SUSTAINABILITY THOUGHTS 151: AN OVERVIEW OF MARKET VARIABILITY BASED ON DOMINANT COMPONENT EQUALITY AND FREEDOM: WHAT IS THE STRUCTURE OF A TRUE PERFECT MARKET?

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ABSTRACT
Markets are related to concepts like equality and freedom. Markets based on dominant component freedom are said to be perfect markets and markets based on dominant component equality are said to be imperfect markets. Perfect markets here assume dominant component equality neutrality; and imperfect markets in this context assume dominant component freedom neutrality. However, true perfect markets are associated with dominant component freedom and dominant component equality at the same time; and if one component is absent or assumed away or assumed irrelevant, then we have a true imperfect market. This means that true perfect and true imperfect market thinking is not the same as traditional perfect and imperfect market thinking as we know it as then a known perfect market may not be a true perfect market; and a true imperfect market can be even a perfect market if neutrality assumptions are at play. Hence there is need to state and generalize the meaning of true perfect markets to understand the nature of related imperfect markets and to make sense as to whether or not well-known perfect markets and imperfect markets are consistent with what is a true perfect market. And this raises the question how a market variability model based on dominant component equality and freedom looks like? What is the structure of a true perfect market? What is the structure of true imperfect markets? How can true market thinking be linked to the structure of two well-known markets, the Adam Smith's traditional perfect market; and the Karl Marx's red socialism market? The focus of this paper is to provide an overview of market variability based on dominant component equality and freedom to state the specific and the general structure of a true perfect market and of true imperfect markets; and linked this knowledge to the necessary and sufficient conditions for the existence of two well-known markets, the traditional perfect market and the red socialism market.

Key Words: True perfect market, true imperfect market, the traditional perfect market a la Adam Smith, the red socialism market a la Karl Marx, the liberal market, the authoritarian market, market variability, equality, freedom, market structure.

1. INTRODUCTION
a) Markets and equality and freedom
Markets are related to concepts like equality and freedom. For example, the traditional perfect market of Adam Smith is a freedom based perfect market, a market where dominant component freedom, economic freedom, rules regardless of equality. Equality is an exogenous factor in the

perfect traditional market as this perfect market has an implicit economic equality neutrality assumption. It is known that the world of Adam Smith is based on economic freedom only(Smith 1776). Authoritarian based markets on the other hand, like economic authoritarianism are imperfect markets based on dominant component equality, but no freedom. Freedom here is an exogenous issue as these imperfect markets have an implicit economic freedom neutrality assumption. The same holds true for social authoritarianism based markets like the red socialism market of Karl Marx(Marx and Engels 1848) as here there is social equality, but no freedom. Notice that there are other perfect markets possible other than the traditional market like the perfect social market and the perfect red market; and that they have also related authoritarianism based markets like social authoritarianism(the red socialism market) and authoritarianism based red markets. In other words, markets, perfect or imperfect markets, can be dominant component freedom based or dominant component equality based if we assumed dominant component equality neutrality or dominant component freedom neutrality respectively.

b) The nature of true perfect markets and true imperfect markets

However, true perfect markets are linked to both dominant component equality and to dominant component freedom at the same time while true imperfect markets are linked to either dominant component freedom or to dominant component equality only. This means that true perfect markets may be inconsistent with known perfect market structures and that true imperfect markets may be consistent with known perfect and imperfect market structures. Moreover, from the true perfect market angle it is possible to see how imperfect markets can become perfect markets if we assume away either equality or freedom or if we declare any of them irrelevant. Ideas on how perfect market variability based on component dominance can be framed have recently been shared(Muñoz 2021) as well as ideas related to linking perfect market thinking to inclusion so as the need for full socio-economic inclusion when in the world of perfect red markets(Muñoz 2016a), the need for full socio-environmental-economic inclusion when in the world of perfect sustainability markets(Muñoz 2016b), and the need for full eco-economic inclusion when in the world of perfect green markets(Muñoz 2016c).

c) The need to understand the link between true perfect and true imperfect markets and all possible markets in terms of equality and freedom.

Hence based on the discussion above there is need to state and generalize the meaning of true perfect markets to understand the nature of related imperfect markets and to make sense as to whether or not known perfect markets and imperfect markets are consistent with what is a true perfect market. And this raises the question how a market variability model based on dominant component equality and freedom looks like? What is the structure of a true perfect market? What is the structure of true imperfect markets? How can this be linked to the structure of two well-known markets, one perfect market known as Adam Smith's traditional perfect market; and one imperfect market known as Karl Marx's red socialism market? The focus of this paper is to provide an overview of market variability based on dominant component equality and freedom to state the general structure of a true perfect market and of true imperfect markets; and linked this knowledge to the necessary and sufficient conditions for the existence of two well-known markets, the traditional perfect market and the red socialism market.

2. OBJECTIVES

This paper has the following goals: 1) to state the market variability model in terms of dominant component equality and freedom as well as to highlight the characteristics of the four specific type of markets possible; b) to use this framework to point out the structure of fully unsustainable markets, the structure of true imperfect markets, and the structure of a true perfect market; and c) to generalize this framework and then link the resulting true perfect and imperfect market thinking to known perfect market thinking such as the Adam Smith's perfect traditional market; and to known imperfect market thinking such as the Karl Marx's red socialism market.

3. METHODOLOGY

1) The terminology used in this paper is introduced; 2) Some operational concepts are given; 3) The dominant component market variability model based on equality(E) and freedom(F) under externality neutrality assumptions is stated; 4) The 4 specific cases of model Mj possible are covered in detail and the implications in terms of true perfect market and true imperfect market thinking are highlighted; 5) The specific dominant component market M = X is linked with its variability in terms of equality and freedom as given by specific variability model M_j; 6) The general dominant component market $M_i = X_i$ is linked with its variability in terms of equality and freedom as given by general variability model M_{ij}; 7) The case of the perfect economy market is described by making $M_i = X_i = B$, where B = Economy, to make it possible to link true perfect economy thinking to perfect economy market thinking a la Adam Smith; 8) The case of the perfect social market is discussed by making $M_i = X_i = A_i$, where A = Society, to make it possible to link true perfect social market thinking to imperfect social market thinking a la Karl Marx; And 9) 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 traditional 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 M 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"
TPM = The true perfect market   TIM = The true imperfect market
TIM1 = The true imperfect market type 1   TIM2 = The true imperfect market type 2
TPEM = The true perfect economy market   TIEM = The true imperfect economy market
TPSM = The true perfect social market   TIEM1 = True imperfect economy market type 1
TISM = The true imperfect social market   TIEM2 = True imperfect economy market type 2

TISM1 = True imperfect social market type 1   TISM2 = True imperfect social market type 1

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 market variability model based on equality(E) and freedom(F) under externality neutrality assumptions

If we assume there is dominant component market world($M = X$), then its variability in terms of component equality(E) and component freedom(F) can be stated as follows:

1) $M_j = X_E + X_F$

The expression 1) above simply says that there can be "j" types of model M depending on whether there is only dominant component equality present(X_E) or only dominant component freedom present(X_F) is present or both dominant component equality and freedom are present(X_{EF}) at the same time or both dominant component equality and freedom are absent(X_{ef}) at the same time

Based on presence-absent thinking, the number of models that can be derived from model Mj is given by the formula $(a)^n = (2)^n = (2)^2 = 4$ models since a = dichotomy option present-absent per variable = 2; and n = number variables = 2, and these models are described below:

Overview of the 4 cases of model Mj possible

i) The case of no dominant component equality(e) and no freedom(f) so that j = 0

This is the case of the fully imperfect market as there is no dominant component equality and freedom at the same time as indicated below:

2) $M_0 = (X_e.X_f) = X_{ef} = x$

The expression 2) above is the expression of a fully unsustainable market as both dominant component equality and freedom X_{ef} are missing at the same time, so then

3) $M_0 = X_{ef} = x = $ a fully unsustainable market(FUM)

Hence M_0 is a fully unsustainable market(FUM) where there is neither dominant component equality nor freedom(X_{ef}) at the same time so $M_0 = x$. Hence, a lower case "x" means a fully unsustainable market M.

ii) The case of dominant component equality(E), but no freedom(f) so that j = 1

This is the case of the partially perfect market type 1 where there is only dominant component equality(X_E) present as indicated below:

4) $M_1 = (X_E).X_f = X_{Ef}$

As there is no dominant component freedom(Xf), this is a dictatorship based market so that:

5) $M_1 = X_{Ef} = [X]$ = dictatorship based market

This is a dominant component X dictatorship based market as there is dominant component equality without freedom X_{Ef} ; and therefore $M_1 = [X]$. Here it is assumed that freedom(f) does not matter, only dominant component equality X_E matters, and this assumption makes it a true imperfect market type 1(TIM_1). The sign [ ] means equal but not free market M.

iii) The case of dominant component freedom(F), but no equality(e) so that j = 2

This is the case of the partially perfect market type 2 where there is only dominant component freedom X_F at work as shown below:

6) $M_2 = (X_e).X_F = X_{eF}$

Expression 6) tells us that M_2 is a freedom based liberal market as there is dominant component freedom without equality X_{eF} present.

As there is no dominant component equality X_e this is a pure freedom based liberal market in M_2, which means the following:

7) $M_2 = X_{eF} = \{X\}$ = freedom based liberal market

Expression 7) indicates that market M_2 assumes that equality(e) does not matter only dominant component freedom X_F matters; and this assumption makes it a true imperfect market type 2(TIM_2). The sign { } means free but not equal market M.

iv) The case of both dominant component equality(E) and freedom(F) so that j = 3

This is the case of the fully perfect market where there is dominant component equality and freedom at the same time X_{EF} at work as described below:

8) $M_3 = (X_E)(X_F) = X_{EF}$

As model M_3 above is the true perfect market X as there is dominant component equality X_E and dominant component freedom(X_F) at that same time, which leads to:

9) $M_3 = X_{EF} = X = TPM_X$ = the true perfect market X

The true perfect market X(TPM_X) reflects equality and freedom at the same time so that $M_3 = X$. Hence, a capital X means an equal and free market M.

Implications:

1- The necessary and sufficient conditions for a true perfect market(TPM) to exist in a system based on component dominance such as M = X is the existence of both dominant component equality and dominant component freedom at the same time such as in the case of M_3 $X_{EF} = X = TPM_X$; and

2- When there is only dominant component equality X_E or there is only dominant component freedom X_F we do not have a true perfect market, but a true imperfect market(TIM). In the case of only dominant component equality we have a true imperfect markets type 1 like $M_1 = [X] = TIM_1$; and in the case of only dominant component freedom we have a true imperfect market type 2 like $M_2 = \{X\} = TIM_2$.

Linking market M = X with its variability in terms of equality and freedom

As it can be seen in Table 1 below, Model M = X can take different forms, it can be fully unsustainable with the structure in column M_0, it can be a dictatorship is in column M_1, it can be a liberal market as in column M_2 or it can be a true perfect market as in column M_3.

Table 1

Summarizing the variability of model M = X in terms of equality and freedom

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	M_0	M_1	M_2	M_3
M = X	x	[X]	{X}	X
	Unsustainable Market	Dictatorship Market	Liberal Market	Equal and Free Market
	Fully imperfect Market	True imperfect Market type 1	True imperfect Market type 2	True perfect Market

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Implications from Table 1 with respect to model M = X

a) We can see in column M_0 that when model M takes a fully imperfect market form where there is no dominant component equality and freedom at the same time(X_{ef}) it is a fully unsustainable market "x"; b) We can appreciate in column M_1 that when model M takes the form of a true imperfect market type 1 it is a dictatorship based market(X_{Ef} = [X]) as there is no dominant component freedom; c) we can read in column M_2 that model M takes the form of a true imperfect market type 2 it is a freedom based liberal market(X_{eF} = {X}) as equality does not matter; and d) we can see in column M_3 that when model M takes a true perfect market form as there is both dominant component equality and freedom(X_{EF} = X) at the same time then it is an equal and free market as then full inclusion matters.

Generalizing the dominant component perfect market variability model based on equality and freedom under externality neutrality assumptions

We can generalize the information in Table 1 above if make M = Mi and X = Xi to reflect all possible dominant component market so that model Mi = Xi can take different forms as indicated in Table 2 below:

Table 2

Generalizing the variability of model M = X in terms of equality and freedom by making M = M_i and X = X_i

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	M_0	M_1	M_2	M_3
$M_i = X_i$	x_i	$[X_i]$	$\{X_i\}$	X_i

Unsustainable Markets	Dictatorship Markets	Liberal Markets	Equal and Free Markets
Fully imperfect Markets	True imperfect Markets type 1	True imperfect Markets type 2	True perfect Markets

Implications from Table 2 with respect to model Mi = Xi

a) We can see in column M_0 that when model Mi takes a fully imperfect market form($X_{ief} = x_i$) then any market Mi is a fully unsustainable market as there is no equality and there is no freedom; b) We can appreciate in column M_1 that when market Mi takes the form of a true imperfect market type 1 then any market Mi is a dictatorship based market($X_{iEf} = [Xi]$) as there is no dominant component freedom; c) we can read in column M_2 that when market Mi takes the form of a true imperfect market type 2 then any market Mi is a freedom based liberal market($X_{ieF} = \{X_i\}$) as equality does not matter; and d) we can see in column M_3 that when market Mi takes a true perfect market form($X_{EF} = X$) as there is dominant component equality and freedom at the same time then any market Mi is an equal and free market as then full inclusion matters.

General implications:

1- The necessary and sufficient conditions for a true perfect market(TPM_{Xi}) to exist in a system based on dominant component dominance such as Mi = Xi is the existence of both dominant component equality and dominant component freedom at the same time such as in the case of $M_3 = Xi = TPMx_i$ so that any market Mi where there is dominant component equality and freedom at the same time is a true perfect market(TPM_{Xi}); and

2- When there is only dominant component equality X_{iEf} or there is only dominant component freedom X_{ieF}, we do not have a true perfect market($TPMx_i$), we have then a true imperfect market($TIMx_i$), We have then either a true imperfect markets type 1 like $M_1 = [Xi] = TIM_1$ where any market Mi is a dictatorship based market or we have a true imperfect market type 2 like $M_2 = \{Xi\} = TIM_2$, where any market Mi is a freedom based liberal market.

Applying the general dominant component perfect market variability theory based on equality and freedom under externality neutrality assumptions to the dominant economy market

If we assume that the model Mi = Xi is the dominant economy market(DEM = B) so that Mi = DEM and Xi = B, then we can see the model variability of the dominant economy market as indicated in Table 3 below:

Table 3

The case of the dominant economy market, Mi = DEM so Xi = B since Mi = Xi and DEM = B

	M_0	M_1	M_2	M_3
DEM = B	b	[B]	{B}	B

Unsustainable Market	Dictatorship Market	Liberal Market	Equal and Free Market
Fully imperfect Market	True imperfect Market type 1	True imperfect Market type 2	True perfect Market

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Implications:

1) the necessary and sufficient condition for a true perfect economy market($TPEM_B$) to exist as indicated in column M_3 is the existence of dominant component equality and dominant component freedom at the same time so that $TPEM_B = M_3 = B_{EF} = B$. Therefore, there is economic equality and economic freedom at the same time here;

2) the necessary and sufficient condition for a liberal economy model to exist as indicated in column M2 is the existence of dominant component freedom only so that $M_2 = B_{eF} = \{B\}$ is a liberal economy model. Hence, there is economic freedom without equality here;

3) the necessary and sufficient condition for a dictatorship based economy model to exist as indicated in column M1 is the existence of dominant component equality only so that $M_1 = B_{Ef} = [B]$ is a dictatorship based economy model. So there is economic equality without freedom here; and

4) the necessary and sufficient condition for a fully unsustainable economy model to exist as indicated in column M_0 is the absence of dominant component freedom and of dominant component equality at the same time so that $M_0 = B_{ef} = b$ is a fully unsustainable dominant economy model.

Notice that the structure of the true imperfect model M2= {B} reflects the actual structure of Adam Smith's traditional perfect market model where economic freedom without equality is the central norm. Hence, Adam Smith's traditional perfect market model is not a true perfect economy market model($TPEM_B$) as $M_2 \neq M_3$. Hence, Adam Smith's traditional market model is a true imperfect market model type 2 as $M_2 = \{B\} = TIM_2$.

Applying the general dominant component perfect market variability theory based on equality and freedom under externality neutrality assumptions to the dominant society market

If we assume that the model Mi = Xi is the dominant society market(DSM = A) so that Mi = DSM and Xi = A, then we can see the model variability of the dominant social market as shown in Table 4 below:

Table 4

The case of the dominant society market, Mi = DSM so Xi = A since Mi = Xi and DSM = A

	M_0	M_1	M_2	M_3
DSM = A	a	[A]	{A}	A

Unsustainable Market	Dictatorship Market	Liberal Market	Equal and Free Market
Fully imperfect Market	True imperfect Market type 1	True imperfect Market type 2	True perfect Market

Implications:

1) the necessary and sufficient condition for a true perfect social market($TPSM_A$) to exist as indicated in column M3 is the existence of dominant component equality and dominant component freedom at the same time so that $TPSM_A = M_3 = A_{EF} = A$. Hence, there is here social equality and social freedom at the same time;

2) the necessary and sufficient condition for a liberal social model to exist as indicated in column M2 is the existence of dominant component freedom only so that $M_2 = A_{eF} = \{A\}$ is a liberal social model. Therefore, there is social freedom, but not social equality here;

3) the necessary and sufficient condition for a dictatorship based social model to exist as indicated in column M1 is the existence of dominant component equality only so that $M_1 = A_{Ef} = [A]$ is a dictatorship based social model, Hence, there is social equality but no social freedom here; and

4) the necessary and sufficient condition for a fully unsustainable social model to exist as indicated in column M_0 is the absence of dominant component freedom and dominant component equality at the same time so that $M_0 = A_{ef} = a$ is a fully unsustainable dominant social model.

Notice that the structure of the true imperfect model M1= [A] reflects the actual structure of Karl Marx's red socialism model where social equality without freedom is the central norm. Hence, Karl Marx's red socialism model is not a true perfect social market model($TPSM_A$) as M1 ≠ M3. The red socialism market is a true imperfect market model type 1 as M1 =[A] = TIM_1, where social equality without freedom prevails.

Food for thoughts

a) Can a true green market exist without green market freedom? I think No, what do you think?; b) Can a true red market exists without red market equality? I think No, what do you think?; and c) Can true imperfect markets be passed as perfect markets? I think Yes, what do you think?

4. CONCLUSIONS

1) It was shown that if there is component equality and component freedom at the same time we have a true dominant component perfect market; and if we only have freedom or equality we have a true imperfect dominant component market; 2) it was exalted that this applies for a specific dominant component market model as well as for any dominant component market model possible; 3) It was pointed out that the necessary and sufficient conditions for the existence of a true perfect economy market was the existence of economic equality and economic freedom at the same time; 4) It was indicated that since the traditional perfect market

model of Adam Smith is based only on economic freedom it is not a true perfect economy market, but a true imperfect economy market type 2 as there is economic freedom without economic equality; 5) It was highlighted that the necessary and sufficient conditions for the existence of a true perfect social market was the existence of social equality and social freedom at the same time; and finally, 6) It was stressed that since the red socialism market model of Karl Marx is based only on social equality it is not a true perfect social market, but a true imperfect social market type 1 as there is social equality without social freedom.

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