

**Sustainability thoughts 136: How to link the general paradigm evolution model to the pure capitalism model when capitalism is under binding environmental sustainability gap pressures?  
The case of environmental fixes and of environmental patches to save capitalism through environmental friendliness.**

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**Abstract:** It can be said that all development paradigms when facing binding sustainability gap pressures must evolve, whether they persists in their original dominant form or not. And consistent with the above it can also be said: i) that to persist in dominant form a paradigm must perfectly shift or it must be patched, and ii) that when a paradigm fails the sustainability test it will flip perfectly or imperfectly towards the inverse opposite paradigm or it will flip towards authoritarianism. The above holds true for all dominant-dominated based paradigm structures when under specific binding sustainability gap pressures, including the pure capitalism paradigm under binding environmental sustainability gap pressures. This paper deals with the following general question and specific case: How to link the general paradigm evolution model to the pure capitalism model when capitalism is under biding environmental sustainability gap pressures? The case of environmental fixes and of environmental patches to save capitalism through environmental friendliness.

**Keywords:** Sustainability, perfect markets, imperfect markets, sustainability markets, externality management markets, sustainability gap, paradigm fix, paradigm patch, paradigm shift, perfect paradigm flip, imperfect paradigm flip, dominant paradigm, paradigm evolution, traditional market, green market, environmental externality based market, authoritarianism based market, perfect environmental market, imperfect environmental market.

**Introduction**

**a) The general paradigm evolution model routes under binding externality gap pressures**

**i) The general paradigm evolution route model**

If we have a dummy market of structure  $M = Xy$ , where  $M$  is under the binding externality sustainability gap pressure “ $y$ ”, it is possible to frame all possible paradigm evolutions routes that model  $M$  can follow in response of that binding pressure. Such a framework has been very recently shared graphically (Muñoz 2021) as indicated below:

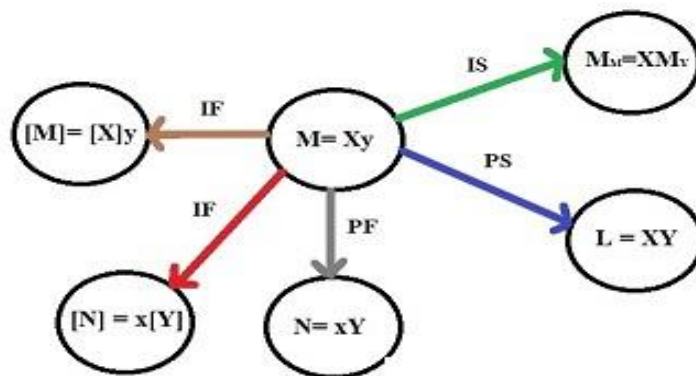


Figure 1 Paradigm M under all types of pressures provides the structure of the general paradigm evolution model under sustainability gap pressures

Figure 1 above indicates that there are 5 possible evolution routes available to Model  $M = Xy$  and induced by its binding external sustainability gap “y”: 1) a perfect shift(PS) to model L as indicated by the blue arrow; 2) an imperfect shift(IS) to model  $M_M$  as indicated by the blue arrow; 3) perfect flip(PF) to its perfect inverse opposite model N as indicated by the gray arrow; 4) an imperfect flip(IF) to inverse opposite model [N] as indicated by the red arrow; and 5) an imperfect flip(IF) from the perfect market M to the imperfect market [M] as indicated by the brown arrow.

**ii) The types of markets linked to each paradigm evolution route available to market M**

Based on Figure 1 above, each paradigm evolution route has its end of the line market structure, as indicated below in detail:

**1) The perfect market paradigm shift route**

Where the perfect market  $M = Xy$  shifts perfectly to the higher level perfect market  $L = XY$  when the externality cost of “y” is internalized fully. Here the externality gap is fully fixed.

**2) The imperfect market paradigm management route**

Where the perfect market  $M = Xy$  shifts imperfectly to the higher level imperfect externality management market  $M_M = XM_Y$  as not all the externality cost of “y” is accounted for. Here the externality gap is only patched.

**3) The perfect paradigm flip to inverse opposite paradigm route**

Where the perfect market  $M = Xy$  flips perfectly to the inverse opposite paradigm  $N = xY$ . Here externality gaps and dominant components are fully flipped.

**4) The imperfect paradigm flip to inverse opposite paradigm route**

Where the perfect market  $M = Xy$  flips imperfectly to the inverse opposite paradigm  $[N] = x[Y]$ . Here externality gaps are fully flipped while dominant components are partially flipped.

**5) The imperfect paradigm flip to the opposite paradigm route**

Where the perfect market  $M = Xy$  flips imperfectly to the opposite paradigm  $[M] = [X]y$ . Here externality gaps stay the same while dominant components are partially flipped.

**iii) Linking market structure with paradigm type**

The link between each market structure and its respective market type based on Figure 1 above is summarized in

Table 1 below:

**Table 1**

About all paradigm evolution routes

	Ideal model	type of market
Model under pressure	$M = Xy$	Perfect market
Model after perfect shift	$L = XY$	Perfect market
Model under management	$M_M = XM_Y$	Imperfect market
Model under inverse perfect flip	$N = xY$	Perfect market
Model under inverse imperfect flip	$[N] = x[Y]$	Imperfect market
Model under imperfect flip	$[M] = [X]y$	Imperfect market

We can appreciate from table 1 above that different paradigm evolution routes are associated with specific type of market structures that go one to one with perfect and imperfect paradigm shift and flip dynamics.

**b) The general paradigm evolution model routes when original component dominance structure is pursued**

When saving paradigm  $M = Xy$  from collapse due to the unsustainability created by its binding sustainability gap “y” becomes the goal, then that means that we need to maintain the dominant nature of component X by fully fixing the sustainability gap “y” through a perfect shift (PS) or by simply patching it through an imperfect shift (IS), a situation indicated in Figure 2 below:

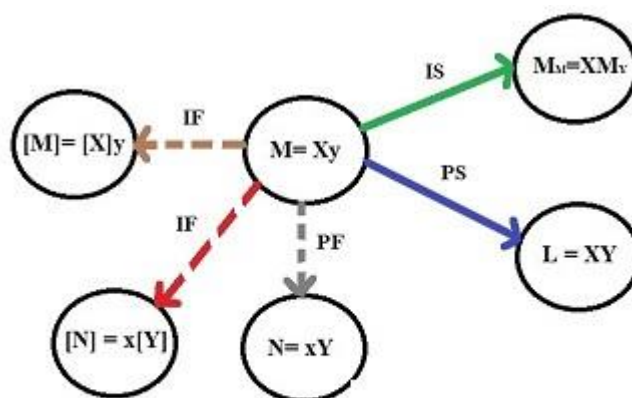


Figure 2 Paradigm M evolution when keeping its component dominance structure intact

We can appreciate based on Figure 2 above that only two evolution routes allow paradigm  $M = Xy$  to keep its dominant component X intact after taking action against the binding externality “y”: 1) A perfect paradigm shift to a higher level perfect market when  $M = Xy$  perfectly shifts to  $L = XY$ , where cost externalization stops; and 2) An imperfect shift to a higher level imperfect market when  $M = Xy$  imperfectly shifts to  $M_M = X_M Y$ , where cost externalization still continues. In other words, Figure 2 above summarizes the only two ways possible to save a perfect market from collapse: 1) a perfect shift or full paradigm fix; and 2) an imperfect shift or just a paradigm patch.

The link between each market structure that has component dominance of X intact and its respective market type based on Figure 2 above is indicated in Table 2 below:

Table 2

About the paradigm evolution routes that keep component dominance intact

	Ideal model	type of market
Model under pressure	$M = Xy$	Perfect market
Model after perfect shift	$L = XY$	Perfect market
Model under management	$M_M = X_M Y$	Imperfect market

We can see again from table 2 above that perfect markets can shift perfectly and imperfectly to maintain dominance, depending on the evolution route chosen. Only if the core dominance is maintained intact, in this case component X, the model M is saved from failure.

c) The general paradigm evolution model routes when the original component dominance structure of X is lost

Binding sustainability gap pressures like “y” can lead paradigms like model  $M = Xy$  to lose its component X dominance, fully or partially, depending on the type of flip that takes place following paradigm M collapse as shown in Figure 3 below:

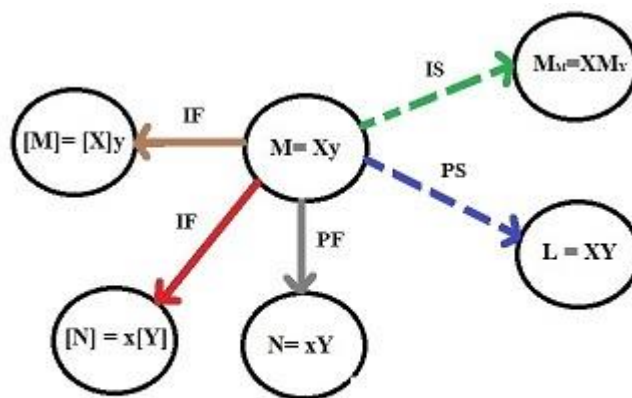


Figure 3 Paradigm M evolving when losing its component dominance structure fully or partially

Figure 3 above highlights that when paradigm M cannot be fixed (it cannot perfectly shift) and it cannot be patched (it cannot imperfectly shift) as indicated by the broken blue and green arrows, it collapses and flips losing its component X dominance fully or partially. Hence, Figure 3 above indicates that when the paradigm  $M = Xy$  collapses it can take 3 different evolution routes where the dominance of component X ends, fully or partially: 1) The perfect paradigm flip to inverse opposite route, when model  $M = Xy$  flips perfectly to model  $N = xY$ , a flip from a perfect market to a perfect market; 2) The imperfect paradigm flip to inverse opposite route, when model  $M = Xy$  flips imperfectly to model  $[N] = x[Y]$ , a flip from a perfect market to an imperfect market; and 3) The imperfect paradigm flip route, where model  $M = Xy$  flips imperfectly to model  $[M] = [X]y$ , a flip from perfect market to imperfect market. In other words, Figure 3 above summarizes the only three ways possible to move away from perfect markets when a perfect market fails, a perfect flip to inverse opposite, an imperfect flip to inverse opposite, and an imperfect flip to the opposite market to the perfect market under pressure.

The link between each market structure that has lost the component dominance of component X fully or partially and the respective market type based on Figure 3 above is summarized in Table 3 below:

Table 3

About the paradigm evolution routes where the original dominance structure is lost

	Ideal model	type of market
Model under pressure	$M = Xy$	Perfect market
Model under inverse perfect flip	$N = xY$	Perfect market
Model under inverse imperfect flip	$[N] = x[Y]$	Imperfect market
Model under imperfect flip	$[M] = [X]y$	Imperfect market

We can see again from table 3 above that perfect markets can flip to perfect markets and to imperfect markets when original component dominance is lost, depending on the evolution route taken.

d) The need to link the general paradigm evolution model routes under binding externality gap pressures to the pure capitalism model evolution routes when capitalism is under binding environmental sustainability gap pressures.

If we were able to make the link mentioned above, it would help us to see the evolutions paths that are relevant when pure or perfect capitalism under binding environmental externality gap pressures evolves maintaining its original component dominance structure intact; and when pure or perfect capitalism under binding environmental externality gap pressures evolves losing its original component dominance structure, fully or partially. In other words, establishing this link would help us in two ways: a) to see clearly the paradigm evolution routes available to

save pure or capitalism model from paradigm failure due to binding environmental externality gap pressures; and b) to see the paradigm evolution routes possible when pure capitalism fails and the world moves away from pure or perfect capitalism. It has been indicated that pure capitalism a la Adam Smith(Smith 1776) can be saved from collapse by making it fully socially friendly(Muñoz 2016a) or by making it fully environmentally friendly(Muñoz 2016b) or by making fully socially and environmentally friendly(Muñoz 2016c ) or by patching it through externality management tools, be it social patches only or both social and environmental patches at the same time or only environmental patches such as the case of environmental externality management markets shows(Muñoz 2017). The initial call to save capitalism was made by the Brundtland Commission in 1987 in “Our Common Future” when calling for action away from capitalism as usual (WCED 1987). This paper deals the following general question and specific case: How to link the general paradigm evolution model to the pure capitalism model when capitalism is under biding environmental sustainability gap pressures? The case of environmental fixes and of environmental patches to save capitalism through environmental friendliness.

### Goals of this paper

a) To link the traditional pure capitalism market model when it is under binding environmental sustainability gap pressure to the general paradigm evolution model both analytically and graphically; and b) To use these ideas to point out the only two possible paradigm evolution routes that the traditional capitalism markets under environmental sustainability gap pressures has available to evolve while still keeping fully its core component dominance structure.

### Methodology

First, the terminology used in this paper is shared. Second, operational concepts, types of market structures and model evolution rules are listed. Third, the traditional capitalism market under environmental externality sustainability gap pressures is linked to the general evolution model analytically. Fourth, the traditional capitalism market under environmental externality sustainability gap pressures is linked to the general evolution model graphically. Fifth, the paradigm evolution routes that allow the traditional capitalism market model under environmental sustainability gap pressures to keep its dominant structure are highlighted graphically. Sixth, the paradigm evolution routes that allow the traditional capitalism market model under environmental sustainability gap pressures to keep its dominant structure are highlighted analytically. And finally seventh, some food for thoughts and relevant conclusions are provided.

### Terminology

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M1 = Perfect market M1	[M1] = Imperfect market M
[M1] = Authoritarian market M1	M <sub>M1</sub> = M1 under externality management
PS = Perfect shift	IS = Imperfect shift
PF = Perfect paradigm flip	IF = Imperfect paradigm flip
M = Perfect lower level market M	N = Perfect lower level market N
L = Perfect higher level market L	[ ] = Authoritarianism
[M] = Market M under authoritarianism	[N] = Market N under authoritarianism
TM = The perfect traditional market	[TM] = Market under dictatorship
GM = The perfect green market	TM <sub>M</sub> = Market under externality management
ENM = The perfect environmental market	[ENM] = Market under dictatorship

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### Operational concepts, types of market structures and model evolution rules

#### a) Operational concepts

- 1) **Perfect market**, *a market where there is dominant component equality and freedom*
- 2) **Imperfect market**, *a market where there is component equality, but not freedom*
- 3) **Perfect paradigm shift**, *a shift from a perfect market to a higher level perfect market*
- 4) **Paradigm management**, *the handling of cost externalization through externality management*
- 5) **Paradigm flip**, *a slip to the inverse opposite paradigm*
- 6) **Perfect paradigm flip**, *a slip to the perfect inverse opposite paradigm*
- 7) **Imperfect paradigm flip**, *a slip to the imperfect inverse opposite paradigm*
- 8) **Authoritarian market**, *an imperfect market*

- 9) Sustainability market, *the perfect market where there is full co-component equality and freedom*
  - 10) Externality management market, *the market where there is partial co-component equality, but no freedom.*
  - 11) Imperfect paradigm shift, *a shift from a perfect market to a higher level imperfect market*
- b) Type of market structures

Given the dummy market models  $M_1 = Xy$  and  $M_2 = xY$ , the following can be said about different market structures:

1) *Perfect markets*

There is dominant component equality and freedom

$M_1 = Xy =$  A dominant component X perfect market

$M_2 = xY =$  A dominant component Y perfect market

2) *Imperfect markets*

There is dominant component equality, but no freedom, they are dictatorship based markets

$[M_1] = [X]y =$  A dominant component X imperfect market

$[M_2] = x[Y] =$  A dominant component Y imperfect market

3) *Externality management market*

They are ongoing government intervention based markets

$M_{M1} = XY_M =$  A dominant component X externality Y management market

$M_{M2} = X_MY =$  A dominant component Y externality X management market

4) *The sustainability market*

The perfect market where there is full co-component equality and freedom

$S = M_1.M_2 = (Xy)(xY) = XY$

Details about paradigm merging rules and paradigm shift rules can be found in the publication about paradigm evolution and sustainability thinking (Muñoz 2019).

c) *Model evolution rules*

i) *Perfect paradigm shift*

The externality gap affecting the market, y or x, is fully closed and internalized

PS

$M_1 = Xy \xrightarrow{\hspace{2cm}} M_3 = XY$

PS

$M_2 = xY \xrightarrow{\hspace{2cm}} M_3 = XY$

ii) *Imperfect paradigm shift or imperfect dominated components flip*

The externality gap affecting the market, y or x, is patched and managed as an externality problem

IS

$M_1 = Xy \xrightarrow{\hspace{2cm}} M_4 = XM_Y$

IS

$M_2 = xY \xrightarrow{\hspace{2cm}} M_5 = M_XY$

iii) *Perfect paradigm flip*

Paradigms flip to the perfect inverse opposite model

PF

$M_1 = Xy \xrightarrow{\hspace{2cm}} M_2 = Xy$

PF

$M_2 = xY \xrightarrow{\hspace{2cm}} M_1 = Xy$

iv) *Imperfect paradigm flip*



Paradigms flip to the imperfect inverse opposite model

$$M_1 = Xy \xrightarrow{\text{IF}} M_6 = x[Y]$$

$$M_2 = xY \xrightarrow{\text{IF}} M_7 = [X]y$$

Linking the pure capitalism market TM under environmental sustainability gap pressures(c) to the general market paradigm evolution model M

**i) The structure of pure capitalism(TM) under environmental sustainability gap pressures**

Pure capitalism or traditional market based capitalism(TM) in a world of two components, economy and environment, is the system where only the economy(B) matters as the environment(c) exists only to meet economic ends; and hence the model TM can be stated as follows:

**1) TM = Bc**

Expression 1 above simply says that in the traditional market(TM) only the economy (B) is a dominant component, the environment(c) is a passive component. And the dominant component enjoys here both component equality and freedom as this is a perfect market.

**ii) Expressing the evolution routes associated with pure capitalism under environmental externality sustainability gap pressures with the ideal model M structure**

If we make the traditional market or pure capitalism TM = Bc the component at the centre of the general paradigm evolution model in Figure 1 in the introduction so that M = TM, then the paradigm evolution routes that the perfect traditional market TM can follow in response to binding environmental sustainability gap pressures “c” can be matched one to one to the information in Table 1 in the introduction about the general evolution model routes to generate Table 4 as indicated below:

**Table 4**

**About all paradigm evolution routes and the pure capitalism market**

	Ideal model	type of market	Traditional market
Model under pressure	M = Xy	Perfect market	TM = Bc
Model after perfect shift	L = XY	Perfect market	GM = BC
Model under management	M <sub>M</sub> = XM <sub>Y</sub>	Imperfect market	TM <sub>M</sub> =BM <sub>C</sub>
Model under inverse perfect flip	N = xY	Perfect market	ENM= bC
Model under inverse imperfect flip	[N] = x[Y]	Imperfect market	[ENM]= b[C]
Model under imperfect flip	[M] = [X]y	Imperfect market	[TM]=[B]c

Hence, we can see in Table 4 above that specific types of markets are linked to specific market structures for each possible traditional market TM evolution routes when under binding environmental externality gaps in a similar fashion as the general model M is: We can see that the traditional market TM is a perfect market, the green market GM is a perfect market, the traditional market under environmental externality management TM<sub>M</sub> is an imperfect market, the environmental market ENM is a perfect market, the authoritarianism based environmental market [ENM] is an imperfect market, and the authoritarianism based traditional market [TM] is an imperfect market too. Notice that here since M = Xy and TM = Bc, then M = TM means that X = B and y = c.

**iii) Expressing all paradigm evolutions routes affecting pure capitalism under environmental externality sustainability gap pressures graphically**

All the paradigm evolution routes the perfect traditional market TM can follow in response to binding environmental sustainability gap pressures found in the last column in Table 4 above can be indicated graphically in a way that matches the structure of Figure 1 in the introduction as follows:

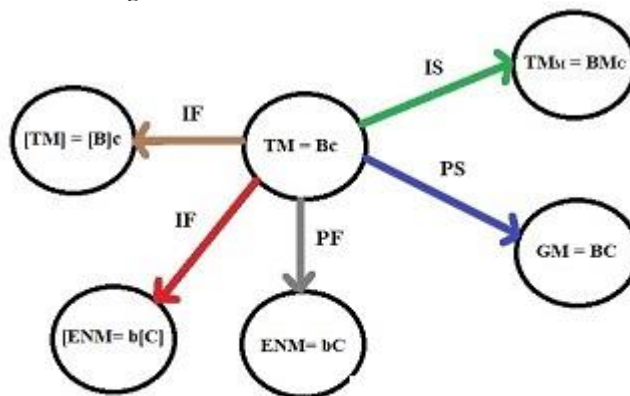


Figure 4 The pure capitalism market(TM) under binding environmental sustainability gap pressures(c)

We can appreciate based on Figure 4 above that under binding environmental sustainability gap pressures the traditional market  $TM = Bc$  can follow 5 different evolution routes: i) The green market route(GM) where both the economy(B) and the environment(C) are in dominant form as indicated by the blue arrow; ii) The environmental externality management route( $TM_M$ ) where only the economy(B) is in dominant form as indicated by the green arrow; iii) The perfect environmental market route(ENM) where only the environment(C) is in dominant form as indicated by the gray arrow; iv) The authoritarian based environmental market([ENM]) where there is environmental component equality, but not freedom as indicated by the red arrow; and v) The authoritarianism based traditional market([TM]), where there is economic component equality but no freedom as indicated by the brown arrow.

**The evolution routes of pure capitalism that can save it from paradigm collapse**

If we assume that pure capitalism is about to fall if the binding environmental sustainability gap remains unchecked, then there is an incentive to do something to save the dominance of pure capitalism thinking. And this means that capitalism stakeholders will support paradigm evolutions choices that keep the economy (B) as the dominant component. In other words, under the threat of paradigm death capitalism stakeholders would support environmental action in a way that preserves the dominance of the economy (B), a situation highlighted in Figure 5 below:

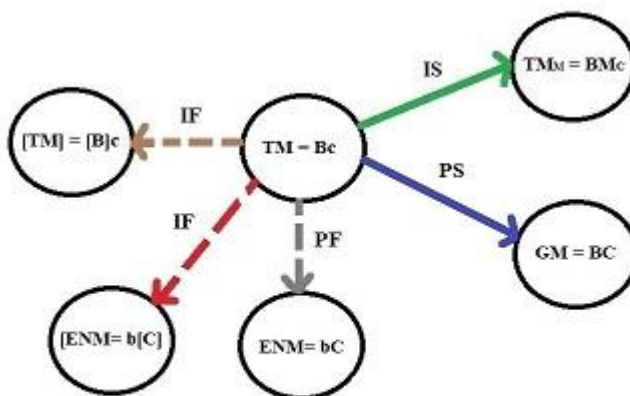


Figure 5 The pure capitalism market(TM) evolution when keeping its component dominance structure intact

Figure 5 above shows that the only way to save economy dominance (B) in the traditional market TM is to either lead it to a perfect shift to green markets  $GM = BC$  as indicated by the blue arrow or to lead it to an imperfect shift to environmental externality management based traditional markets  $TM_M = BMc$  as indicated by the green arrow. You can see that the other evolution routes in Figure 5 above lead to a loss of economy dominance (B)



either fully or partially as indicated by the broken arrows. Hence, going green markets and going environmental externality based markets are the only two ways to save the capitalism system from collapse while being fully or partially environmentally friendly.

The dominance of the economy (B) after environmental externality action is taken to save capitalism can be seen in the market structure of the relevant markets as shown in Table 5 below:

Table 5

About all paradigm evolution routes and the pure capitalism market keeping model dominance structure intact

	Ideal model	type of market	Capitalism market
Model under pressure	$M = Xy$	Perfect market	$TM = Bc$
Model after perfect shift	$L = XY$	Perfect market	$GM = BC$
Model under management	$M_M = XM_Y$	Imperfect market	$TM_M = BM_C$

Notice that if there are no green market paradigm shift knowledge gaps when the perfect paradigm shift from traditional markets(TM) to green markets (GM) needs to take place in response to the environmental sustainability gap problem, then a shift to the green economy, green markets, and green growth will take place as this action is based on a full fix thinking. Notice that if there are green market paradigm shift knowledge gaps or if there are not green market paradigm shift knowledge gaps, but capitalist stakeholders still choose just to patch the environmental externality problem affecting the market then they will implement environmental externality management based traditional markets. As it is known, we were supposed to shift from traditional markets to green markets from 2012 and on as it was indicated at the United Nations Conference on Sustainable Development(UNCSD 2012a; UNCSD 2012b), but there were not green markets in the 2015 Paris Agreement either(UNFCCC 2015), and no one green market exists yet today 2021 as the world has gone the environmental externality management way(Muñoz 2017), and hence, the world is following the imperfect environmentally friendly market way.

**Implications:**

1) If we link the evolution routes of the general paradigm evolutions model  $M = Xy$  with the evolution routes available to the traditional market  $TM = Bc$  under binding environmental sustainability gap pressures one to one we get equivalent perfect and imperfect market structures; 2) If saving capitalism from the possibility of market failure under business as usual is the goal, then saving the dominance of the economy(B) while addressing the environmental sustainability problem is a must; 3) there are only two environmentally friendly possibilities that allow for the keeping of the economy a dominant component, one is to go the green market route for a full paradigm fix; and the other is to go the environmental externality management market route for a simple paradigm patch; and 4) As no one green market exist today since 2012 capitalist stakeholders have been trying to save the capitalism model through using environmental externality management tools.

**Food for thoughts**

1) Can environmentally unfriendly traditional markets be seen in theory as a perfect flip back from perfect environmental markets? I think yes, what do you think?; 2) If authoritarian based environmental markets existed and they failed, would they prefer if they had a choice to flip to the perfect inverse opposite market or flip to the imperfect inverse opposite one? I think they would prefer to flip to the imperfect opposite market, what do you think?; 3) Are externality management based markets free markets? I think No, what do you think?; 4) Is non-democratic capitalism consistent with authoritarianism based market thinking? I think Yes, what do you think?; and 5) Is democratic capitalism consistent with free market thinking? I think yes, what do you think?

## Conclusions

First, it was shown that the general paradigm evolution model can be used to frame the pure capitalism model when under bidding environmental sustainability gap pressures to highlight all possible paradigm evolution routes available. Second, it was pointed out that by doing this we could see the specific options that allow pure capitalism to be saved while keeping its dominant economy structure intact. And third, it was highlighted that these specific paradigm evolution options are i) a perfect paradigm shift to green markets if there are not green market paradigm shift knowledge gaps present; and ii) an imperfect paradigm shift to environmental externality management based markets if there are green paradigm shift knowledge gaps present or simply there is unwillingness on the part of capitalist stakeholders to implement a full environmental fix.

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