigm clash, future cold war

This clash will be between socially unfriendly capitalism(GM) and socially friendly capitalism(SEM). In other words, the future cold war will be between the old capitalist countries and their eco-economic model(GM = aBC) and the new capitalist countries and their socio-economic model(SEM = ABc). In other words, the future cold war will be a clash between red economies and green economies.

To see the internal structure of the future paradigm clash between green capitalism(GM= aBC) and red socialism(SEM = ABc) in terms of the sustainability gaps in confrontation we need to contrast these two paradigms as follows:

$$(GM)(SEM) = (aBC)(ABc) = (aA)(BB)(Cc) = (aA)B(Cc)$$

Since SSG = aA and ESG = Cc, then we have:

$$(GM)(SEM) = (aBC)(ABc) = (aA)(BB)(Cc) = (aA)B(Cc) = (SSG)B(ESG)$$

$$(GM)(SEM) = (SSG)B(ESG)$$

In other words, the clash between green capitalism(GM) and red capitalism(SEM) will be about a clash between a social sustainability gap(SSG) in the green capitalist system(GM) and the environmental sustainability gap(ESG) in the red capitalist system(SEM).

The dilemmas pose by this future paradigm clash to world leaders

i) The dilemma in the face of the leaders of the old capitalist countries from the clash

The closing of the social sustainability gap(SSG) would help them survive, but closing it goes against the core or fundamental principle of old capitalism “Economy first”, which still is strong in the green market structure as “eco-economy first”; and we should expect them to avoid this option for as long as they can. In other words the old antagonistic thought “society vrs economy” is still very strong in old capitalist countries within green capitalism and this feeling may delay the closing of the social sustainability gap. And the longer they avoid this option for example by minimizing environmental impacts for the very long term the more unsustainable the ongoing accumulation of social sustainability deficits will be; and the more unstable the green capitalist system as a whole will be. As new capitalist countries do not have a social sustainability gap they will be more stable in this front during the paradigm clash.

In modern development systems the one with the social sustainability gap is expected to fall when in confrontation with another system without that social sustainability gap in the long-term according to paradigm death and shift expectations as the system without the social sustainability gap will be more stable in the face of paradigm shift pressures.

ii) The dilemma in the face of the leaders in new capitalist countries from the clash

The closing of the environmental sustainability gap(ESG) would help them survive and closing it does not go against the core values of the new capitalist countries so if they have to do it to survive they will do it sooner rather than later. In other words the old antagonistic thought “society vrs economy” is no longer a limiting factor in new capitalist countries and this feeling may lead them to the closing of the environmental sustainability gap sooner than expected.

And for example, if new capitalist countries follow the same “minimizing environmental impacts idea of the old capitalist countries” are doing for the very long term too this will allow them to buy time and wait for the storm to pass as instead of creating social sustainability debits when expanding as green capitalism will be doing they will be creating environmental sustainability credits. When in confrontation an inclusive society is expected to win against an exclusive society in the long-term according to paradigm death and shift expectations as they will be able to manage better paradigm shift pressures.

The paradigm death and shift expectations of the future paradigm clash under no win-win situation

If the leaders behind green capitalism refuse or avoid closing the social sustainability gap(SSG) even in a controlled manner for too long it will reach the point where the stability of the social sustainability gap will tend to zero($ESG = a \rightarrow 0$); and when this happens under no win-win situations green capitalism will collapse and die losing its structure as it shifts towards sustainability markets as the dominant components remain while socio-economic systems(SEM) will keep their paradigm structure intact, a situation that is stated below analytically:

$$(GM)(SEM) = \{[SSG \rightarrow 0]B(ESG)\} \rightarrow 0 = GM \text{ collapses and } (GM)(SEM) \rightarrow ABC = S$$

Paradigm death

Paradigm shift

As indicated in the operational concepts and rules, when the stability of the sustainability gap tends to zero ($SG \rightarrow 0$) due to no win-win socio-eco-economic situations the model with that sustainability gap (SG) falls apart or collapses, in this case the green market (GM), losing its original structure; and a paradigm shift take place toward sustainability markets (S) as only the dominant components in the clash prevail as shown below:

Since GM collapses, then $SSG = Aa \rightarrow A$ and $ESG = Cc \rightarrow C$; and therefore the following is true for the paradigm shift from the green markets (GM) to sustainability markets (S):

$$(GM)(SEM) = (SSG)B(ESG) \rightarrow ABC = S \text{ as } SSG = aA \rightarrow A \text{ and } ESG = Cc \rightarrow C$$

Hence after the collapse win-win socio-eco-economic situations are found; and the social sustainability gap is closed ($SSG = a \rightarrow A$) and the green market (GM) shifts toward sustainability (S):

$$GM = aBC \rightarrow ABC = S \text{ since } a \rightarrow A \text{ when gap is closed.}$$

The death of green capitalism (GM) will allow for a paradigm shift towards the sustainability market (S) after it collapses allowing for a different form of capitalism, socially and environmentally friendly capitalism.

In other words, merging the model GM and the model SEM under win-win socio-eco-economic situations by rearranging terms and following merging rules we get the dominant model structure after of the green market model (GM) as indicated below as only the dominant components prevail after the paradigm fall:

$$(GM)(SEM) = (aBC)(ABc) = (aA)(BB)(Cc) = (aA)B(Cc) = ABC = S$$

In summary: Under no win-win situations the green market model ($GM = aBC$) dies in old capitalist countries and shifts towards sustainability ($S = ABC$) while the socio-economic model ($SEM = ABc$) in new capitalist countries remains the same. Hence, the only way old capitalist countries can win this clash is if they close their social sustainability gap first and shift towards sustainability markets.

The paradigm death and shift expectations of the future paradigm clash under win-win situation

Under win-win situations both the green capitalist system (GM) and the red capitalist system (SEM) will have an incentive to close their respected sustainability gaps and merge and shift towards sustainability as the one that does not do it will be left behind. According to paradigm death and shift expectations non-egalitarian systems and egalitarian systems will merge under win-win situations and therefore the following is true:

$$(GM)(SEM) = (aBC)(ABc) = (aA)(BB)(Cc) = ABC = S \text{ as } aA \rightarrow A \text{ and } Cc \rightarrow C$$

The above expression says that the green market (GM) closes its social sustainability gap (SSG = aA → A) and the red market (SEM) closes its environmental sustainability gap (ESG = Cc → C) and both shift toward sustainability markets and therefore now there is only one market in the whole world, the sustainability market: **A world with market of similar choice and system structure in old and in new capitalist countries would come after this paradigm merger.**

i) What if only red capitalism closes its sustainability gap?

If only red capitalism closes its environmental sustainability gap (ESG = c → C), then it will shift toward sustainability markets (S) first as follows:

$$SEM = ABc \rightarrow ABC = S \text{ as } c \rightarrow C$$

Now the paradigm clash will be between the green capitalist model which still has the same structure GM = aBC and a new sustainability market (S = ABC) as red capitalist have now closed their environmental sustainability gap as follows:

$$(GM)(S) = (aBC)(ABC)$$

And we know that under win-win situations when markets with sustainability gaps clash against markets without sustainability gap those markets with sustainability gaps, in this case the green market (GM) will collapse and shift towards sustainability markets (S). In other words, if red markets decide to close their environmental sustainability gap they will force green markets to close the social sustainability gap soon after or they will be left behind.

ii) What if only green capitalism closes its sustainability gap?

If only green capitalism closes its social sustainability gap (SSG = a → A), then it will shift toward sustainability markets (S) first as follows:

$$GM = aBC \rightarrow ABC = S \text{ as } a \rightarrow A$$

Now the paradigm clash will be between a sustainability market (S = ABC) as green markets have closed the social sustainability gap and the socio-economic market which still has the same structure SEM = ABc, which can be indicated as follows:

$$(S)(SEM) = (ABC)(ABc)$$

And we know that under win-win situations when markets with sustainability gaps clash against markets without sustainability gap those markets with sustainability gaps, in this case the socio-economic market (SEM) will collapse and shift towards sustainability markets (S). In other words, if green markets decide to close their social sustainability gap they will force red markets to close their environmental sustainability gap soon after or they will be left behind.

In summary: Under win-win situations both green markets and red markets have an incentive to close their respective sustainability gaps and shift toward one global market structure, the sustainability markets, and if one of them does not close its sustainability gap it will lose the clash and it will be left behind to collapse and merger later anyway, but under more unsustainable conditions. Hence, the only way old capitalist countries can win the clash is if they close their social sustainability gap first and shift towards sustainability markets.

The future world of sustainability markets

Based on the discussion above the death of either green capitalism or red capitalism or both at the same time under no win-win situations or their merger under win-win situation will lead to a paradigm shift towards sustainability market, and all markets will have the same system structure and choice structure. In other words, no matter which way the result of the new cold war paradigm clash goes the rise of socially and environmentally friendly capitalism is in our future, the world of sustainability markets.

Since sustainability markets(S) are fully inclusive markets here the society(A), the economy(B) and the environment(C) are equally important, which can be indicated graphically as in Figure 5 below:

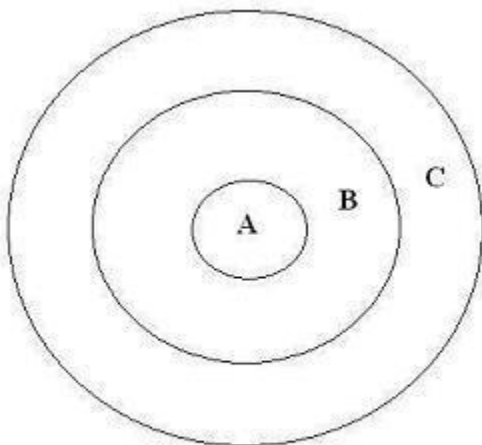


Figure 5 The world of sustainability

Figure 5 above summarizes the structure of the sustainability market(S) indicating that now the goal of decision-makers is a fully inclusive one: to look for the best interest of society(A), the economy(B) and the environment(C) at the same time:

Therefore the model in figure 5 above can be expressed analytically as done below:

$$\mathbf{S = ABC}$$

And now we can see that sustainability markets(S) are not under the influence of sustainability gaps as in this markets there is no externality neutrality assumption. It is a win-win-win model system, based on fully codependent choices and full inclusion. The sustainability man will work hard to fully optimize socio-eco-economic welfare, a fully non-singular welfare

function. And notice that in this market maximization as in the red socialist system or as in the pure economic market no longer works, full optimization is the rule.

Food for thoughts

a) Do we need red micro-economics and red macro-economics to deal with socio-economic system structures and their choice structure properly?, I think yes, what do you think?

b) Do we need green micro-economics and green macro-economics to deal with economic system structures and their choice structure properly?. I think yes, what do you think?

c) Will we need sustainability market based micro-economics and sustainability market based macro-economics to deal with sustainability market system structure and choice structure properly?. , I think yes, what do you think?

Conclusions

First it was shown that expressing paradigm clashes in terms of their sustainability gaps allow us to extract information about paradigm death and shift expectations and dilemmas. Second, it was pointed out that under no win-win situations the green market will collapse and shift towards sustainability and that the only way it can win this clash is if it closes its social sustainability gap and shifts toward sustainability first. Third, it was stressed that under win-win situation both green capitalism and red capitalism will merge and shift towards one global market with the structure of a sustainability market as the one who does not close its sustainability gap will be left behind and die later under more unsustainable conditions. And finally, the structure and implications of sustainability markets was highlighted both graphically and analytically.

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