

**Sustainability thoughts 137: Which are the paradigm evolutions routes available in the case perfect capitalism is brought down by binding environmental sustainability gap pressures? What is the nature of the market structure associated with each of those routes?**

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## Abstract

Markets that expand continuously under externality neutrality assumptions reach sooner or later a point of possible collapse when the assumptions turns out to be wrong as suddenly the threat that was assumed away at the beginning now becomes a binding current threat to the survival of the market, and this is true if we are dealing with environmental externality neutrality assumptions or with social externality neutrality assumption or with socio-environmental externality neutrality assumptions. When the market is under a binding threat, it can be saved if we take action to fix the relevant binding externality problem affecting it or it can be patched. If on the other hand, stakeholders failed to act to save it, the market will collapse and flip to inverse opposite models, perfectly or imperfectly or it will flip towards authoritarianism. The above holds true for any market including the traditional market, in this case the traditional market under binding environmental externality threats. This paper focuses on the environmental externality threat incrusted in the perfect traditional market model due to the environmental externality neutrality assumption; and the failure to fix it or patch it to prevent the perfect traditional market model collapse when under binding environmental externality threat. And this raises the questions, which are the paradigm evolutions routes available in the case perfect capitalism is brought down by binding environmental sustainability gap pressures? What is the nature of the market structure associated with each of those routes? Among the goals of this paper is to provide answers to these questions.

## Key concepts

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) Markets under externality neutrality assumptions**

Markets that expand continuously under externality neutrality assumptions reach sooner or later a point of possible collapse when the assumptions turns out to be wrong as suddenly the threat that was assumed away at the beginning now becomes a binding current threat to the survival of the market, and this is true if we are dealing with environmental externality neutrality assumptions or social externality neutrality assumption or socio-environmental externality neutrality assumptions. When the market is under a binding threat, it can be saved if we take action to fix the relevant binding externality problem affecting it or it can be patched. If on the other hand, stakeholders failed to act to save it, the market will collapse and flip to inverse opposite models, perfectly or imperfectly or will flip towards authoritarianism. It has been pointed out recently that when externality threats affecting the working of a market become binding threats the market affected has then five evolution routes available for action(Muñoz 2021a): i) The perfect paradigm shift route; ii) the imperfect paradigm shift route; iii) the perfect flip to the inverse opposite paradigm route; iv) the imperfect flip to the inverse opposite paradigm route; and v) the authoritarianism flip route.

### **b) The traditional markets under binding environmental externality threat**

The above holds true for any market under biding externality threats including the traditional market , in this case the traditional market under binding environmental externality threats.

#### **i) The structure of the traditional market under binding environmental externality threats**

We know that Adam Smith's traditional market(Smith 1776) is an economy only market(B); and when the traditional market(TM) is under a binding environmental externality threat(c), then the economy(B) is affected by a binding environmental sustainability gap(BESG); and therefore, the structure of the traditional market(TM) a la Adam Smith under binding environmental externality threat can be stated as follows:

$$TM = Bc = B(BESG), \text{ where } BESG = c$$

The expression above simply indicates that the traditional market(TM) is being affected by an embedded and binding environmental sustainability gap(BESG) affecting the working of the dominant economy(B). Paradigm evolution theory and sustainability thinking(Muñoz 2019) indicates that a binding sustainability gap leads to paradigm evolution, before or after paradigm death, in this holds true too in the case the traditional market under a binding environmental sustainability gap(BESG).

## ii) The paradigm evolution routes available to the traditional market when under binding environmental externality threats

All evolution routes available to the traditional market when under binding environmental externality or sustainability gaps(BESG = c) have been highlighted recently(Muñoz 2021b) as shown in Figure 1 below:

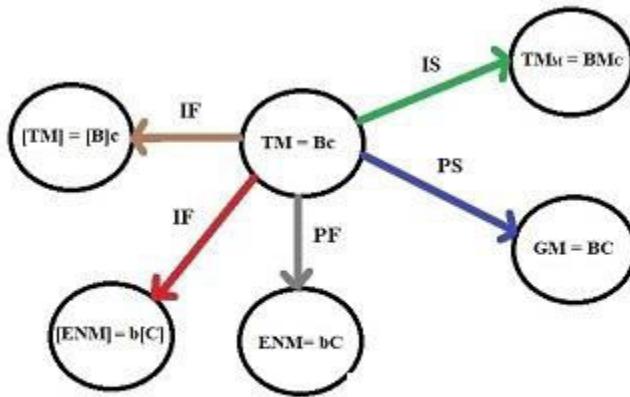


Figure 1 The pure capitalism market(TM) under binding environmental sustainability gap pressures(c)

Based on Figure 1 above and following the arrows from right to left we can see that that the traditional market or pure capitalism (TM = Bc) when under binding environmental sustainability threats(BESG = c) has five evolution paths available for action as the general evolution model suggests: 1) it can go the environmental externality management route  $TM_M = BM_c$  as indicated by the green arrow; 2) it can go the green market route  $GM = BC$  as indicated by the blue arrow; 3) it can go the perfect environmental market route  $ENM = bC$  as indicated by the gray arrow; 4) it can go the imperfect environmental market route  $[ENM] = b[C]$  as indicated by the red arrow; and 5) it can go the authoritarianism flip route  $[TM] = [B]c$  as indicated by the brown arrow.

## iii) The ways to save capitalism a la traditional market from binding environmental externality threats

If we decide to take action to save capitalism from the binding environmental externality threat(BESG = c) by ensuring that the economic component remains in full dominant form(B)

while we take full or partial environmental action, then we have two paradigm evolution routes that we can follow according to Figure 1 above: 1) a perfect shift from traditional markets  $TM = Bc$  to green markets  $GM = BC$  after fully fixing the binding environmental sustainability gap( $BESG = c$ ); and 2) an imperfect shift from traditional markets  $TM = Bc$  to environmental externality management markets  $TM_M = BM_C$  after simply patching the binding environmental sustainability gap( $BESG = c$ ), a situation that was shared graphically just recently(Muñoz 2021b) as indicated in Figure 2 below:

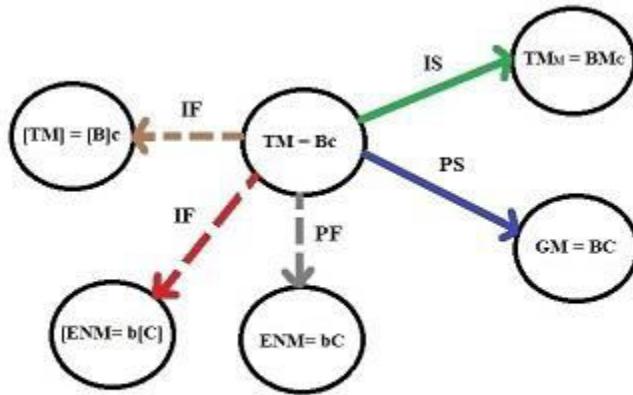


Figure 2 The pure capitalism market(TM) evolution when keeping its component dominance structure intact saving it from collapse

Figure 2 above clearly shows by means of continuous arrows that there are two ways of saving capitalism from binding environmental externality threats( $BESG = c$ ): i) a perfect shift(PS) as indicated by the blue arrow from traditional markets( $TM = Bc$ ) to green markets( $GM = BC$ ) after fully internalizing environmental concerns, closing that way the binding environmental sustainability gap( $BESG = c \rightarrow C$ ); and ii) an imperfect shift(IS) as indicated by the green arrow from traditional markets( $TM = Bc$ ) to environmental externality management markets( $TM_M = BM_C$ ), where the binding sustainability gap( $BESG = c$ ) is not fully fixed, it is just patched since  $BESG = c \rightarrow M_C$ , where full fix cost  $C > M_C$ , which means that the binding environmental sustainability gap is still opened or remains opened when the market is under environmental externality management. Notice that either of those solutions to save capitalism would be consistent partially with the urgent call made in 1987 by the Brundtland Commission(WCED 1987) to make economic development more responsible both in social and environmental terms; and therefore, the environmentally friendly actions taken in 2012 by the United Nations Commission on Environment and Development (UNCSD 2012a; UNCSD 2012b) were partially consistent too with the 1987 urgent call for action as social concerns were left out.

### c) The scope of this paper

Notice also that the consequence of failing to save capitalism a la traditional market from binding environmental externality threats as indicated by the broken arrows in Figure 2 above

means a move away from pure capitalism as we know it as then full economic dominance is lost as the perfect traditional market collapses. Hence, this paper focuses on the environmental externality threat incrust in the perfect traditional market model due to its environmental externality neutrality assumption and the failure to fix it or to patch it to prevent the collapse of the perfect traditional market model when under binding environmental externality threats. And this raises the questions, which are the paradigm evolutions routes available in the case perfect capitalism is brought down by binding environmental sustainability gap pressures? What is the nature of the market structure associated with each of those routes? Among the goals of this paper is to provide answers to these questions.

### **Goals of this paper**

a) To point out that if the traditional market collapses because no corrective environmental action is taken or action takes place too late the system moves away from capitalism as we know it; and b) To highlight graphically and analytically all paradigm evolution routes available after the perfect traditional market paradigm collapses.

### **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 paradigm evolution options to capitalism when it fails under binging environmental externality threats are pointed out graphically. Fourth, the structure and characteristics of each paradigm evolution route away from capitalism as we know it are listed. 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  
ESG = Environmental sustainability gap BESG = Binding environmental sustainability gap

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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 flip to the inverse opposite paradigm*
- 6) Perfect paradigm flip**, *a flip to the perfect inverse opposite paradigm*
- 7) Imperfect paradigm flip**, *a flip 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

**$M_1 = Xy = A \text{ dominant component } X \text{ perfect market}$**

**$M_2 = xY = A \text{ dominant component } Y \text{ perfect market}$**

## **2) Imperfect markets**

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

**$[M_1] = [X]y = A \text{ dominant component } X \text{ imperfect market}$**

**$[M_2] = x[Y] = A \text{ dominant component } Y \text{ imperfect market}$**

## **3) Externality management market**

They are ongoing government intervention based markets

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

**$M_{M2} = X_M Y = A \text{ dominant component } Y \text{ externality } X \text{ management market}$**

## **4) The sustainability market**

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

**$S = M_1 \cdot M_2 = (Xy)(xY) = XY$**

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**

**$M_1 = Xy \xrightarrow{\text{PS}} M_3 = XY$**

**PS**

**$M_2 = xY \xrightarrow{\text{PS}} M_3 = XY$**

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

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

IS

$$M_1 = Xy \xrightarrow{\hspace{1cm}} M_4 = XM_y$$

IS

$$M_2 = xY \xrightarrow{\hspace{1cm}} M_5 = M_xY$$

*iii) Perfect paradigm flip*

Paradigms flip to the perfect inverse opposite model

PF

$$M_1 = Xy \xrightarrow{\hspace{1cm}} M_2 = Xy$$

PF

$$M_2 = xY \xrightarrow{\hspace{1cm}} M_1 = Xy$$

*iv) Imperfect paradigm flip*

Paradigms flip to the imperfect inverse opposite model

IF

$$M_1 = Xy \xrightarrow{\hspace{1cm}} M_6 = x[Y]$$

IF

$$M_2 = xY \xrightarrow{\hspace{1cm}} M_7 = [X]y$$

**The structure of paradigm evolution routes after the fall of capitalism**

When capitalism cannot be saved or no action is taken to save it when under binding environmental externality threats it collapses, losing its full economic dominant status, partially or totally in the process, a situation that can be indicated graphically if we break the blue arrow towards the perfect shift to green markets and if we break the green arrow towards the imperfect shift to environmental externality management markets as well as by placing now continuous arrows on each possible paradigm flip in Figure 2 above. Making the changes indicated above on

Figure 2 in the introduction leads to the structure of paradigm evolution routes available after the fall of capitalism as summarized in Figure 3 below:

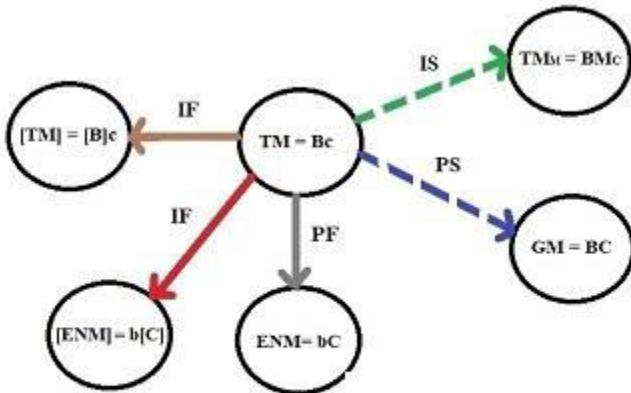


Figure 3 The pure capitalism market(TM) under binding environmental sustainability gap pressures(c) when it can not be saved

Based on Figure 3 above when capitalism( $TM = Bc$ ) cannot be saved as indicated by the broken arrows it collapses and flips towards the perfect environmental market  $ENM = bC$  or towards the imperfect environmental market  $[ENM] = b[C]$  or towards an authoritarianism based market  $[TM] = [B]c$  as indicated by the continuous arrows. Hence, when the perfect traditional market paradigm collapses economic dominance B is lost fully or partially as we move away from the world of capitalism as we know it. Notice that the perfect environmental market  $ENM = bC$  has the structure of perfect environmentalism, where there is environmental equality and freedom; and that the imperfect environmental market  $[ENM] = b[C]$  has the structure of imperfect environmentalism as then there is environmental equality, but no freedom.

### The nature of the market structure associated with each of paradigm flip routes away from perfect capitalism

#### i) The perfect environmental market flip

The flip from pure capitalism  $TM = Bc$  to perfect environmental markets  $ENM = bC$  is a perfect flip(PF) from an economy dominant model(B) to an environment dominant model(C), which can be stated as below:

**PF**

$TM = Bc \xrightarrow{\hspace{2cm}} ENM = bC$

Notice that this is a flip from a perfect market to an inverse opposite perfect market; and therefore, a flip from economic dominance to environmental dominance. A flip from thinking

that the environment(c) exist to meet economic goals to the thinking that the economy(b) exists to meet environmental goals.

## ii) The imperfect environmental market flip

The flip from pure capitalism  $TM = Bc$  to imperfect environmental markets  $[ENM] = b[C]$  is an imperfect flip(IF) from an economy dominant model(B) to an imperfect environment dominant model([C]), which can be indicated as below:

IF

$$TM = Bc \xrightarrow{\hspace{1cm}} [ENM] = b[C]$$

Notice that this is a flip from a perfect market to an inverse opposite imperfect market, and therefore, a flip from free market to an inverse opposite non-free market. A flip from the thinking economic component equality and freedom to the imperfect inverse thinking environmental component equality without freedom.

## iii) The flip towards market authoritarianism

The flip from pure capitalism  $TM = Bc$  to authoritarian based markets  $[TM] = [B]c$  is an imperfect flip(IF) from a perfect dominant model(B) to an imperfect economy model([B]), which can be stated as follows:

IF

$$TM = Bc \xrightarrow{\hspace{1cm}} [TM] = [B]c$$

Notice that this is a flip from a perfect market to an imperfect market; and therefore, this a flip from a free economy market to a non-free economy market. A flip from the thinking economic component equality and freedom to the thinking economic component equality without freedom.

### Main implication:

In a world of capitalism under which only binding environmental sustainability gaps matter as indicated above, the fall of capitalism due to binding environmental externalities leaves 3 possible evolution routes to move away from capitalism as usual: the flip to perfect environmental markets, the flip to imperfect environmental markets, and the flip to economic authoritarianism.

## Food for thoughts

1) Is component freedom a necessary and sufficient condition for the existence of true perfect markets? I think no, what do you think?; 2) Is the traditional market of Adam Smith a true perfect market? I think no, what do you think?; and 3) Does the perfect market a la Adam Smith requires an inequality neutrality assumption in order to work? I think yes, what do you think?

## Conclusions

First, it was highlighted that if proper environmental externality action is taken to address this binding threat, the traditional market can be saved through a full fix or a patched. Second, it was pointed out that if not proper environmental externality action is taken or if it is taken too late, the traditional market will collapse; and the system moves away from capitalism as we know it. And third, it was stressed that after the capitalism market collapse, the full dominance of the economy is lost, partially or totally as the system flips towards perfect environmental markets or imperfect environmental markets or towards dictatorship based traditional markets.

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