Sustainability thoughts 124: How are sustainability market paradigm shift knowledge gaps created from the pure capitalism angle? In which ways can they lead to the mishandling of the expected paradigm shift from pure capitalism to socially and environmentally friendly capitalism?

By

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Abstract

Perfect markets have a knowledge base that supports their model structure, their choice structure, and their price structure. In the case of red socialism markets, a one dominant component based market, the knowledge base is red socialism a la Karl Marx or pure red socialism. In the case of the traditional market, another one dominant component market, the knowledge base is micro-economic and macro-economic thinking or pure capitalism thinking. And in the case of socially and environmentally friendly capitalism or sustainability market, a three dominant component based market, the knowledge base is sustainability based micro-economic and sustainability based macro-economic thinking. We know that one dominant component based markets are linking to related three component based markets or to a sustainability markets by sustainability gaps. For example, the red socialism market is linked to sustainability markets by an eco-economic sustainability gap; and traditional markets are linked to the sustainability market by a socio-environmental sustainability gap. And when sustainability gaps are closed, then paradigms shift from one dominant component market such as the traditional market to a three dominant component market such as a sustainability market creating paradigm shift knowledge gaps in the process, in this case traditional market led sustainability market paradigm shift knowledge gaps, which can affect the proper handling of the expected paradigm shifts such as the expected shift from pure capitalism to socially and environmentally friendly capitalism or sustainability markets under socio- environmental sustainability gap pressures, but notice that in 2012 Rio + 20 conference they focused their attention only on dealing with the environmental sustainability gap pressures on development. And this raises the questions, how are sustainability market paradigm shift knowledge gaps created from the pure capitalism angle? In which ways can they lead to the mishandling of the expected paradigm shift from pure capitalism to socially and environmentally friendly capitalism? Among the goals of this paper are to provide answers to those questions, analytically and graphically.

Key words

Sustainability, red socialism market, traditional market, sustainability market, paradigm shift, sustainability gap, eco-economic sustainability gap, socio-environmental sustainability gap, knowledge gap, Adam Smith, Karl Marx, paradigm flip, socio-environmental externality management

Introduction

a) The structure of perfect markets

Perfect markets have a knowledge base that supports their model structure, their choice structure, and their price structure as indicated recently(Muñoz 2020) as summarized in Figure 1 below.

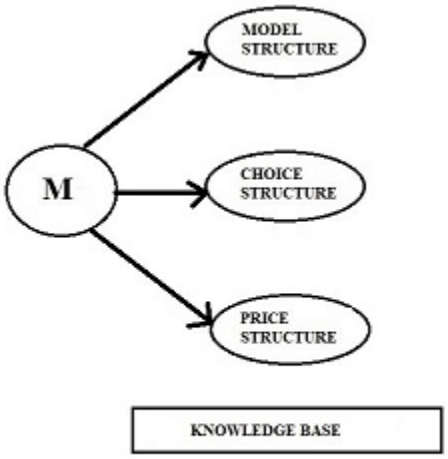

Figure 1 The structure of perfect markets(M)

Figure 1 above let us see that there is a knowledge base in perfect markets(M) that supports the model structure, the choice structure. and the price structure of that market paradigm. Different perfect markets have a different knowledge base supporting them. For example, if M were the red socialism market(M = KM = Abc) then its knowledge base would be Karl Marx's red socialism or society first model(Marx and Engels 1848), the knowledge base that supports the structure of the perfect red socialism market, its independent choice structure and its social cost based pricing mechanism. Hence, the knowledge base of one market does not work supporting the working of a different market as for example Karl Marx's red socialism knowledge base and structure(KM = Abc) is inconsistent with perfect green market structures(GM = aBC) and knowledge base(Muñoz 2016a) or with perfect red market structures(RM = ABc) and knowledge base(Muñoz 2016b).

b) The structure of the perfect traditional market

In the case of the traditional market(TM), a one dominant component based market, where the economy(B) is the only component in dominant form, the knowledge base is micro-economics and macro-economics, and this knowledge base is summarized in Figure 2 below.

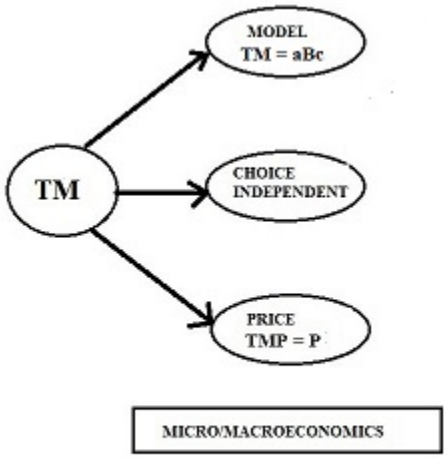

Figure 2 The structure of the perfect traditional market(TM)

Figure 2 above tells as the following about the traditional market(TM) knowledge base: i) it has a model structure where the economy is the only dominant component(TM = aBc) as society(a) and environment(c) are passive components; ii) it has an economy led independent choice structure; and iii) it has market pricing mechanism set at economic cost plus profits(TMP = P = ECM + i). Notice that the core value of the traditional market(TM) as stressed recently(Muñoz 2015; Muñoz 2017) is economic responsibility(B) so the traditional market knowledge base exists to support this core value; and this is because Adam Smith's world is an economy first model.

c) The structure of perfect socially and environmentally friendly traditional markets or sustainability markets

In the case of the perfect social and environmentally friendly traditional market or sustainability markets(S), a three dominant component based market as all society(A), the economy(B) and the environment(C) are in dominant form at the same time, the knowledge base is sustainability based micro-economic and sustainability based macro-economic thinking, as indicated in Figure 3 below:

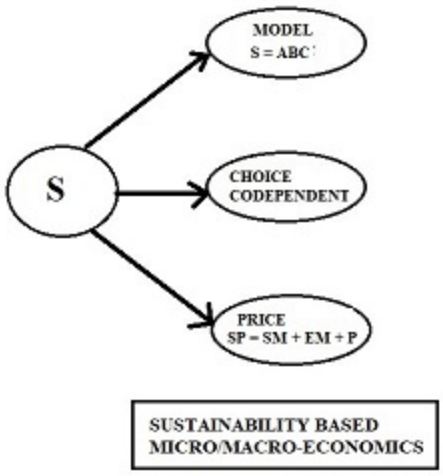

Figure 3 The structure of the perfect sustainability market(S)

Figure 3 above lets us see the following about the socially and environmentally friendly traditional market or sustainability market(S) knowledge base: i) it has a model structure where society(A), the economy(B) and the environment(C) are in dominant form at the same time(S = ABC) as there are no passive components here; ii) it has a society, economy and environment led codependent choice structure; and iii) it has market pricing mechanism that accounts for social costs(SM), economic costs(P) and environmental costs(EM) of production at the same time. Notice that the core value of socially and environmentally friendly capitalism or sustainability markets(S) as recently stressed(Muñoz 2016c; Muñoz 2019a) is socio-eco-economic responsibility(ABC) so the sustainability based micro-economics and sustainability based macro-economics knowledge base exists to support this full codependent core value. Sustainability based micro-economics from the capitalism angle means the theory of the socially and environmentally friendly firms and of the socially and environmentally friendly consumers or firms and consumers that are socially and environmentally friendly; and sustainability based macro-economics means the theory of the socially and environmentally friendly macro-economy. And therefore, from the pure capitalism angle, a sustainability market is a socially and environmentally friendly traditional market as it transforms pure capitalism into socially and environmentally friendly capitalism.

d) Linking the perfect traditional market(TM) with the sustainability market(S)

We know that one dominant component based markets are linking to related three component based markets or to a sustainability markets by sustainability gaps. For example, the red socialism market(KM = Abc) is linked to sustainability markets(S = ABC) by an eco-economic sustainability gap(EECSG = bc); and traditional markets(TM = aBc) are linked to the sustainability market(S = ABC) by a socio-environmental sustainability gap(SESG = ac), a situation that can be stressed analytically by contrasting the structure of the traditional market(TM) and the structure of the sustainability market(S) as follows:

1) TM.S = (aBc)(ABC) = (aA)(BB)(cC) = (aA)B(cC) = B(SSG)(ESG) = B(SESG),

Where SESG = (SSG)(ESG) = socio-environmental sustainability gap

Expression 1) above simply tells as that there is a socio-environmental sustainability gap(SESG) separating the traditional market(TM) from the sustainability market(S), a situation that can be stated graphically as in Figure 4 below:

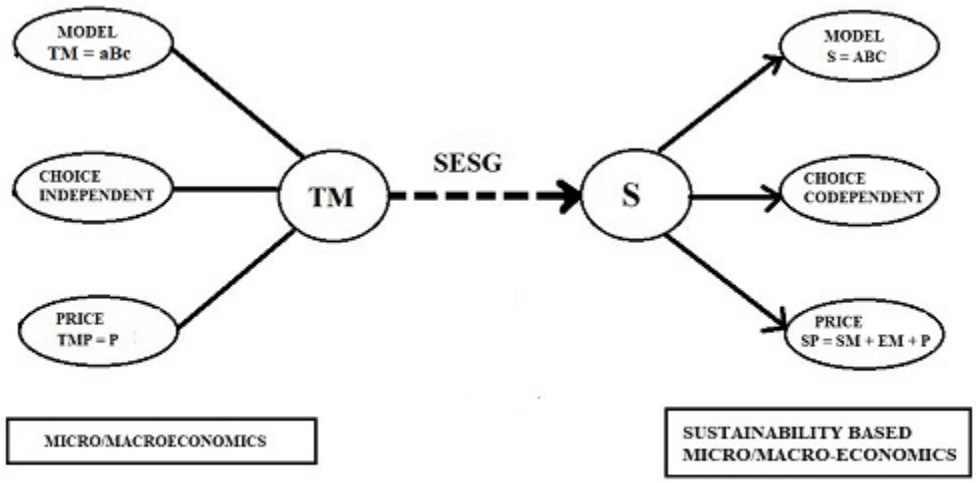

Figure 4 Linking the traditional market(TM) with the sustainability market(S)

Figure 4 above clearly shows the socio-environmental sustainability gap(SESG) separating the traditional market(TM) from the socially and environmentally friendly traditional market or sustainability market(S). Notice in Figure 4 above that the knowledge base in both markets is different, and as indicated above the knowledge base in one market does not work in the other market as they have different core values. For example the knowledge base supporting the traditional market of Adam Smith(TM), micro-economics and macro-economics in Figure 4 above does not work in sustainability markets(S); and the sustainability based micro-economics and sustainability based macroeconomics knowledge base supporting sustainability markets(S) do not work in traditional markets(TM).

e) The need to understand the link between traditional market led sustainability market paradigm shift knowledge gaps and the mishandling of an expected paradigm shift from pure capitalism markets to socially and environmentally friendly capitalism markets or sustainability markets

Consistent with Figure 4 above and with paradigm death and shift expectations(Muñoz 2019b) when socio-environmental sustainability gaps(SESG) are closed, then traditional market paradigms are expected to shift from an economy only dominant component market to a society, environment and economy dominant component market or sustainability market(S = ABC) as now all components are relevant at the same time, creating pure capitalism led sustainability market paradigm shift knowledge gaps in the process. Under socio-environmental sustainability

gap(ESG) pressures pure capitalism is expected to shift towards socially and environmentally friendly capitalism to keep its core value of economic responsibility intact, and it is not expected to flip to its inverse opposite competing paradigm of socio-environmental markets(SENM) as it not going to or it is not prepared to trade economic responsibility for socio-environmental responsibility since the traditional market knowledge base can clearly be used to manage the socio-environmental sustainability gap preserving that way the core value of economic responsibility while under sustainability market paradigm shift knowledge gaps. Notice that in 2012 Rio + 20 conference(UNCSD 2012a; UNCSD 2012b) attention was given to only closing the environmental sustainability gap(ESG) to shift to green markets or on managing environmental externalities, the social sustainability gap affecting the traditional market was left untouched. In other words, the call to ensure development is socially and environmentally friendly to move away from development as usual made by the Brundtland Commission in 1987 in "Our Common Future"(WCED 1987) was fulfilled partially in 2012. Notice that if the knowledge based of sustainability markets is developed before the actual need to shift to sustainability markets comes along then transitioning the traditional market towards socially and environmentally friendly markets can be accomplished smoothly. The discussion above raises the questions, how are sustainability market paradigm shift knowledge gaps created from the pure capitalism angle? In which ways can they lead to the mishandling of the expected paradigm shift from pure capitalism to socially and environmentally friendly capitalism? How the socio-environmental externality management market structure that comes from patching the socio-environmental sustainability gap affecting the traditional market looks like? Among the goals of this paper are to provide answers to those questions, analytically and graphically.

Goals of this paper

i) To show how when the socio-environmental sustainability gap is closed the traditional market paradigm shifts towards sustainability markets creating in the process pure capitalism led sustainability market paradigm shift knowledge gaps; ii) To highlight the different ways in which pure capitalism led sustainability market knowledge gaps can lead decision makers to mishandle the expected paradigm shift from pure capitalism to socially and environmentally friendly capitalism; iii) To stress how the nature of the pure capitalism led sustainability market knowledge gap can be linked to the expected actions taken by decision makers to address paradigm shift pressures; and iv) to point out the structure of the patching of the traditional market or pure capitalism market using socio-environmental externality management markets, both analytically and graphically

Methodology

i) The terminology and operational concepts and rules supporting the ideas in this paper are introduced; ii) The way pure capitalism led sustainability market paradigm shift knowledge gaps are created when socio-environmental sustainability gaps are closed and the pure capitalism paradigm shifts towards socially and environmentally friendly capitalism or sustainability markets is highlighted both analytically and graphically; iii) The three types of problems associated with the creation of pure capitalism led sustainability market paradigm shift knowledge gaps and how they affect the handling of the expected paradigm shift from pure capitalism markets to sustainability markets are stressed both analytically and graphically; iv) The nature of the pure capitalism led sustainability market paradigm shift knowledge gaps and the expected actions of decision makers are linked and relevant implications are stressed both analytically and graphically; v) The structure of the patching of the traditional market or pure capitalism market using socio-environmental externality management markets is stressed, both analytically and graphically; and vi) Some food for thoughts and conclusions are given.

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 = Sustainability SG = Sustainability gap

SSG = Social sustainability gap ECSG= Economic sustainability gap

ESG = Environmental sustainability gap SESG= Socio-environmental sustainability gap

EECSG = Eco-economic sustainability gap SECSG = Socio-economic sustainability gap

KM = Red socialism market KMP = Red socialism market price

GM = Green market GMP = Green market price

RM = Red market RMP = Red market price

ENM = Environmental market ENMP = Environmental market price

TM = Traditional market TMP = Traditional market price

Operational concepts and paradigm merging and shift rules and expectations

i) Operational concepts

1) Red socialism market, *the society only market.*

2) Red socialism market price, *the price that reflects only the social cost of production.*

3) The traditional market, *the economy only market.*

4) The traditional market price, the *general market economic only price or the price that covers the cost of production at profit(TMP = ECM + i = P) or zero profit(TMP = ECM = P).*

5) The environmental market, *the environment only market.*

6) The environmental market price, *the price that reflects only the environmental cost of production.*

7) The socio-environmental market, *the society and environment only market.*

8) The socio-environmental market price, *the price that reflects the social and environmental costs of production.*

9) The red market, *the society and economy only market.*

10) The red market price, *the price that reflects the social and economic costs of production.*

11) The green market, *the economy and environment only market.*

12) The green market price, *the price that reflects both the economic and the environmental cost of production or the price that covers the cost of environmentally friendly production.*

13) The sustainability market, *the society, economy and environment market.*

14) The sustainability market price, *the price that reflects the social, economic, and environmental costs of production.*

15) The economic margin, *to cover the economic cost of production.*

16) The environmental margin, *to cover the extra cost of making business environmentally friendly.*

17) The social margin, *to cover the extra cost of making business socially friendly.*

18) Full costing, *all costs are reflected in the pricing mechanism of the market.*

19) Partial costing, *not all costs are reflected in the pricing mechanism of the market.*

20) No costing, *all costs are not reflected in the pricing mechanism of the market.*

21) Full responsibility, *when a market uses full costing.*

22) Partial responsibility, *when a market uses partial costing.*

23) Full irresponsibility, *when a market uses no costing.*

ii) Paradigm merging and shift rules and expectations

1) Paradigm merging rules(PMR)

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**

2) Paradigm death expectations and shift under sustainability gaps

If we have four systems X_1 = Abc and a system X_2 = aBc and X_3 = abC and X_4 = ABC, where bc = EECSG and ac = SESG and ab = SECSG, then the following is true:

a) Expressing models in terms of sustainability gaps

X_1 = Abc = A(EECSG) X_2 = aBc = B(SESG) X3 = abC = C(SECSG),

where $0 \leq$ EECSG < 1, and $0 \leq$ SESG < 1 and where $0 \leq$ SECSG < 1

X_3 = ABC = A(SG = 1)B(SG = 1)C(SG = 1) = ABC

b) Expressing inverse opposite models in conflict

$X_1.X_2$ = A(EECSG).B(SESG) = A(EECSG).(SESG)B

c) Paradigm death and shift expectations under no win-win conditions

When EECSG ----→0 and/or SESG----→0 under no win-win conditions, we have the paradigm death and shift expectation where the paradigms that die take the form of the higher level paradigm, in this case the higher level paradigm is X_4 = ABC

$X_1.X_2$ = A(EECSG---→0).(SESG--→0)B = the death of paradigm X_1, X_2, or both

and shift $X_1.X_2$--→X_4 = ABC

d) Paradigm death and shift expectations under win-win conditions

When EECSG ----→1 and/or SESG----→1 under win-win conditions, we have the paradigm shift and merger shift expectation where the paradigms that die take the form of the higher level paradigm, in this case the higher level paradigm is X_4 = ABC

$X_1.X_2$ = A(EECSG--→1).(SESG--→1)B = paradigm shift X_1 or X_2 or merger of X_1 and X_2

as EECSG--→1 = BC and SESG--→1 = AC

so that $X_1.X_2$ = A(BC).(AC)B = ABC.ABC = ABC = X_4 = merger

Notice that similar expectations and rules hold if X_1 = abC, X_2 = aBc, and X_4 = ABC

You can find more details about the working of paradigm death and shift expectations and merging rules in the publication ***Paradigm Evolution and Sustainability Thinking***(Muñoz 2019b).

The closing of socio-environmental sustainability gaps and the creation of pure capitalism led sustainability market paradigm shift knowledge gaps

As mentioned in the introduction, the closing of the socio-environmental sustainability gaps(SESG) in Figure 4 above leads to the shift from pure capitalist markets(TM) to sustainability markets(S) creating in the process pure capitalism led sustainability market paradigm shift knowledge gaps as indicated in Figure 5 below:

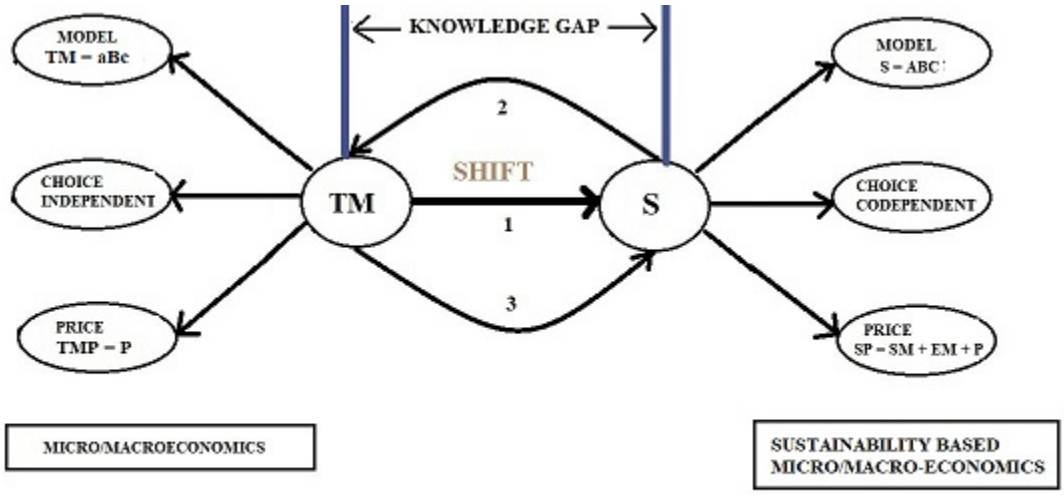

Figure 5 Shifting from perfect traditional market(TM) to perfect sustainability markets(S) leads to the creation of paradigm shift knowledge gaps

The following relevant aspects can be highlighted based on Figure 5 above: i) When we close the socio-environmental sustainability gap(SESG--→1) in Figure 4 above the traditional market model(TM) shifts to the sustainability market model(S) as indicated by the black arrow 1 from TM to S; ii) the model structure, the choice structure and the price structure of the pure capitalism markets or traditional market(TM) all shift at the same time taking the model structure, choice structure and price structure of the sustainability market model(S) as indicated by the black arrow 3 from TM to S creating pure capitalism led sustainability market knowledge gaps in the process ; iii) When the shift from traditional markets(TM) to sustainability markets(S) takes place the original knowledge base of the pure capitalism model(TM), including its model structure, its choice structure, and its price structure are left behind as indicated by the black arrow 2 from S to TM; and iv) and therefore, to be able to properly implement the paradigm shift from pure capitalism or traditional markets(TM) to sustainability markets or social and environmentally friendly capitalism markets or socially and environmentally friendly traditional markets(S) we need to develop a new knowledge base as the previous knowledge base no longer works. In other words, the knowledge base of sustainability markets, sustainability based micro-economics and sustainability based macroeconomics, does not work in pure capitalism or traditional markets a la Adam Smith; and the knowledge base of traditional markets or pure capitalism, micro/macro-economics, does not work in sustainability markets.

Highlighting the three ways pure capitalism led sustainability market knowledge gaps can lead to the mishandling of the expected paradigm shift from pure capitalism to socially and environmentally friendly capitalism under socio-environmental sustainability pressures

There are 3 ways in which pure capitalism led sustainability market knowledge gaps can affect the proper implementation of the expected paradigm shift from traditional markets(TM) to sustainability markets(S) depicted in Figure 5 above: i) they can make it difficult, even impossible to set up the proper sustainability market structures needed to transition the traditional market or pure capitalism market(TM) to the sustainability market paradigm(S); ii) they can make it possible to see the dealing with the consequences of the sustainability problem driving the paradigm shift such as the socio-environmental sustainability gaps(SESG) as a solution to the traditional market's socio-environmental sustainability problem when it is just a patch; and iii) they can make it possible to flip the core values of the pure capitalism model, economic responsibility for socio-environmental responsibility, and take the structure of a pure socio-environmental market(SENM), a competing market, if the pure capitalism led sustainability market knowledge gaps were to make it impossible to see the way towards the paradigm shift to sustainability markets, these 3 situations are highlighted in Figure 6 below:

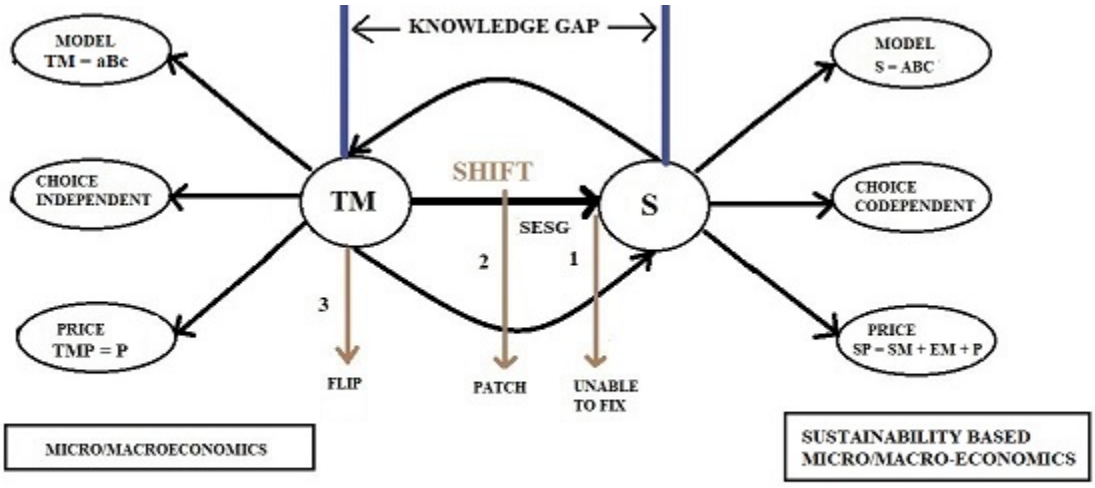

Figure 6 Pointing out three ways in which the knowledge gap can lead to the mishandling of the expected paradigm shift process: unable to fix at point 1, lead to paradigm patching at point 2 or lead to paradigm flip at point 3.

We can use Figure 6 above to point out the three implementations problems that arise when the pure capitalism led sustainability market paradigm shift knowledge gaps are created as detailed below:

a) The sustainability market paradigm implementation problem:

There is a sustainability market paradigm implementation problem at point 1 in Figure 6 above as without having ready the new knowledge base needed in the sustainability market(S),

sustainability based microeconomics and sustainability based macroeconomics thinking, we are unable to fix the traditional or pure capitalism market(TM) to complete efficiently the paradigm shift from traditional markets(TM) to sustainability markets(S). Therefore, to properly implement the shift from traditional markets or pure capitalism(TM) to socially and environmentally friendly traditional markets or socially and environmentally friendly capitalism markets or sustainability markets(S) we need to think in terms of sustainability based microeconomics and sustainability based macro-economics, but that knowledge base does not exist today in capitalist countries, old and new; and therefore, the paradigm shift traditional markets(TM) to sustainability markets(S) depicted in Figure 6 above could not be completed under full pure capitalism led sustainability market knowledge gaps, that knowledge gap needs to be closed ideally before the paradigm shifts take place or at least closed as fast as possible while the paradigm shift is taking place.

b) The sustainability market paradigm consequence implementation problem:

There is a sustainability market paradigm consequence implementation problem in point 2 in Figure 6 above as without having the new knowledge base ready or without having the sustainability based microeconomic and sustainability based macroeconomic knowledge base then making dealing with the consequences of the sustainability problem driving the paradigm shift or socio-environmental externalities a solution becomes attractive if the old knowledge base(micro/macro-economics) can be adapted to implement a socio-environmental externality management solution to patch the traditional market or pure capitalism markets(TM) to keep its core economic responsibility goals intact while still leaving a remaining socio-environmental sustainability gap(SESG) active between point 2 and point 1 in Figure 6 above. Notice, that socio-environmental externality management(SEEMM) is not a fix of the socio-environmental sustainability problem(SESG) affecting the traditional market and driving the paradigm shift to sustainability markets, but this patch could be used bring about a more smooth transition from pure capitalism to socially and environmentally friendly capitalism as it can be used to gain the time needed to update or transform micro/macro-economic thinking into sustainability based micro/sustainability based macro-economic thinking so we can properly guide and implement the paradigm shift. If we see the patch as a permanent situation, then the remaining environmental sustainability gap will be increasingly undermining the socio-environmental externality management framework needed to support the socio-environmental externality patch.

c) The sustainability market paradigm flip implementation problem:

There is a sustainability market paradigm flip implementation problem at point 3 in Figure 6 above if the pure capitalism led sustainability market knowledge gap were so severe that decision makers in capitalist countries, old and new, could not see the way forward in the expected paradigm shift from traditional markets or pure capitalism markets(TM) to sustainability markets(S) or they could not see how to manage environmental externalities to patch the traditional market; and because of that they flip the model structure of pure

capitalism(TM) to that of a competing model structure or pure socio-environmentalism or socio-environmental market model structure(SENM). Like instead of shifting TM= aBc to S = ABC, they flip TM= aBc to SENM = AbC. In other words, if the pure capitalism led sustainability market paradigm shift knowledge gaps were so severe that decision makers would be unable to see how the direct shift from pure capitalism(TM) to sustainability markets(S) could be done as well as they were unable to see how socio-environmental externalities could be managed to gain time to transition smoothly from an economy only development model to a society, environment and economy based development model, then under knowledge gaps the only way out of socio-environmental sustainability pressures that they could see would be to flip capitalism(TM) to socio-environmentalism(SENM), trading economic responsibility for socio-environmental responsibility, creating an economic sustainability gap problem in the process.

Implications

Socio-environmental sustainability gaps separate the pure capitalism or traditional market from the sustainability market. The closing of the socio-environmental sustainability gap shifts the traditional market towards the sustainability market creating pure capitalism led sustainability market paradigm shift knowledge gaps. Decision makers in capitalist countries, old and new, do not have at the moment of paradigm shift the new knowledge base needed to shift to sustainability markets, there is no sustainability based micro and sustainability based macroeconomic knowledge to properly manage the paradigm shift from traditional markets or pure capitalism to sustainability markets, leading to three type of implementation problems: i) the sustainability market paradigm implementation problem or inability to fix or properly implement the paradigm shift from traditional markets to sustainability markets; ii) the sustainability market paradigm consequence implementation problem or the idea that patching the traditional market paradigm to deal with the consequence of the sustainability problem the paradigm shift to sustainability markets is trying to fix is the solution; and iii) the sustainability market paradigm flip implementation problem or the idea that being unable to see how to transition from traditional markets to sustainability markets or unable to see how to manage socio-environmental externalities during the transition because of knowledge gaps decision makers simply decide to flip the model structure of traditional markets under socio-environmental sustainability pressures to that of a competing or opposite market paradigm, especially if it has a known knowledge base. Therefore, developing the knowledge base of sustainability markets(S) before the paradigm shift from pure capitalism or traditional markets(TM) to sustainability markets(S) actually takes place would solve the knowledge gap problems mentioned above as there would not be knowledge gaps; and this would provide the proper knowledge tools needed in order to have a smooth transition or direct shift from traditional markets or pure capitalism(TM) to socially and environmentally friendly traditional markets or socially and environmentally friendly capitalism or sustainability markets(S).

Linking the nature of the sustainability market knowledge base relevant to addressing the socio-environmental sustainability gap at hand and the mishandling of a expected paradigm shift from pure capitalism to sustainability markets by decision-makers

Knowing the social and environmentally friendly capitalism or sustainability market knowledge base would facilitate the fixing of the socio-environmental sustainability gap in Figure 6 above as the sustainability market paradigm implementation problem at point 1 would disappear since decision-makers would know then how to close that socio-environmental sustainability gap, and then there would be no need for paradigm patching thinking or for paradigm flip thinking. Therefore, not knowing the knowledge base of the sustainability market needed to address that socio-environmental sustainability gap creates all the paradigm implementations problems in Figure 6 above. And this has the following implications for decision-makers in capitalist countries, old and new: i) if the knowledge base of the new paradigm, socially and environmentally friendly capitalism or sustainability market, is not put together before the paradigm shift takes place to guide the shift, we cannot fix the socio-environmental sustainability gap; and then we cannot shift from pure capitalism to socially and environmentally friendly capitalism or sustainability market; ii) if the knowledge base of the old paradigm or Adam Smith's traditional market can be used to partially address the socio-environmental sustainability gap at hand, then the old paradigm or pure capitalism or the traditional market can be patched leaving part of the its socio-environmental sustainability gap still active; and iii) if the knowledge base of the new paradigm, socially and environmentally friendly capitalism or sustainability market, is unknown and the way the knowledge base of the old paradigm or Adam Smith's traditional market, can be used to handle partially the socio-environmental sustainability gap is not clear, then we should expect to see a paradigm flip from pure capitalism to socio-environmentalism or a flip towards an inverse opposite competing paradigm specially if with a known knowledge base.

In other words, if the way the old paradigm knowledge base or Adam Smith's traditional market knowledge base can be used to partially address the socio-environmental sustainability gap is clear under unknown new paradigm knowledge base, then decision makers will implement pure capitalism or traditional market patches as those indicated at point 2 in Figure 6 above as they do not know how to fully implement the paradigm shift, but understand how to manage socio-environmental externalities, but when it is unclear how the old knowledge base or Adam Smith's traditional market knowledge base can be used to manage socio-environmental externalities, they will implement paradigm flips to competing paradigms as that in point 3 in Figure 6 above, a flip from pure capitalism(economy first model) to socio-environmentalism (society and environment first model). Due to those knowledge gaps hampering the closing of the socio-environmental sustainability gaps affecting traditional markets or pure capitalism decision makers can not complete the paradigm shift from pure capitalism to sustainability markets, but since the micro/macro-economic knowledge base of the traditional market can clearly be used to manage the socio-environmental sustainability gap, then we cannot expect to

see paradigm flips, but paradigm patches a la socio-environmental externality management market(SEEMM), a situation summarized in Figure 7 below:

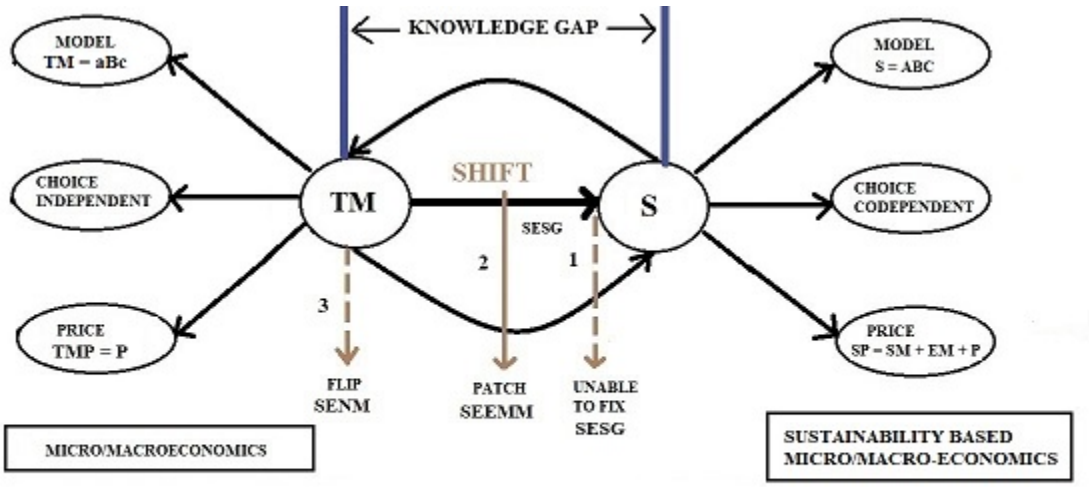

Figure 7 The shift from the perfect traditional market(TM) to the perfect sustainability market(S) can not be completed under knowledge gaps so the socio-environmental sustainability gap(SESG) can not be fixed, and since the traditional market(TM) will never flip to a socio-environmental market(SENM), then the only way out is to patch the traditional market throught socio-environmental externality management(SEEMM)

The following aspects can be highlighted based on Figure 7 above: i) Decision makers are unable to fix the socio-environmental sustainability gap(SESG) affecting the traditional market(TM) because of the sustainability market paradigm shift knowledge gap as indicated by the broken arrow at point 1; ii) decision makers can use the micro/macro-economic knowledge base to manage the socio-environmental sustainability gap and keep that way the core value of economic responsibility intact so paradigm flips to opposing paradigms like socio-environmentalism(SENM) cannot take place as indicated by the broken arrow 3; and iii) therefore, under sustainability market paradigm shift knowledge gaps patching the traditional market or pure capitalism through the use of socio-environmental externality management markets(SEEMM) may be seen as the way to go as indicated by the continuous arrow 2, but this action is not a fix, it is a patch as it still leaves a remaining socio-environmental sustainability gap(SESG) active, the portion from point 2 to point 1.

The patching of the perfect traditional market through socio-environmental externality management markets

As indicated above and in the introduction, unable to shift to sustainability markets(S) due to the sustainability market paradigm shift knowledge gap or unwilling to flip to socio-environmentalism markets(SENM) as the micro/macro-economics knowledge base can be used to manage properly the socio-environmental externality gap to keep economic responsibility intact, decision makers in pure capitalism countries are expected to move then to patch the

traditional market or pure capitalism using socio-environmental externality management markets(SEEMM) as indicated in Figure 8 below:

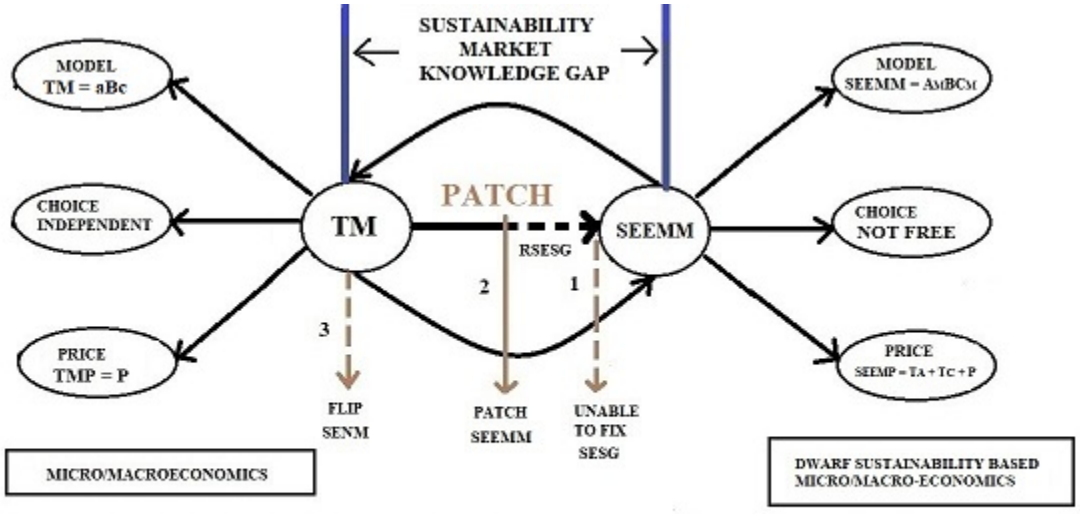

Figure 8 The patching of the traditional market(TM) through socie-environmental externality management based markets (SEEMM) leaves a remaining socio-environmental sustainability gap(RSESG) still active affecting the sustainability of the socio-environmental externality management market(SEEMM)

We can see based on Figure 8 above that under sustainability market knowledge gaps paradigm patching at point 2 is the only viable option left to decision makers to keep the core value of economic responsibility as fully fixing the socio-environmental sustainability gap(SESG) as at point 1 is not possible and paradigm flipping as at point 3 is not attractive. Notice that the implications of the patching of the traditional market(TM) in Figure 8 above are the following: i) when patching the traditional market(TM) its model structure, its choice structure, its price structure and its knowledge base are patched at the same time taking the structure of the socio-environmental externality management market(SEEMM) as indicated by the continuous black arrow going from TM to SEEMM; ii) when patching the traditional market(TM), we leave Adam Smith's traditional market world behind as indicated by the continuous black arrow going from SEEMM to TM; and iii) when patching the traditional market(TM) we leave a remaining socio-environmental sustainability gap(RSESG) still active between point 2 and point 1.

We can clearly see the differences in the structure of the traditional market(TM) and the patched traditional market or SEEMM in Figure 8 above: i) they have different model structure, TM = aBc vrs SEMM = A_MBC_M; ii) they have different choice structure, the traditional market(TM) has a free, independent choice vrs the socio-environmental externality management market(SEEMM) has a not free, not independent choice; iii) they have different price structure, TMP = P vrs SEEMP = $T_A + P + T_C$; and iv) they have a different knowledge based, micro/macro-economics vrs dwarf sustainability based micro/macro-economics. Notice that socio-environmental externality management markets(SEEMM) can be seen as markets with limited socio-environmental responsibility that comes from managing socio-environmental

externalities while sustainability markets are markets with full socio-environmental responsibility that comes from internalizing social and environmental externalities. Hence, socio-environmental externality management markets(SEEMM) are not sustainability markets(S).

Food for thoughts

i) Would social and environmentally friendly capitalism win a cold war against green markets? I think yes, what do you think?; ii) Can a clash between green markets and red markets lead to sustainability markets? I think yes, what do you think?; and iii) Can paradigm shift knowledge gaps feed the illusion that socio-environmental externality management markets are sustainability fixes? I think yes, what do you think?

Conclusions

i) It was indicated that when socio-environmental sustainability gaps are closed the traditional or pure capitalism market shifts towards the sustainability market creating pure capitalism led sustainability market paradigm shift knowledge gaps in the process; ii) It was stressed that these sustainability market paradigm shift knowledge gaps can lead to paradigm shift mishandling as they create three types of problems for decision makers, a paradigm implementation problem, a paradigm consequence implementation problem, and a paradigm flip problem, as the knowledge base of the new paradigm is either unknown or incomplete, the sustainability based economics and sustainability based macro-economic knowledge base does not exist today; iii) it was highlighted that under sustainability market knowledge gaps the paradigm shift from traditional markets to sustainability markets cannot be completed and that as socio-environmental externality management is possible using the traditional market knowledge base, then paradigm flipping to pure capitalism to socio-environmentalism is not possible; iv) it was pointed out that when paradigm fixing and paradigm flipping is not possible, then paradigm patching will take place to manage the socio-environmental sustainability gap through socio-environmental externality management markets; v) it was mentioned that when the pure capitalism market or traditional market is patched using socio-environmental externality management markets, we leave a remaining portion of the socio-environmental sustainability gap still active and affecting the sustainability of the socio-environmental externality management market; and vi) it was noticed that developing the knowledge base of the new paradigm before the paradigm shift actually takes place would solve the paradigm shift knowledge gap problems and would provide the tools needed for a smooth transition from the old paradigm, pure capitalism, to the new paradigm, socially and environmentally friendly capitalism.

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