Sustainability thoughts 150: An overview of perfect market variability based on component dominance and binding externality pressures

By

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Abstract

It can be said that a perfect market under binding externality pressures is the one where a dominant component rules while subject to sustainability gap pressures. For example, the perfect traditional market under binding social or environmental or socio-environmental sustainability gap pressures is the one where the dominant economy component rules while subjected to those binding sustainability gap pressures. However, there are many other perfect market structures possible beside the perfect traditional market such as the perfect social market or the perfect eco-economic market and so on. Yet not much seems to be written about perfect market variability under binding externality pressures to facilitate a view beyond perfect market thinking and competition and externality neutrality assumptions. And this raises the question, how perfect market variability based on component dominance and binding externality pressures looks like? Among the goals of this paper is to provide an overview of perfect market variability aimed at providing an answer to that question.

Key concepts

Sustainability, perfect markets, imperfect markets, dominant paradigm, perfect market variability, the perfect economy market, the perfect social market, the perfect environmental market, the perfect red market, the perfect green market, the perfect socio-environmental market, the perfect sustainability market, authoritarianism based market, externality, binding sustainability gap.

Introduction

a) Perfect markets under binding externality or sustainability gap pressures

It can be said that a perfect market(M) under binding externality pressures "y" is the one where a dominant component X rules while under those binding externality pressures so it can be stated as follows:

1) M = Xy, where X = the dominant component and y = the binding externality

Expression 1 above tells us that component X drives the growth of the perfect market M, but it is being affected by the binding externality "y". Hence, under binding externality pressures there are limits to growth; and if those binding externalities are addressed the paradigm can be saved, but if they are not addressed there will be paradigm collapse. All possible market evolution routes that can come in response to binding sustainability gaps, when the perfect market under pressure can be saved or collapses have been recently pointed out(Muñoz 2021).

b) The case of the perfect economic market under binding externality pressures

For example, the perfect traditional market(TM) can be under different types of binding externality pressures depending on whether only social externality(a) matters or only environmental externality(c) matters or both social and environmental(ac); and those binding externality pressures are affecting its stability as described below:

i) The case of the perfect market under binding social sustainability pressures

The traditional market(TM_1) under binding social externality pressures is the one where the dominant economy component(B) is being affected by binding social(a) issues so the model can be expressed as indicated below:

2) $TM_1 = Ba$

Expression 2) above tells us that the traditional market TM_1 is under social externality(a) pressures. Addressing social externality issues associated with the traditional market leads to socially friendly capitalism(Muñoz 2016a).

ii) The case of the perfect market under binding environmental sustainability pressures

The traditional market(TM_2) under binding environmental externality pressures is the one where the dominant economy component(B) is being affected by binding environmental(c) issues so the model can be stated as done below:

3) $TM_2 = Bc$

Expression 3) above indicates that the traditional market TM_2 is under environmental externality(c) pressures. Addressing the environmental associated with the traditional market issue became relevant in 1987 in the publication "Our Common Future"(WCED 1987) and concrete environmental action was taken in 2012(WCED 2012a; WCED 2012b) when

environmental issues became the centre of local and global development agendas as later reflected in the Paris Agreement(UNFCCC 2015).

iii) The case of the perfect market under binding socio-environmental sustainability pressures

The traditional market(TM_3) under binding socio-environmental externality pressures is the one where the dominant economy component(B) is being affected by binding socio-environmental(ac) issues so the model can be represented as follows:

4) TM_3 = Bac

Expression 4) above indicates that the traditional market TM_3 is under socio-environmental externality(ac) pressures. Addressing the social and environmental externality issues associated with the traditional market together brings the traditional market towards the world of sustainability markets(Muñoz 2016b).

Notice that if we make M = TM1, then X =B and y = a, if we make M = TM2, then X = B and y = c, and if we make M = TM3, then X = B and y = ac. Hence, all of these perfect traditional markets under different externality pressures meet the definition of perfect market M for the economy under sustainability gap pressures. In other words, each of those markets reflects a different way to state the perfect traditional market model of Adam Smith(Smith 1776) when there are no externality neutrality assumptions. However, for the presentation of the ideas in this paper perfect markets like TM3 = Bac are used to generalized perfect market variability as they reflect full binding externality accountability.

c) Perfect market variability under binding externality pressures

Since there are many other perfect market structures possible being affected by binding externality pressures beside the perfect traditional market such as the perfect social market or the perfect eco-economic market, the perfect socio-economic market and so on, which can be generalized as follows:

5) Mi = Xi.yi, where Xi = dominant component "i" and yi = binding externality "i"

Expression 5 above indicates the binding externality "yi" is affecting the performance of the dominant component Xi that drives the growth of the perfect market Mi. And since there are no externality neutrality assumptions here, but full externality accountability then the perfect market Mi has limits for growth, limits imposed by externality "yi".

If we expressed the externality pressure "yi" in terms of sustainability gap(SGi) pressures, then we can make SGi = yi ; and we can use this to rewrite model Mi in terms of binding sustainability gaps:

6) Mi = Xi.SGi, where Xi = dominant component "i", SGi = binding sustainability gap"i"

Expression 6 above tells us that perfect market Mi is under the influence of a binding sustainability gap SGi.

Yet despite the existence of perfect market structures other than perfect traditional market structures under externality pressures not much seems to be written about perfect market variability under binding externality pressures to facilitate a view beyond perfect market thinking and competition under externality neutrality assumptions. And this raises the question, how perfect market variability based on component dominance and binding externality pressures looks like? Among the goals of this paper is to provide an overview of perfect market variability aimed at providing an answer to this question.

Objectives

a) To introduce a perfect market variability model based on component dominance when there are no externality neutrality assumptions at work; and b) To use this model to provide an overview of all possible perfect markets possible under binding externality pressures besides the perfect economy market under such pressures.

Methodology

a) The terminology used in this paper is introduced; b) some operational concepts are given; c) The dominant component perfect market variability model under full binding externality pressures is stated assuming social(A), environmental(C), and economic(B) components; d) The variability of perfect markets under binding externality pressures from no dominant component, one dominant component, two dominant component, and all dominant component perfect markets and their implication are highlighted; and e) Some food for thoughts and relevant conclusions are shared.

Terminology

X = Dominant component X	x = Passive component X
B = Dominant economy	b = Passive economy
A = Dominant society	a = Passive society
C = Dominant environment	c = Passive environment

M = Perfect market M [M] = Imperfect market M

Mi = Perfect market Mi [Mi] = Imperfect market Mi

{N} = Market N under authoritarianism {N}= Market N under liberalism

TM = The perfect economy market DS = The perfect social market

ENM = The perfect environmental market GM = The perfect green market

RM = The perfect red market SENM = The perfect socio-environmental market

S = The perfect sustainability market [M] = Market N under equality, but not freedom

{ M } = Market N under freedom, but not equality M = Market under equality and freedom

FUM = abc = Full unsustainability market SGi = Sustainability gap "i"

Operational concepts and types of perfect market structures

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 perfect market structures

Given the dummy market models with two components 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

M3 = XY = A co-dominant component XY perfect market

You can appreciate that when there is both component equality and freedom at the same time you have a true perfect market.

2) Imperfect markets type 1

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

[M_1] = [X]y = A dominant component X imperfect market type 1

[M_2] = x[Y] = A dominant component Y imperfect market type 1

[M3] = [XY] = A co-dominant component XY imperfect market type 1

You can see that when there is only component equality you have an imperfect market type 1.

3) Imperfect markets type 2

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

{M_1} = {X}y = A dominant component X imperfect market type 2

{M_2} = x{Y} = A dominant component Y imperfect market type 2

{M3} = {XY} = A co-dominant component XY imperfect market type 2

Notice that when there is only component freedom again you have an imperfect market type 2.

c) Perfect markets and imperfect markets under sustainability gap pressures

Notice that if we make the passive component "y" and passive component "x" the sustainability gap pressures(SG) affecting all those perfect and imperfect market structures described above so that $SG_Y = y$ and $SG_X = x$, we can rewrite all those market structures above as when under binding sustainability gap pressures SG_Y and SG_X. For example, rewriting all market structures of Market M_1 in terms of binding sustainability gaps we get the following structures:

i) The perfect market M1 under binding sustainability gap pressures

$M_1 = Xy = X.SG_Y$ since $SG_Y = y$

A dominant component X perfect market M1 under binding sustainability gap pressures SG_Y.

ii) The imperfect market M1 type 1 under binding sustainability gap pressures

$[M_1] = [X]y = [X].SG_Y$ since $SG_Y = y$

A dominant component X imperfect market M1 type 1 under binding sustainability gap pressures SG_Y.

ii) The imperfect market M1 type 2 under binding sustainability gap pressures

$\{M_1\} = \{X\}y = \{X\}.SG_Y$ since $SG_Y = y$

A dominant component X imperfect market M1 type 2 under binding sustainability gap pressures SG_Y.

The dominant component perfect market variability model under no externality neutrality assumptions or under binding externality pressures

If we assume a perfect market world(Mi) where three dominant component, society(A), economy(B), and environment(C) interact under full binding externality pressures, then its variability model can be stated as follows:

Mi = Abc + aBc + abC

The expression above simply tells us that there is a perfect market Mi under full binding sustainability gap pressures when the dominant society(A) under full binding externality pressures or the dominant economy(B) under full binding externality pressures or the dominant environment(C) under full binding externality pressures or any combination of them is present; and therefore there is no perfect market Mi if all components are not present in dominant form at the same time.

i) The all passive component market

When there is no dominant component present in Mi above, then we have a full passive component market M_0 with the structure below:

M_0 = abc

The expression above says that when there is no component dominance we have a fully unsustainable market(FUM) as M_0 = FUM = abc.

ii) The one dominant component perfect markets under binding externality pressure

a) The case of the perfect social market under binding externality pressures

When only the society(A) under full binding externality pressures is in dominant form in Mi we have the perfect social market or the perfect deep socialism market M1 all under full binding externality pressures, which has the structure below:

M_1 = Abc

The expression above indicates that perfect market M1 is a perfect social market or deep social market(DS) under binding eco-economic externality pressures(bc) since M1 = DS = Abc as the society(A) is dominant but under eco-economic externality pressures(bc); and since there is no externality neutrality assumption there are eco-economic limits to growth.

b) The case of the perfect economy market

When only the economy(B) under full binding externality pressure is in dominant form in Mi we have the perfect economy market or the perfect capitalism market M2 under full binding externality pressures, which has the structure that follows:

M_2 = aBc

The expression above says that perfect market M2 under binding socio-environmental externality pressures is a perfect economy market or perfect traditional market(TM) under full socio-environmental externality pressures since M2 = TM = aBc as the economy(B) is dominant but under binding socio-environmental pressures(ac); and as there is not externality neutrality assumption there are socio-environmental limits to growth.

c) The case of the perfect environmental market

When only the environment(C) under full binding externality pressures is in dominant form in Mi we have the perfect environmental market or the deep environmental market M3 under full binding externality pressures, which has the following structure:

M_3 = abC

The expression above indicates that perfect market M3 under binding socio-economic pressures is a perfect environmental market(ENM) under binding socio-economic pressures since M3 = ENM = abC as the environment(C) is dominant but under binding socio-economic externality pressures(ab); and as there is no externality neutrality assumption it has socio-economic limits to growth.

iii) The two dominant component perfect markets under full binding externality pressures

a) The case of the perfect socio-economic market or red market under full binding externality pressures

When both the society(A) and the economy(B) under full binding externality pressures are in dominant form in Mi we have the perfect socio-economic market or perfect socially friendly market or perfect red market(RM) M4 under full binding externality pressures, with the structure below:

M4 = (Abc)(aBc) = ABc

The expression above shows that perfect market M4 is a perfect socio-economic market(RM) under full binding environmental externality pressures(c) since M4 = RM = ABc as the society(A) and the economy(B) are dominant but under binding environmental externality pressure(c); and as there is no externality neutrality assumption it has environmental limits to growth.

b) The case of the perfect eco-economic market or green market under binding full externality pressures

When both the economy(B) and the environment(C) under full binding externality pressures are in dominant form in Mi we have the perfect eco-economic market or perfect environmentally friendly market or perfect green market(GM) M5 under full binding externality pressures, with the structure as follows:

M5 = (aBc)(abC) = aBC

The expression above indicates that perfect market M5 under binding social externality pressures is a perfect eco-economic market or green market(GM) under full binding social externality pressures since M5 = GM = aBC as the environment(C) and the economy(B) are dominant but under binding social externality pressures(a); and as there is no externality neutrality assumption it has social limits to growth.

c) The case of the perfect socio-environmental market or yellow market under full binding externality gap pressures

When both the society(A) and the environment(C) under full binding externality pressures are in dominant form in Mi we have the perfect socio-environmental market or perfect environmentally friendly social market(SENM) M6 under full binding externality pressures, with the structure as follows:

M6 = (Abc)(abC) = AbC

The expression above says that perfect market M6 under binding economic externality pressures is a perfect socio-environmental market(SENM) under binding economic externality pressures since M6 = SENM = AbC as the society(A) and the environment(C) are dominant but under binding economic externality pressures(b); and as there is no externality neutrality assumption it has economic limits to growth.

iv) The all dominant component perfect market

When there is full dominant component under full binding externality pressures present in Mi above, then we have the perfect sustainability market(S) M_7, which is a full dominance perfect market where there are no externality pressures, and with structure as indicated below:

M_7 = (Abc)(aBc)(abC) = ABC

The expression above tells us that when all components under full binding externality pressures are present in dominant form at the same time there is a full dominance perfect market called the sustainability market(S) so that S = M7 = ABC. Notice that in the perfect sustainability market S you do not need externality neutrality assumptions as there are no externalities as it is driven by optimization as long as optimization holds there are no limits to growth.

Overview of perfect market structure variability under full binding externality pressures

All the types of markets under full binding externality pressures derived from model Mi above together with their names, their component dominant-dominated structure, and their corresponding imperfect market structures type 1 and type 2 under full binding externality pressures are listed in Table 1 below:

Table 1

Overview

Mi	**Perfect**	**Dominant**	**Imperfect**	**imperfect**

Market type	market name	market structure	type 1 market structure	type 2 market structure
M_0	FUM	abc	[abc]	{abc}
M1	DS	Abc	[A]bc	{A}bc
M2	TM	aBc	a[B]c	a{B}c
M3	ENM	abC	ab[C]	ab{C}
M4	RM	ABc	[AB]c	{AB}c
M5	GM	aBC	a[BC]	a{BC}
M6	SENM	AbC	[AC]b	{AC}b
M7	S	ABC	[ABC]	{ABC}

We can see the corresponding name to each possible market under full binding externality pressures derived from model Mi in Table 1 above together with their corresponding perfect dominant-dominated structure as well as their corresponding structures as if they were imperfect markets type 1 in terms of dominant component without freedom; and as if they were imperfect market type 2 in terms of dominant component without equality when under binding externality pressures. The 8 possible markets under full binding externality pressures are: the fully unsustainable market(FUM = M_0 = abc), the perfect social market(DS = M1 = Abc), the perfect economy market(TM = M2 = aBc), the perfect environmental market(ENM = M3 = abC), the perfect socio-economic market or socially friendly market(RM = M4 = ABc), the perfect eco-economic market or environmentally friendly market(GM = M5 = aBC), the perfect socio-environmental market or environmentally friendly social market(SENM = M6 = AbC = ACb), and the perfect sustainability market(S = M7 = ABC). Some of those perfect market structures and/or imperfect market structures under binding externality pressures are well-known, but others are not well known. For example, the perfect environmental market structure and its imperfect structure or similar socio-environmental structures under full binding externality pressures are not well-known. Among the well-known perfect market structures under binding externality pressures are for example: 1) the perfect green market structure under binding social externality pressure is GM = M5 = aBC, but its imperfect market structure type 1 [GM] = [M5] = a[BC] highlighting the lack of co-dominant component freedom or its imperfect

market structure type 2 {GM} = {M5} = a{BC} showing the lack of co-dominant component equality may not yet be well-known; and 2) The structure of the perfect economy market is TM = M2 = aBc, and its perhaps not very well-known imperfect market structure type 1 based on lack of dominant component freedom is [TM] = [M2] = [B]ac as well as its imperfect market structure type 2 based on lack of dominant component equality is {TM} = {M2} = {B}ac. Moreover, notice that in the last two columns in Table 1 above the imperfect structure of the fully unsustainable market and of the perfect sustainability market are shared as lacking component freedom [abc] and [ABC] and lacking component equality {abc} and {ABC} respectively. However, a fully unsustainable market under dictatorship or inequality affected by full binding externality pressures is still a fully unsustainable market so [abc] = {abc}---→ abc; and the perfect sustainability market under dictatorship or component inequality is a situation where sooner or later full sustainability(S) would prevail as [ABC] = {ABC}---→ABC.

Food for thoughts

1) Can perfect markets exist without freedom? I think No, what do you think?; 2) Was the red socialism market a perfect social market? I think No, what do you think?; and 3) Can a true perfect market exists without freedom? I think No, what do you think?

Conclusions

First, it was stressed that the perfect market variability model Mi under binding externality pressures leads to 7 different types of perfect markets and to one fully unsustainable market under binding externality pressures. Second, it was shown in the overview that these market structures are consistent to known market structures as dominant-dominated based perfect markets as for example the traditional market(TM = aBc) or the green market(GM = aBC). And third, it was pointed out that knowing the structure of each perfect market allows us to express their imperfect structure in terms of lack of dominant component freedom, which creates imperfect market structures that are consistent with known imperfect markets like the economic authoritarianism market([TM] = [B]ac) where there is economic component equality but no freedom or the red socialism market([DS] = [A]bc), where there is social equality without freedom. This also leads to other imperfect market structures like {TM} = {B}ac or {DS} = {A}bc, where there is dominant component freedom, but not equality, which are not well-known. In general, it was highlighted how perfect market variability based on component dominance and binding externality pressures looks like through the use of the perfect market model Mi.

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