Sustainability thought 180: Dwarf green markets vrs traditional circular markets: Which one is environmental pollution production friendly? Why?

https://doi.org/10.5281/zenodo.15786219

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Abstract

It can be said that the need to address the environmental pollution production problem associated with the environmentally distorted working of the traditional market directly has guided dwarf green market thinking since 2012 Rio + 20 to now. These markets account for some of the environment cost associated with economic activity, contracting that way pollution production as supply and demand contract at higher dwarf green market prices. It can be said that circular traditional markets are geared to address the inefficient use of resources in traditional linear economic markets, not the pollution production problem associated with them; and hence circular traditional markets work under the assumption of environmental externality neutrality as the linear traditional market does, meaning you can increase resource use efficiency without producing environmental problems. Hence, both markets can be linked to environmental pollution production friendliness as both of them are supposed to be corrections of the environmentally distorted traditional market model. And this makes the following questions relevant: Dwarf green markets vrs traditional circular markets: Which one is environmental pollution production friendly? Why? Among the goals of this paper is to provide answers to those questions.

Key concepts

Distorted markets, environmentally distorted markets, distorted traditional markets, environmentally distorted traditional markets, circular traditional markets, environmentally distorted traditional markets, green markets, dwarf green markets, pollution production, pollution reduction, cost internalization, cost externalization, environmental pollution problem, resource use inefficiency problem.

Introduction

A) The structure of environmentally distorted markets

The structure of environmentally distorted markets (EDM) and its associated environmental pollution production problem (EPOP) has been recently stressed (Muñoz 2023a) as summarized in Figure 1 below:

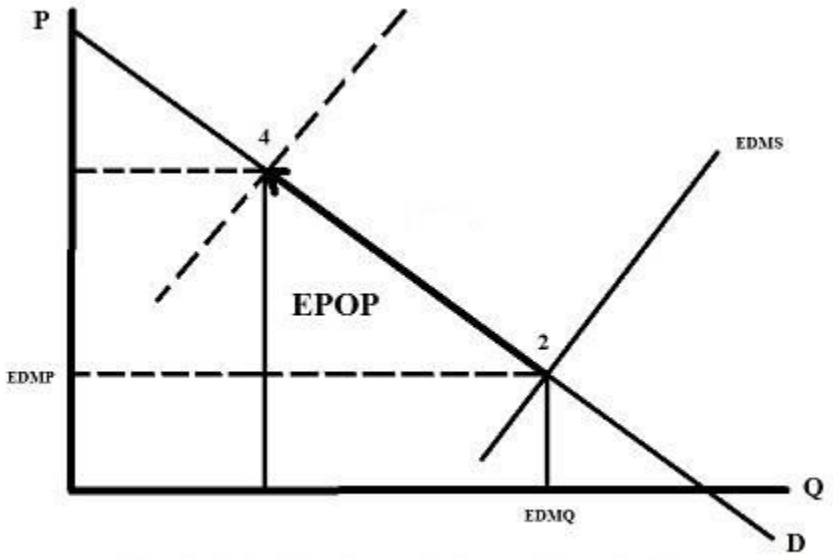

Figure 1 The environmentally distorted market (EDM) and its environmental pollution production problem (EPOP)

Figure 1 above can be used to indicate the following aspects: i) at point 2, where the environmentally distorted market supply (EDMS) cuts the demand (D) we have an environmentally distorted market (EDM), a market cleared by the environmentally distorted market price (EDMP), where production and consumption of the environmentally distorted quantity EDMQ takes place; ii) from point 2 to point 4 we have the environmental pollution production problem (EPOP) associated with the level of economic activity at point 2. Notice in Figure 1 above that a move to the right of point 2 means more environmental pollution production and a move the left of point 2 means less environmental pollution production. So if the goal is to address the environmental pollution production problem (EPOP) fully or partially we should expect the setting up of markets to the left of point 2, but if the goal is to leave the need to solve environmental pollution production problem behind and focus our attention instead on resource use inefficiencies associated with environmentally distorted markets (EDM), then we should expect the setting up of markets to the right of point 2.

B) The structure of environmentally distorted traditional linear markets

If we make the environmentally distorted market (EDM) stressed above be the environmentally distorted traditional market (EDTM) so that EDM = EDTM; and we make the environmental pollution production problem (EPOP) associated with the environmentally distorted market (EDM) be the same as the environmental pollution problem (EPOP) associated with the environmentally distorted traditional market (EDTM) so that EPOP = EPOP, then we

can highlight the structure of the environmentally distorted traditional linear market (EDTM) a la Adam Smith (Smith 1776) as summarized in Figure 2 below:

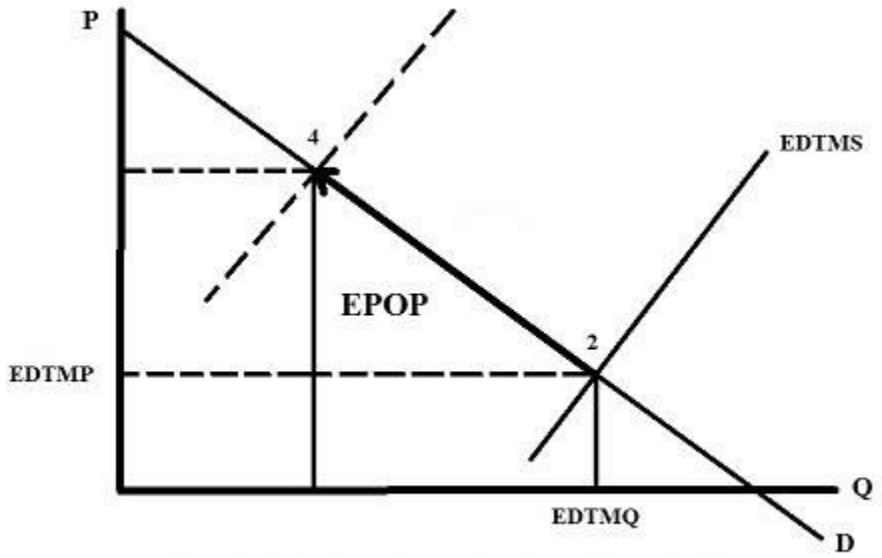

Figure 2 The environmentally distorted traditional market (EDTM) and its environmental pollution production problem(EPOP)

Figure 2 tells us the following: i) at point 2, where the environmentally distorted traditional linear market supply (EDTMS) cuts the demand (D) we have an environmentally distorted traditional linear market (EDTM), a market cleared by the environmentally distorted traditional market price (EDTMP), where production and consumption of the environmentally distorted traditional linear quantity EDTMQ takes place; ii) from point 2 to point 4 we have the environmental pollution production problem (EPOP) associated with the level of traditional linear economic activity at point 2. Notice in Figure 2 above that a move to the right of point 2 means more environmental pollution production associated with linear market expansion and a move the left of point 2 means less environmental pollution production related to linear market contraction. So if the goal is to address the environmental pollution production problem (EPOP) associated with the environmentally distorted traditional linear market fully or partially, we should expect the setting up of markets to the left of point 2, markets that leave the economic thinking valid a point 2 behind, but if the goal is to leave the need to solve environmental pollution production problem behind and instead focus our attention on resource use inefficiencies associated with environmentally distorted traditional linear markets (EDTM), then we should expect the setting up of markets to the right of point 2. For example sustainable development models consistent with sustainable development thinking a la Brundtland Commission (WCED 1987) as well as green markets and dwarf green market models consistent with the need to fully fix (Muñoz 2016; Muñoz 2020) or partially fix (Muñoz 2023b) the environmental sustainability problem since 2012 Rio + 20 (UNCSD 2012a; UNCSD 2012b), all operate the left of point 2 in Figure 2 above while the circular traditional market thinking being promoted since about 2022-2023(Muñoz 2024a) to now falls to the right of point 2. This is because thinking to the left of point 2 aims at leaving the distorted traditional market thinking of

Adam Smith (Smith 1776) in terms of environmental pollution production concerns behind while thinking to the right of point 2 aims at, not to fix the externality problem of the linear traditional market, but to fix the internal problem of resource use inefficiency associated with it.

C) The link between the expansion of environmentally distorted traditional markets and the environmental pollution production problem

The link between the expansion of environmentally distorted linear traditional markets a la Adam Smith and the nature of their environmental pollution production problem can be stated in simple terms more clearly as shown in Figure 3 below:

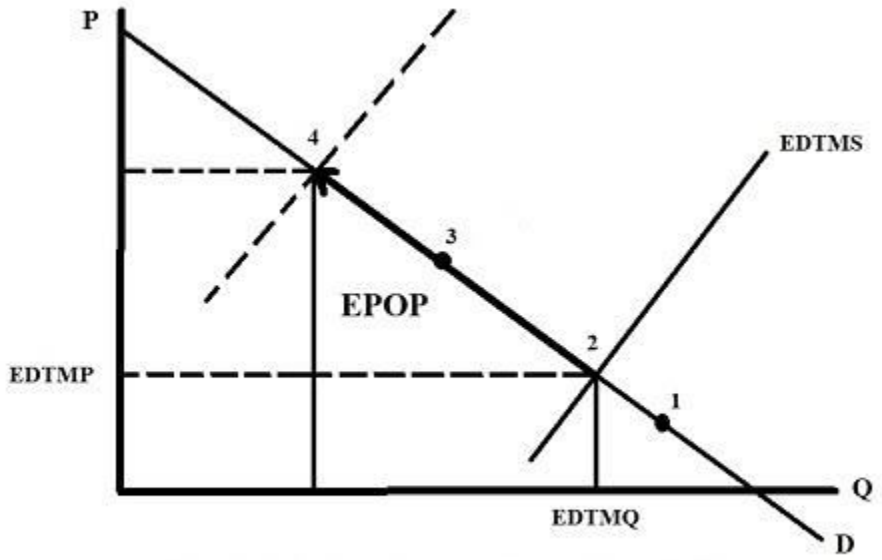

Figure 3 The link between environmentally distorted traditional market (EDTM) contractions and expansions and the environmental pollution production problem (EPOP)

We can highlight based on the points on the demand curve (D) in Figure 3 above the following in terms of market expansion: i) if the environmentally distorted traditional linear market (EDTM) expands from point 2 to point 1 following its tendency to produce at the lowest market price possible, then more production and consumption of environmentally distorted traditional market goods (EDTMQ) takes place; and ii) this means that the environmental pollution production problem at point 1 (black arrow from point 1 to point 4 on demand curve D) is worse than at point 2(black arrow from point 2 to point 4 on demand curve D). On the other hand, we can stress based on the points on the demand curve (D) in Figure 3 above the following in terms of market contraction: i) if the environmentally distorted traditional linear market (EDTM) contracts from point 2 to point 3, then less production and consumption of environmentally distorted traditional market goods (EDTMQ) would take place; and ii) this means that the environmental pollution production problem at point 3 (black arrow from point 2 to point 4 on demand curve D) is less severe than at point 2(black arrow from point 3 to point 4 on demand curve D); and however, iii) this scenario would not be possible as traditional linear markets are not in the business of producing at the highest cost possible, but at the lowest

traditional cost possible so they do not have profit incentives to contract traditional market activities to be environmentally friendly. However, if externality cost internalization addressing fully or partially the environmental pollution production problem depicted in Figure 3 above takes place or come into play, the traditional markets would shift to markets to the left of point 2 in Figure 3 above, but if the concern about environmental pollution production problem are set aside and the focus goes to dealing with internal model issues such as resource use inefficiencies, then markets to the right of point 2 will come to exist, as the new economic paradigm doubles down on the core values of the previous economic paradigm in the name of market improvements. The idea that going to circular markets from linear market does not make sense from environmental friendliness point of view has been recently pointed out (Muñoz 2024a) as the third development thinking blunder in terms of critical development problem solving thinking (Muñoz 2025).

D) The use of dwarf green markets and traditional circular markets and the nature of their environmental pollution production friendliness

It can be said that the need to address the environmental pollution production problem associated with the environmentally distorted working of the traditional market a la Adam Smith (Smith 1776) directly has guided dwarf green market thinking since 2012 Rio + 20 to now as the idea of going perfect green market thinking was left behind creating a period of green market paradigm shift avoidance (Muñoz 2024b). These dwarf markets account for some of the environment cost associated with economic activity, contracting that way pollution production as supply and demand contract at higher dwarf green market prices. Dwarf green markets can be seen at being set up at point 3 in Figure 3 above, leaving traditional linear market thinking behind (Muñoz 2019). On the other hand, it can be said that circular traditional markets are geared to address the inefficient use of resources in traditional linear economic markets, not the pollution production problem associated with them; and hence circular traditional markets work under the same assumption of environmental externality neutrality as the linear traditional market does, meaning you can increase resource use efficiency without producing environmental problems. The idea of improving linear economic thinking by making it circular started to get fast track and promotion in the name of economic efficiency, not solving environmental problems, since 2022-2023 first in Europe and then outside Europe (EEA 2023; OECD 2018; OECD 2024; OECD 2025; WB 2022). Circular traditional markets can be seen as being set up at point 1 in Figure 3 above. Hence, both markets, dwarf green markets and circular traditional markets can be linked to environmental pollution production friendliness as both of them are supposed to be corrections of the environmentally distorted traditional market model, one focused on the root-cause of the pollution production problem and the other addressing the consequences of linear traditional market distortions. And this makes the following questions relevant: Dwarf green markets vrs traditional circular markets: Which one is environmental pollution production friendly? Why? Among the goals of this paper is to provide answers to those questions.

Goals of this paper

1) To state the structure of dwarf green markets as partial corrections to address the environmental pollution production problem associated with linear traditional markets and list the implications of this; 2) To state the structure of circular traditional markets as externality neutral corrections in terms of the environmental pollution production problem associated with linear traditional markets as they are focused on fixing resource use inefficiency problems, not the pollution production problem and list the implications of this; and 3) To compare the environmental pollution production friendliness attached to each type of market and highlight that one of them is friendly and the other is unfriendly to the environmental pollution production problem.

Methodology

1) The terminology used in this paper is shared; 2) Some operational concepts and analytical tools are given; 3) The structure of dwarf green markets as tools used to address the environmental pollution problem created by the environmentally distorted traditional markets is highlighted; 4) How dwarf green markets are expected to work once they are set up is stressed analytically and graphically; 5) The structure of circular traditional markets as tools to address the resource use inefficiencies under which environmentally distorted traditional markets work, not the environmental pollution problem is pointed out; 6) How circular traditional markets are expected to work once they are set up is indicated both analytically and graphically; 7) The structure of environmental pollution production friendliness is provided contrasting the working of both dwarf green markets and circular traditional markets in the same plane and their specific type of friendliness indicated. And finally, 8) Some food for thoughts and relevant conclusions are stated.

Terminology

DM = Distorted market EDM = Environmentally distorted market

DTM = Distorted traditional market

EDTM = Environmentally distorted traditional market

DCTM = Distorted circular traditional market

EDCTM = Environmentally distorted circular traditional market

GM = Green market DGM = Dwarf green market

DMP = Distorted market price

EDMP = Environmentally distorted market price

DTMP = Distorted traditional market price

EDTMP = Environmentally distorted traditional market price

DCTMP = Distorted circular traditional market price

EDCTMP = Environmentally distorted circular traditional market price

GMP = Green market price DGMP = Dwarf green market price

DMQ = Distorted market quantity

EDMQ = Environmentally distorted market quantity

DTMQ = Distorted traditional market quantity

EDTMQ = Environmentally distorted traditional market quantity

DCTMQ = Distorted circular traditional market quantity

EDCTMQ = Environmentally distorted circular traditional market quantity

GMQ = Green market quantity DGMQ = Dwarf green market quantity

DMS = Distorted market supply

EDMS = Environmentally distorted market supply

DTMS = Distorted traditional market supply

EDTMS = Environmentally distorted traditional market supply

DCTMS = Distorted circular traditional market supply

EDCTMS = Environmentally distorted circular traditional market supply

GMS = Green market supply DGMS = Dwarf green market supply

D = Demand curve P = Price

Q = Quantity

EPOP = Environmental pollution production problem

REPOP = Remaining environmental pollution production problem

EM = Environmental margin DEM = Dwarf environmental margin

ECM = Economic margin i = Profit

Operational concepts and analytical tools

A) Operational concepts

i) Golden paradigm, one that does not create abnormalities.

ii) Flawed paradigm, one that creates abnormalities.

iii) Kuhn's loop, the science-based mechanism that leads to paradigm shift through abnormality correction.

iv) Dirty economy, a pollution-based economy.

v) Environmentally dirty economy, an environmental pollution-based economy

vi) Clean economy, a pollution less based economy.

vii) Circular dirty economy, a circular pollution-based economy

viii) Circular environmentally dirty economy, a circular environmental pollution-based economy

ix) Traditional market, the market cleared by the traditional market price.

x) Circular traditional market, the market cleared by the circular traditional market price.

xi) Environmental pollution production market, a market operating under environmentally distorted market pricing

xii) Circular environmental pollution production market, a market operating under environmentally distorted circular market pricing.

xiii) Pollution reduction market, a market operating under a corrected distorted market price.

xiv) Environmental pollution reduction market, a market operating under an environmentally corrected distorted market price.

xv) Pollution management market, a market operating at a pollution management cost led market price.

xvi) Environmental pollution management market, a market operating at an environmental pollution cost led market price.

xvii) Sustainability market, the one cleared by the sustainability market price.

xviii) Green market, the market cleared by the green market price.

xx) Dwarf green market, the market cleared by the dwarf green market price.

B) Relevant market structures

If we have the following: a = social abnormality, c = environmental abnormality, A = dominant society, C = dominant environment, B = the dominant economy, B2 = the dominant resource use-efficient economy, C_M = Environment under management, then the structure of relevant markets can be stated as indicated below:

1) The traditional market as a golden model

i) TM = B

Under externality neutrality assumptions the traditional market TM in section i) above is a golden paradigm, it produces no abnormalities.

2) The traditional market under social abnormalities(a)

ii) TM = aB

Under no social externality neutrality assumptions, the traditional market TM in section ii) above produces social abnormalities “a”. It is a flawed paradigm as it has social abnormalities to correct.

3) The traditional market under environmental abnormalities(c)

iii) TM = Bc

Under no environmental externality neutrality assumptions, the traditional market TM in section iii) above produces environmental abnormalities “c”. It is a flawed paradigm as it has environmental externalities to correct.

4) The traditional market under socio-environmental abnormalities(ac)

iv) TM = aBc

Under no socio-environmental externality neutrality assumptions, the traditional market TM in section iv) above produces socio-environmental abnormalities "ac". It is a flawed paradigm as it has social and environmental externalities to correct.

5) The red market under environmental abnormalities(c)

v) RM = ABc

Under no environmental externality assumptions, the red market RM in section v) above produces environmental abnormalities. It is a flawed paradigm as it has environmental externalities to correct. Notice that in the red market RM, both society(A) and economy(B) are in dominant form.

6) The green market under social abnormalities(a)

vi) GM = aBC

Under no social externality assumptions, the green market GM in section vi) above produces social abnormalities. It is a flawed paradigm as it has social externalities to correct. Notice that in the green market GM, both the economy(B) and the environment(C) are in dominant form.

7) The sustainability market has no abnormalities

vii) SM = ABC

The sustainability market SM in section vii) above produces no abnormalities as all components are in dominant form since all components are now endogenous to the model. It is a golden paradigm as it has no abnormalities to correct.

8) The circular traditional market as a golden model

viii) CTM = B_2

Under externality neutrality assumptions the circular traditional market CTM in section viii) above is a golden paradigm, it produces no abnormalities.

9) The circular traditional market under social abnormalities(a)

xi) CTM = aB_2

Under no social externality neutrality assumptions, the circular traditional market CTM in section xi) above produces social abnormalities "a". It is a flawed paradigm as it has social abnormalities to correct.

10) The circular traditional market under environmental abnormalities(c)

x) CTM = B_2c

Under no environmental externality neutrality assumptions, the circular traditional market CTM in section x) above produces environmental abnormalities "c". It is a flawed paradigm as it has environmental externalities to correct.

11) The circular traditional market under socio-environmental abnormalities(ac)

xi) CTM = aB_2c

Under no socio-environmental externality neutrality assumptions, the circular traditional market CTM in section xi) above produces socio-environmental abnormalities "ac". It is a flawed paradigm as it has social and environmental externalities to correct.

12) The dwarf green market under social abnormalities(a)

xii) DGM = aBC_M

Under no social externality assumptions, the green market DGM in section xii) above produces social abnormalities. It is a flawed paradigm as it has social externalities to correct. Notice that in the dwarf green market DGM, the economy(B) is in dominant form and the environment is under management form (C_M).

C) Abnormality externalization and internalization rules

If y, x, z are three abnormalities and Y, X, Z are the corrected variables and if E[ ] = externalization and I[ ] = internalization, then the following holds true:

a) E[Y] = y b) E[X] = x c) E[Z] = z

d) I[y] = Y e) I[x] = X f) I[z] = Z

g) I[E[Y]] = Y h) E[I[y]] = y i) E[YX] = yx

D) Paradigm shift and paradigm deep double downs

When you correct abnormalities y, x, and z through externality internalization, fully (whole margin) or partial (dwarf margin) you have a paradigm shift; and when you go from paradigm to paradigm without correcting the abnormalities you have a paradigm deep double down.

1) The structure of paradigm shifts under full externality internalization

If we have model M1 = Yxz and model M2 = YXz, then the shift from M1 to M2 has the following form:

I[x]

M1 = Yxz----------→ M2 = YXz

When we correct the abnormality "x" through internalization we induced the paradigm shift from M1 to M2, where the thinking of M1 no longer works in model M2, for example when we shift to perfect traditional market thinking to perfect green market thinking the thinking of traditional markets no longer works there.

2) The structure of paradigm shifts under partial externality internalization

If we have model M1 = Yxz and dwarf model DWM2 = YX_MZ , then we have a partial internalization of abnormality "x" = PI[x] as a dwarf margin of abnormality "x" is a partial internalization I[DM_X}, then the shift from M1 to DWM2 has the following form:

$I[DM_X] = PI[x]$

M1 = Yxz----------→ DWM2 = YX_MZ

When we correct the abnormality "x" through internalization partially (PI) we induce the paradigm shift from model M1 to dwarf model DWM2, where the thinking of M1 no longer works, for example when we shift to perfect traditional market thinking to dwarf green market thinking the thinking of traditional markets no longer works there.

3) The structure of deep paradigm double downs

If we have a model K = Yxz and we have a circular model CK = Y_2xz, then we have a deep paradigm double down as the abnormalities of K are still present in model CK since the factor Y going from "a bad or inefficient state or use" to "a good or efficient state or use", then the structure of the deep paradigm double down has the following form:

I[xz] = 0

K = Yxz----------→ L = Y_2xz

When we do not correct the abnormality "xz" through internalization we induce a paradigm deep double-down from K to CK, where the thinking of K still works in CK as only an internal change takes place, for example when we shift to perfect traditional market thinking to circular traditional market thinking the previous knowledge still works but it is focused on improving resource use efficiency without touching the abnormalities still embedded in it, it takes the same market from an inefficient economic use or state to an efficient economic use or state.

The use of dwarf green markets to address the environmental pollution problem created by the environmentally distorted traditional markets

The use of dwarf green markets (DGM) since 2012 Rio + 20 to address partially the environmental pollution production problem (EPOP) associated with environmentally distorted traditional linear markets (EDTM) can be summarized graphically as shown in Figure 4 below:

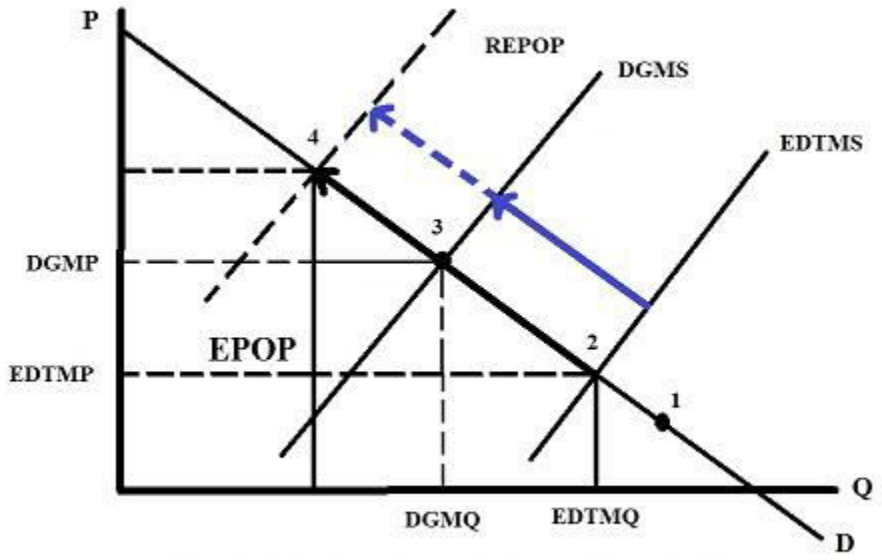

Figure 4 The structure of the dwarf green market (DGM) solution to the environmentally distored traditional market(EDTM)

Notice that if we internalized partially the environmental cost of production in the pricing mechanism of the traditional linear market we shift if from point 2 to point 3 reducing the environmental pollution production problem (EPOP) by the distance from point 2 to point 3 leaving a remaining environmental pollution production problem (REPOP) taking the distance from point 3 to point 4 as indicated by the broken arrow. Notice that a point 3 less is produced and consumed (DGMQ < EDTMQ) as the green market price is higher than the environmentally distorted traditional market price (GMP > DTMP) as the green market price reflect a partial environmental cost margin or dwarf green market set by the environmental pollution manager as they are under permanent government intervention. Notice that at point 3, there is no incentive for dwarf green producers to produce to the left of point 3 as they are not in the business of producing at higher prices than required by the pollution manager just to be environmentally friendly; and notice that dwarf green producers have an incentive to produce to the right of point 3, but the environmental pollution regulator would not allow it as then environmental pollution production would increase. Finally, see that the only way pollution production will be reduced under this dwarf green market scenario is if the pollution manager increases the partial environmental margin to be reflecting in the dwarf green market price shifting the dwarf green market to the left of point 3 and remain producing there until the pollution manager increases the partial environmental cost margin again.

The working of dwarf green markets once they are set up

Dwarf green markets (DGM) are expected to produce and consume at the set environmental management cost and less will be produced and consumed at higher dwarf green market prices (DGMP) than in the environmentally distorted traditional market (EDTM) as indicated in Figure 5 below:

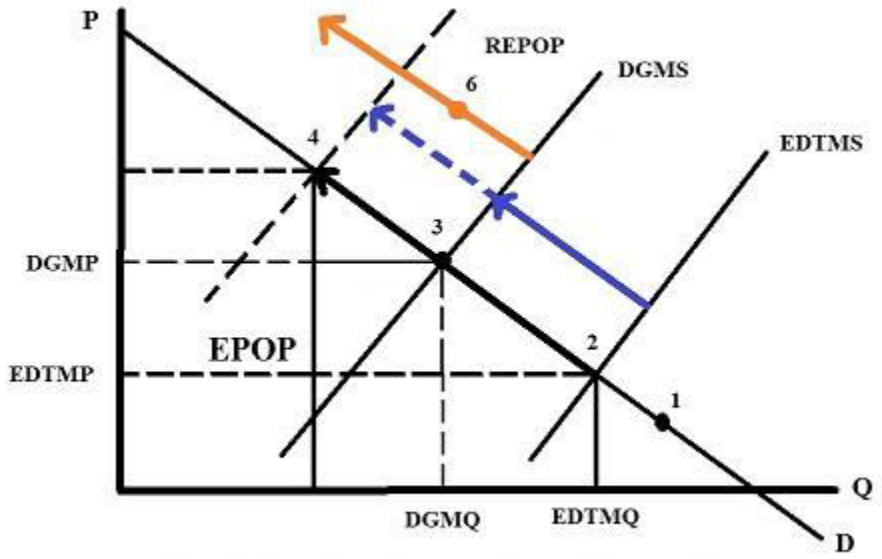

Figure 5 The working of dwarf green markets (DGM) once set up

Figure 5 above points out that dwarf green markets (DGM) once in place will contract to the left of point 2 as less is produced and consumed as indicated by the blue arrow moving from right to left from point 2, which means that the environmental pollution production problem (EPOP) contracts as dwarf green markets (DGM) contract as the blue arrow from point 2 to point 3 indicates, reason why consumption and production at point 3 is less than production and consumption at point 2 (DGMQ < EDTMQ) and this contraction means less environmental pollution production. And once in place, dwarf green markets will contract to the left of point 3 as the environmental cost margin is increased by the environmental pollution production manager step by step to slowly induced less and less environmental pollution production as indicated by the orange arrow moving from right to left from point 3 and points such as point 6 are points of dwarf green market's contractions. Notice that only if the pollution manager increases the environmental pollution margin to be passed to dwarf green consumers will dwarf green markets and dwarf green producers produce less environmental pollution. Hence if the goal is to partially reduce the environmental pollution production problem associated with linear market thinking, dwarf green markets is the way to go, keeping in mind that this is a world under permanent government intervention.

The use of circular traditional markets to address the resource use inefficiencies under which environmentally distorted traditional markets work

If we are concern about the resource use inefficiency associated with distorted traditional linear market, and not with their environmental pollution production problem, then we can continue to assume that we can expand circular traditional markets without producing environmental pollution, a situation expressed in Figure 6 below:

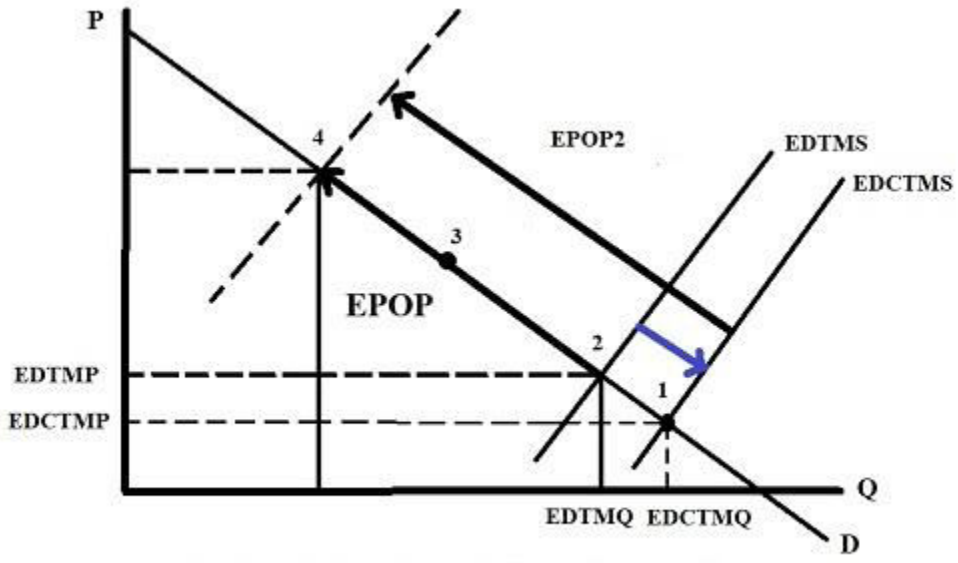

Figure 6 The move to environmentally distorted circular traditional markets (EDCTM)

Figure 6 above indicates that by addressing the resource use inefficiencies taken place in the traditional linear market at point 2 by bringing in resource use circularity we can shift to point 1 where we have the perfect circular traditional market as indicated by the blue arrow from point 2 to point 1. Notice that production and consumption in environmentally distorted circular economies at point 1 is higher than production and consumption in the environmentally distorted traditional linear economies at point 2 (EDTMQ < EDCTMQ), which means that going circular expands the environmental pollution production problem (EPOP) that existed before as the distance from point 1 to point 4 is greater than the distance from point 2 to point 4.

The working of circular traditional markets once they are set up

Circular traditional markets (CTM) are expected to produce and consume at lowest circular market price (EDCTMP) possible as more will be produced and consumed the lower the circular traditional market price goes, as shown in Figure 7 below:

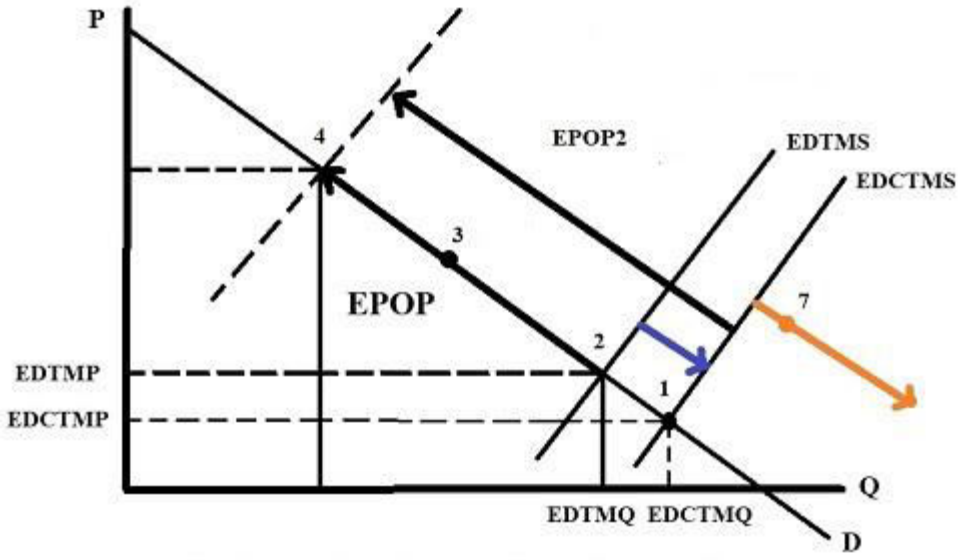

Figure 7 The working of environmentally distorted circular traditional markets (EDCTM) once set up

Figure 7 above tells us that environmentally distorted circular traditional markets (EDCTM) once in place will expand to the right of point 2 as the lower the circular traditional market price (EDCTMP) goes the more it is produced and consumed as indicated by the blue arrow moving from left to right from point 2 to point 1, which means that the environmental pollution production problem (EPOP) expands as the environmentally distorted circular traditional (EDCTM) market expands as production and consumption and pollution problem at point 1 is greater than that at point 2 (EDCTMQ > EDTMQ and EPOP2 > EPOP). Hence, as environmentally distorted circular traditional market expand producing at the lowest traditional circular market price possible, they will shift to the right of point 1 such as for example to point 7, and when doing this, a more efficient use of resources takes place, leading to more production and consumption and more environmental pollution production in the process. Hence, if we want to deal with the inefficient use of resources in linear markets and leave the environmental pollution production concern behind, free circular economy thinking is the way to go, but if the goal is to eliminate the environmental pollution production problem of linear markets, free circular economic thinking is the wrong way to go.

The structure of environmental pollution production friendliness

The nature of environmental pollution production friendliness can be extracted based on the situation displaying both the structure of the dwarf green market (DGM) and the structure of the circular traditional market (CTM) in the same plane as done in Figure 8 below:

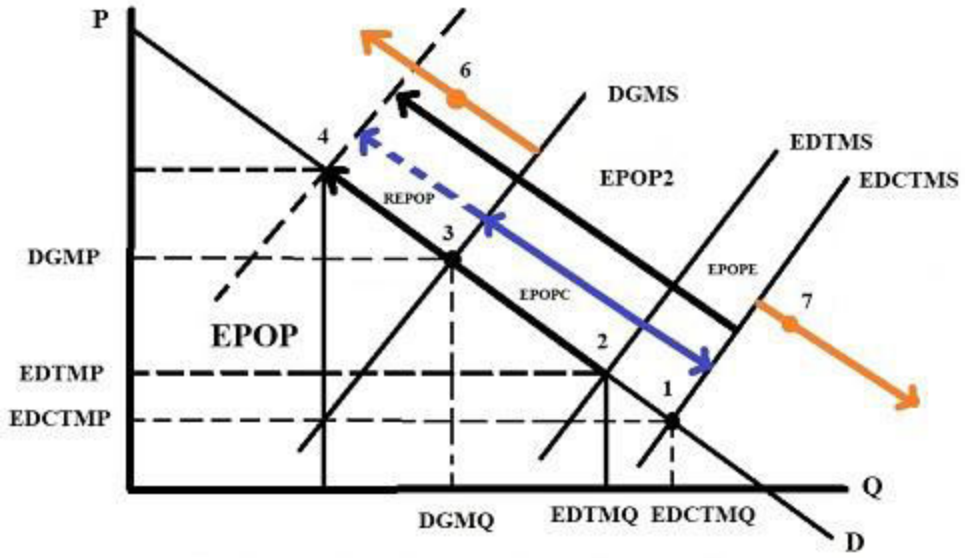

Figure 8 The structure of environmental pollution production friendliness

Figure 8 above indicates going from right to left from point 2 that the move from linear traditional markets at point 2 to dwarf green markets at point 3 is an environmental pollution production unfriendly move as indicated by the direction of the blue arrow from point 2 to point 3 going from right to left as less is produced and consumed (DGMQ < EDTMQ) in dwarf green markets (DGM), and that means that the more contraction to the left of point 2 the more environmental pollution production unfriendly dwarf green markets are as more and more pollution production is reduced as shown by the orance arrow going from point 3 to point 4 and beyond moving from right to left.

On the other hand, Figure 8 above shows going from left to right from point 2 that the move from linear traditional markets at point 2 to circular traditional markets at point 1 is an environmental pollution production friendly way as indicated by the direction of the blue arrow from point 2 to point 1 going from left to right as more is produced and consumed (EDCTMQ > EDTMQ) in circular traditional markets (EDCTM), and that the more expansion to the right of point 2 the more environmental pollution production friendly circular traditional markets are as the environmental pollution production problem expands as shown by the orance arrow going from point 1 through point 7 and beyond moving from left to right. Therefore, dwarf green markets (DGM) and circular traditional markets (EDCTM) pull the environmental pollution production problem (EPOP) in opposite ways, one it is unfriendly as it contracts it and the other is friendly as it expands it, which means that the move from linear thinking (EDTM) to dwarf green markets (DGM) is a move forward in terms of solving the pollution production problem while the move from linear markets thinking (EDTM) to circular traditional market thinking (EDCTM) is a move backwards in terms of solving the pollution production problem. Notice that at point 7 the environmental pollution production problem (EPOP) is worse than at point 1 as the pollution production problem expands; and see that at point 6 the environmental pollution production problem is less than the one that exist at point 3 as the pollution problem contracts.

The blue arrow going from right to left from point 2 to point 3 indicates environmental pollution production contraction and the blue arrow going from left to right from point 2 to point 1 shows environmental pollution production expansion.

In summary:

Dwarf green markets are environmental pollution production unfriendly tools as they lead to a contraction in the environmental pollution production problem found in linear traditional markets while circular traditional markets are environmental pollution production friendly tools as they lead to an expansion of the environmental pollution problem present in linear markets in the search of improving resource use efficiency.

Food for thoughts

1) Can you solve, an externality problem by addressing internality issues? I think No, what do you think? 2) Can you solve a problem by focusing your attention on the consequences of that problem? I think No, what do you think? 3) Are sustainability problems the consequence of assuming dominant factor externality neutrality? I think yes, what do you think? and 4) If we assume that flawed paradigms are golden paradigms, should we expect optimal results? I think No, what do you think?

Conclusions

First, the structure of dwarf green markets as tools to address the environmental pollution production problem linked to the working of linear traditional markets was pointed out stressing that i) dwarf green producers will produce at the dwarf green market price reflecting the dwarf green margin set by the environmental pollution reduction manager to achieve that environmental pollution reduction goal set by the manager; ii) Dwarf green market's producers will pollute less by producing less only if the environmental pollution manager increases the dwarf green margin to be passed to dwarf green market consumers; and therefore iii) Dwarf green markets achieve environmental pollution production reduction goals by contracting production and consumption as the dwarf environmental margin is increased through time, making them markets under ongoing government interventions. Second, the structure of circular traditional markets as tools to address the resource use inefficiencies environmental linked to the working of linear traditional markets, not to solving the environmental pollution production problem, was highlighted stressing that i) circular traditional market's producers will produce at the circular traditional market price reflecting the economic margin plus profits as they will tend to produce at the lowest circular traditional market price possible; ii) Circular traditional market's producers will pollute more by producing more as they are free circular traditional

markets working under an environmental externality neutrality assumption, the same one that existed under linear traditional market thinking, assumption that allows to expand economic activity without producing environmental externalities; and therefore iii) circular traditional markets achieve resource use efficiency and their expansion is assumed to be delinked from the environmental pollution production problem they are expanding by expanding production and consumption as they freely choose to produce at the lowest circular market price possible. Third, the working of both markets was contrasted to point out that while dwarf green markets are environmental pollution production unfriendly tools circular traditional markets are environmental pollution production friendly tools and the reason why is simply that dwarf green market prices lead to environmentally friendly economic contractions, and therefore, they induce environmental pollution production contractions (DGMP > EDTMP) while circular traditional market prices encourage environmentally unfriendly economic expansions, and hence, they drive environmental pollution production expansions (EDCTMP < EDTMP). And fourth, it was indicated that dwarf green markets and circular traditional markets pull the environmental pollution production problem in opposite directions, as one contracts it and the other expand it as dwarf green markets produce to the left of the environmentally distorted linear market when internalizing the partial environmental cost margin to pass to consumers set by the environmental pollution production reduction manager; and the circular traditional markets produce to the right of the environmentally distorted traditional market as it tends to produce at the lowest circular traditional market price possible (DGMP > EDTMP > EDCTMP).

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