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# Dwarf Green Markets vs. Green Markets: Evaluating their Role in Sustainable Economic Transitions

**By**

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## ABSTRACT

Clean market transition ideas were introduced in general as pollution management markets and as pollution reduction markets transition, in particular dwarf green markets ideas and green markets ideas. There is an environmental pollution production problem separating environmentally dirty traditional markets from environmentally clean markets and there are two ways of dealing with this problem, using dwarf green markets and green markets. If the goal is to transition from environmentally dirty traditional economies to environmentally clean economies, then understanding which one is friendly, and which one is not friendly to such transition is important for science-based policy-making and for understanding the reasons behind non-science-based policy decision-making. This makes the following questions relevant: Which markets are environmentally clean economy transition friendly, dwarf green markets or green markets? Why? Among the goals of this paper is to provide answers to these questions. It has been observed that green markets (GM) are environmentally clean economy transition friendly as they create a profitable green margin reduction path that transitions green markets (GM) towards environmentally clean markets (ECLM), partially or fully, step by step. Hence, using green markets (GM) shows a development road can be created that leads at the end to environmentally clean markets. In conclusion, dwarf green market solutions are partial solutions that lead to permanent environmental market failure, which prevents them from being environmentally clean economy transition friendly, and moves them away from the transition goal as environmental cost externalization is still taking place by means of the remaining environmental margin.

**Keywords:**

Dirty traditional market; Environmentally dirty traditional market; Dwarf green markets; Green markets; Environmentally clean market; Pollution production markets; Pollution-less markets; Environmental pollution problem.

## 1. INTRODUCTION

### 1.1 The Two Ways to Deal with the Environmental Pollution Problem Separating the Environmentally Dirty Traditional Economy from the Environmentally Clean Economy

Substantial progress has been made in society and the economy since the mid20th century. However, current development is characterized by excessive patterns of consumption and uncontrolled urbanization, leading to ecological destruction, climate change, and socioeconomic inequalities. Because of the rapidity and severity of environmental degradation, there have been a variety of unforeseen repercussions on health and well-being, both in the present and in the future (Ucheje & Ikebude,2024). As nations grapple with the challenges of climate change and ecological sustainability, a nuanced understanding of the factors shaping the adoption of environmental pollution is imperative for formulating effective policies (Xuan et al., 2024). On one hand, the income effect of globalization promotes environmental pollution via international trade and investments, while on the other hand, the scale effect promotes pollution through the transfer of factors of production and cross-border market interactions. This increases competition and encourages diversification with the resultant effect being increased production (Ali et al., 2023). Ideas such as dwarf green markets as environmental pollution management markets and green markets as environmental pollution reduction markets can be useful to understand ways to address the environmental pollution problem found between environmentally dirty traditional economies and environmentally clean economies as well as to highlight the usefulness of these approaches in supporting an orderly transition in the future towards an environmentally clean world ( Muñoz, 2024a). These clean market transition ideas were introduced in general as pollution management markets and as pollution reduction markets transitions (Muñoz, 2024b) and in particular as both in terms of dwarf green markets ideas (Muñoz, 2023a) and in terms of green markets ideas (Muñoz, 2023b). These clean market transition ideas in terms of environmentally dirty traditional markets (EDTM) are summarized in Fig. 1 as recently shared (Muñoz, 2024a): Fig. 1 tells us a) that there is an environmental pollution problem (EPO) separating the environmentally dirty traditional market (EDTM) from the environmentally clean market (ECLM) and b) that there are two ways of dealing with that environmental pollution problem (EPO), namely dwarf green markets (DGM) and green markets (GM), the first one being an environmental patch and the second one being a full fix. Notice that the ideas summarized in Fig. 1 are better understood if you understand the concepts of environmental pollution production markets, environmental pollution management markets, environmental pollution reduction markets, and environmental pollution-less markets (Muñoz, 2023c).

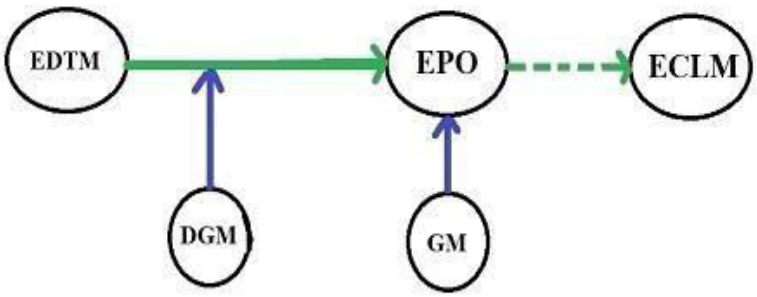


Fig. 1. The dwarf green market solution (DGM) and the green market solution (GM) to the environmental pollution problem (EPO).

### 1.2 Linking Dwarf Green Markets and Green Markets to Environmental Clean Market Transition Friendliness

As indicated above, there are two ways of dealing with the environmental pollution problem separating environmentally dirty traditional markets (EDTM) from environmentally clean markets (ECLM), using (2012 dwarf green markets (DGM) and using green markets (GM). This pollution production problem(EPO) associated to the working of traditional market thinking (Smith, 1776) was stressed by the Brundtland Commission in 1987 (World Commission on Environment and Development WCED, 1987) and addressed through sustainable development thinking; and later this same pollution production problem(EPO) was the central point of attention of the 2012 Rio +20 conference (United Nations Conference on Sustainable Development UNCSD, 2012a;2012b), who was initially favoring a full environmental fix a la green markets through pollution problem internalization as interest and aspiration in going full environmentally friendly development or sustainability was high then (WWF, 2011; DECC, 2011; ICPUP 2012; UNDESA 2012; IISD and IIED, 2014), but in the end, it took the route of a partial fix a la dwarf green markets through pollution management (OECD, 2011; OECD 2012; WB, 2012; UN, 2014; UNIDO and GGGI, 2015), which can be seen as falling into the area known as greenwashing ( GPI, 1987; Hoedeman, 2012) as an environmental patch is chosen over an environmental fix. Therefore, if the goal is to transition from environmentally dirty traditional economies (EDTM) to environmentally clean economies (ECLM), then understanding which one is friendly and which one is not friendly with such a clean market transition is important for science-based policymaking and non-science-based policy decision making and for understanding the reasons behind each of those different approaches (Muñoz, 2024a). Notice that the goal of going the way of the environmentally clean economy is not at the heart of the 2015 Paris Agreement and commitments(UN, 2015a: UN 2015b; UN, 2016), and hence this needed transition is not one of the sustainable development goals chosen and in progress(UN, 2024; UN, 2025), which makes the Paris Agreement and the sustainable development goals frameworks two manifests delinked with the need to move towards an environmental pollution-less world. And this makes the following queries relevant: Which markets are environmentally clean economy transition friendly, dwarf green markets or green markets? Why? Among the goals of this paper is to provide answers to these questions.

### 1.3 Objectives

a) To point out the nature of the dwarf green market solution, its consequences once in place, and the type of environmental clean market transition friendliness it has; b)To point out the nature of the green market solution, its consequences once in place, and the type of environmental clean market transition friendliness it displays; and c) To contrast the nature of the two solutions to show that one of the solutions moves away and away from the goal of environmentally clean markets once in place.

## 2. METHODOLOGY

i) the terminology and operational concepts and tools are provided; i i ) the structure of the dwarf green market solution to the environmental pollution problem is explained, its consequences highlighted, and the nature of its environmentally clean market transition friendliness is discussed; iii) the structure of the green market solution to the environmental pollution problem is shared, its consequences pointed out, and the nature of its environmentally clean market transition friendliness is pointed out; iv) the friendliness displayed by dwarf green markets and by green markets is contrasted in the same plane to show that one of them moves away from the goal of the environmental clean market transition; v) The nature of that environmentally clean economy friendly transition displayed by dwarf green markets and green markets is shown in terms of supply and demand thinking. And finally, v) some food for thoughts and conclusions are underlined.

### 2.1 Terminology

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EDM = Environmentally dirty market EDTM = Environmentally dirty traditional market

EPO = Environmental pollution DGM = Dwarf green market

GM = Green markets EM = Environmental margin

REPO = Remaining environmental problem REM = Remaining environmental margin

DEM = Dwarf environmental margin ECLM = Environmentally clean market

EPOM = Environmental pollution under management

I[EPO] = Environmental problem internalization

RETG = Renewable energy technology gap

D = Demand P = Market price

Q = Quantity DGMS = Dwarf green market supply

DGMQ = Dwarf green market quantity DTMS = Dirty traditional market supply

DTMQ = Dirty traditional market quantity GMS = Green market supply

GMQ = Green market quantity DTMP = Dirty traditional market price

DGMP = Dwarf green market price GMP = Green market price

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**2.2 Operational Concepts and Tools**

**i. Environmentally dirty market,** *one cleared by an environmentally distorted market price.*

**ii. Environmentally dirty traditional market,** *the one cleared by an environmentally distorted traditional market price.*

**iii. Greenmarket,** *the one cleared by the green market price.*

**iv. Dwarf green market,** *the one cleared by the dwarf green market price.*

**v. Green market price,** t*he one that reflects the environmental costs associated with economic activity.*

**vi. Dwarf green market price,** *the one that reflects a portion of the environmental cost associated with economic activity.*

**vii. Environmental pollution management market,** *one that addresses only a portion of the environmental pollution problem.*

**viii. Environmental pollution reduction market,** *one that addresses fully the environmental pollution problem.*

**ix. Environmental margin,** *one that reflects the environmental cost of production.*

**x. Dwarf environmental margin,** *one that reflects only a portion of the environmental cost of production.*

**xi. Environmental clean market,** *one where the environmental margin is zero.*

**xii. Renewable energy technology gap,** *the technology gap that needs to be closed to leave non-renewable energy markets behind, partially or fully.*

**xiii. Environmental problem internalization,** *the tool that corrects environmentally distorted markets.*

**xiv. Environmental cost externalization,** *the tools behind environmentally distorted market prices.*

**xv. Remaining environmental margin,** *the difference between the environmental margin and dwarf environmental margin driving the remaining environmental problem.*

**2.3 The Dwarf Green Market Way to Addressing the Environmental Pollution Problem**

**(i) The setting up of Dwarf Green Markets**

When dwarf green markets (DGM) are used to manage some of the environmental pollution problems (EPO) created by environmentally distorted traditional market prices (EDTM), we advance the situation shown in Fig. 2 below:

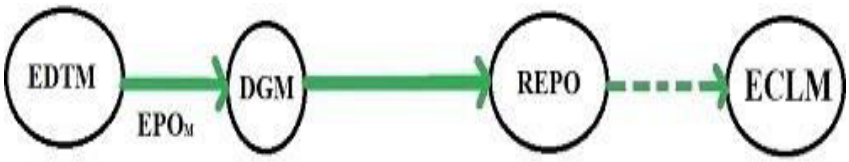


Fig. 2. The structure of the dwarf green market solution (DGM) to the environmental problems showing a remaining environmental pollution problem (REPO) issue delinking it from environmentally clean markets (ECLM).

We can highlight based on Fig. 2 above that managing a portion of the environmental problem (EPOM) created by environmentally dirty traditional markets (EDTM) leads to a remaining environmental problem (REPO), which keeps dwarf green markets (DGM) unconnected to clean markets as indicated by the broken arrow from REPO to ECLM. In other words, dwarf green markets (DGM) are delinked from the environmental clean market (ECLM) as there is a remaining environmental pollution problem (REPO) which is active while dwarf green markets (DGM) are at work (Muñoz, 2024a).

**(ii) The Consequences of Operating under a Remaining Environmental Problem**

The three market consequences associated with the coming of the remaining environmental problem (REPO) under dwarf green markets to address the pollution production problems of traditional markets (EDTM) are shown in Fig. 3 below:

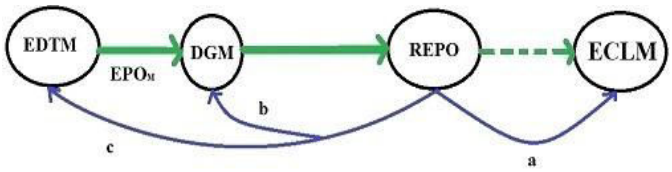


Fig. 3. The consequences of setting up dwarf green markets (DGM)

The remaining environmental problem (REPO) means a) that a transition from dwarf green markets (DGM) to environmentally clean markets (ECLM) is not possible; b) that it affects the stability of the environmentally dirty market (EDM) and of the dwarf green market (DGM) as environmental pollution management takes place; and c) that there is no market circularity in the environmentally dirty market (EDM) and in the dwarf green market (DGM) as the cost of the remaining environmental pollution problem is still being externalized .

The information in Fig. 3 above tells us the following things about the existence of the remaining environmental problem (REPO) after setting up dwarf green markets: 1) it prevents the movement of dwarf green markets (DGM) towards environmentally clean markets (ECLM) as an arrow "a" from REPO to ECLM shows; 2) it affects the stability of remaining

environmentally dirty traditional markets (EDTM) as arrow "c" from REPO to EDTM indicates; and 3) it affects the stability of dwarf green markets (DGM) as the arrow “b” from REPO to DGM demonstrates. Notice that going to dwarf green markets (DGM) is a move away from environmentally dirty traditional markets (EDTM), where permanent government intervention is needed for it to work properly. Promoting dwarf green market ways knowing or not about the remaining environmental problem at play when they are at work has been widely supported in the name of minimum carbon (WB 2013).

**(iii) The type of environmental clean market transition friendliness displayed by dwarf green markets**

The existence of the remaining environmental problem (REPO) shows that when dwarf green markets (DGM) are set up to address the problems created by environmentally dirty traditional markets (EDTM) we are creating a permanent environmental market failure that leads them away from the transition towards environmentally clean markets (ECLM), a situation summarized in Fig. 4 below:

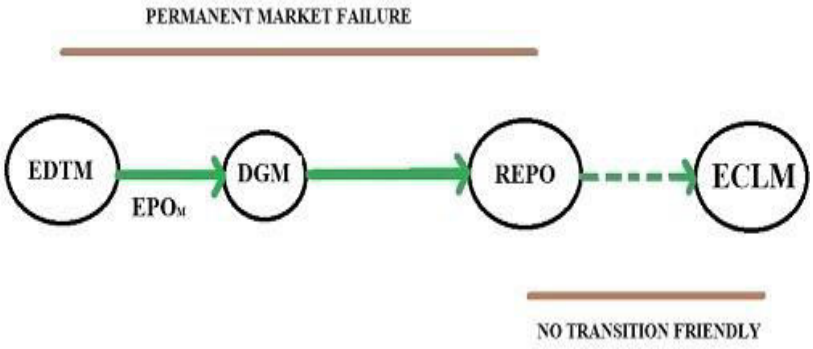


Fig. 4. No transition friendliness under permanent environmental market failure

Fig. 4 above tells us in simple terms that dwarf green markets (DGM) solutions are not environmentally clean economy transition friendly as they create a remaining environmental pollution problem (REPO) because of a permanent environmental market failure, which keeps them away from environmentally clean markets (ECLM). It has been recently pointed out that dwarf green markets are one form of environmental pollution management markets (Muñoz, 2023c).

**2.4 The Green Market Way to Addressing the Environmental Pollution Problem**

**(i) The setting up of green markets**

When green markets (GM) are used to address fully the environmental pollution problem (EPO) created by environmentally distorted traditional market prices (EDTM), we create the situation indicated in Fig. 5 below:

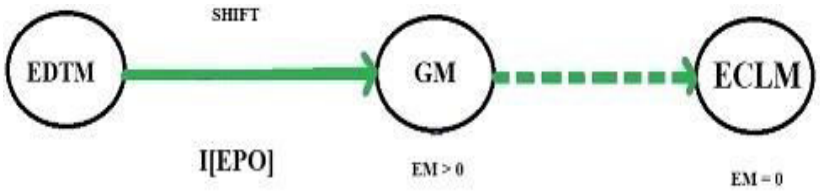


Fig. 5. The structure of the green market solution (GM) to the environmental pollution problem: Internalizing the environmental pollution problem(I[EPO]) shifts the environmentally dirty market (EDM) to the green market (GM) in a way that allows for making environmental pollution reduction profitable to drive the environmental cost of pollution towards zero (EM > 0) and approach that way the environmentally clean market (ECLM) status.

We can tell based on Fig. 5 above that internalizing the environmental pollution problem(I[EPO]) created by environmentally dirty traditional markets (EDTM) leaves no remaining environmental problem (REPO) out there, and this creates a transition path from green markets (GM) to environmentally clean markets (ECLM) as indicated by the broken arrow from GM to ECLM as it creates an environmental cost differential between those 2 types of markets, EM > 0 and EM = 0 respectively. Notice that the environmental margin(EM) under which green markets(GM) operates in Fig. 5 above is positive(EM > 0) as they run under pollution-based non-renewable energy once in place; and environmentally clean markets have no environmental margin (EM = 0) as they are no pollution production based markets, hence green markets make pollution reduction a profit-making opportunity as the lower the environmental margin goes the lower the cost of production and consumption is; and therefore, the lowest the level of environmental pollution production created. Notice in Fig. 5 above that the internalization of the environmental problem(I[EPO]) shifts the environmentally dirty traditional market (EDTM) towards the green market (GM), inducing the green margin differential needed to create the profit-making opportunity that will lead to the transition of green markets towards environmental pollution-less markets or environmentally clean markets. Hence, when we create green markets (GM) we are creating a transition path toward the environmentally clean economy (ECLM) as now environmental pollution reduction is a good profitmaking opportunity (Muñoz, 2024a). It has been indicated very recently that green markets (GM) are a form of environmental pollution reduction markets (Muñoz, 2023c).

**(ii) The consequences of operating under no remaining environmental problem**

The two market consequences associated with the elimination of the remaining environmental pollution problem (REPO) under green markets (GM) are indicated in Fig. 6 below:

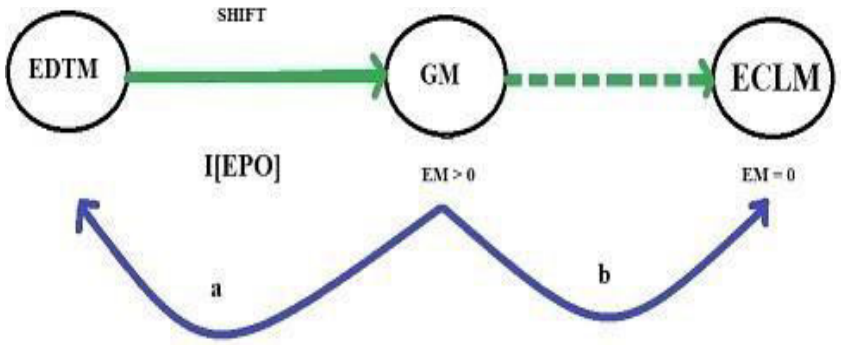


Fig. 6. The consequences of setting up green markets (GM)

The information in Fig. 6 above tells us the following about the elimination of the remaining environmental pollution problem(REPO) through full environmental problem internalization(I[EPO]): 1) it creates a path of movement from green markets(GM) towards environmentally clean markets(ECLM) as arrow "b" from GM to ECLM shows; and 2) it leaves the old environmentally dirty traditional market paradigm(EDTM) behind as its knowledge base is irrelevant under both green market thinking and under environmentally clean market thinking, new ideas or corrected old ideas are now needed to operate these markets efficiently. Notice that going green market (GM) is a move that leaves the knowledge base of the environmentally dirty traditional market (EDTM) behind as it does not work in the new market, and hence, the move to green markets (GM) is a move away from traditional market thinking just as the World Commission on Environment and Development called for in 1987 (World Commission on Environment and Development WCED, 1987) and which it said it was needed to leave pollution production behind.

**(iii) The type of environmental clean market transition friendliness displayed by green markets**

The absence of the remaining environmental problem (REPO) tells us that when green markets are set up you are fully correcting distorted traditional market prices to eliminate the environmental market failure they create, which opens the path towards a profitable transition towards environmentally clean markets (ECLM), a situation stated in Fig. 7 below:

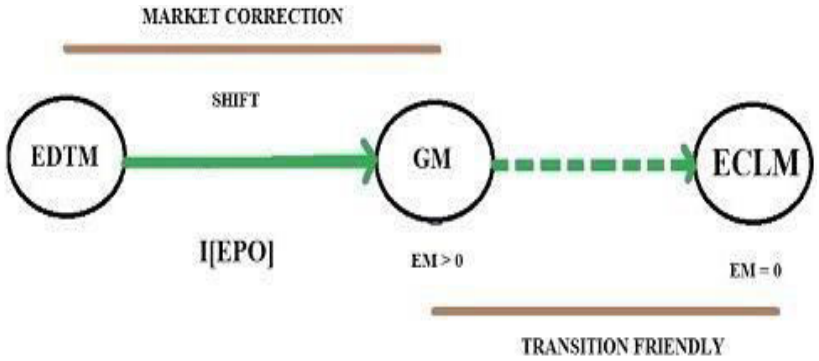


Fig. 7. There is transition friendliness under market correction

Fig. 7 above highlights in simple terms that green markets (GM) are environmentally clean economy transition friendly as they create a profitable green margin reduction path that transitions green markets (GM) towards environmentally clean markets (ECLM), partially or fully, step by step. Hence, using green markets (GM) as Fig. 7 above shows we can create a development road that leads at the end to environmentally clean markets (Muñoz, 2024a) as when the environmental margin reflected in the green market price tends towards zero (EM --→ 0), then the green market will tend towards taking the form of an environmentally clean market (ECLM).

**2.5 The Transition from Green Markets to Environmentally Clean Markets**

**(i) The structure of the transition**

As reducing the environmental margin reflected in market prices is now a profitmaking opportunity (GM > 0), then closing the renewable energy gap (RETG > ∞) to leave the non-renewable energy economy behind is now too a good profit-marking opportunity, and thus create the structure of the transition from green markets (GM) to the environmentally clean market (ECLM) as described in Fig. 8:

Fig. 8 stresses that closing the renewable energy gap (RETG > ∞) allows green markets (GM) to reduce their environmental margin (EM---->0) so as to produce and consume at the lowest green market price possible while producing the least pollution possible, until the environmental margin becomes zero (EM = 0) when it arrives at the world of perfect environmentally clean markets. It was highlighted recently the need to close the renewable energy technology gap to set in motion a move from full or dominant non-renewable energy-based economies to full dominant renewable energy-based economies (Muñoz 2014) in order to leave environmental pollution production behind and reach the clean economy world.

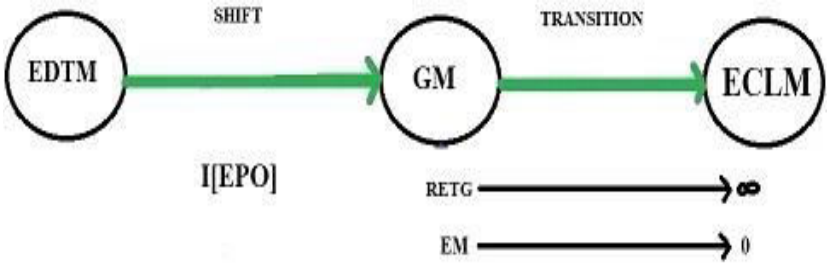


Fig. 8. The structure of the transition from green markets (GM) to environmentally clean markets (ECLM)

**(ii) The Partially Dominant Renewable Energy-based Market and Fully Dominant Renewable Energy-Based Green Market Transition Points**

The environmentally clean economy transition friendliness found in green markets (GM) can be seen as being guided in steps first to a world under partially dominant renewable energy-

based green markets, and then to a world under full dominance renewable energy-based green markets, a situation depicted in Fig. 9 below:

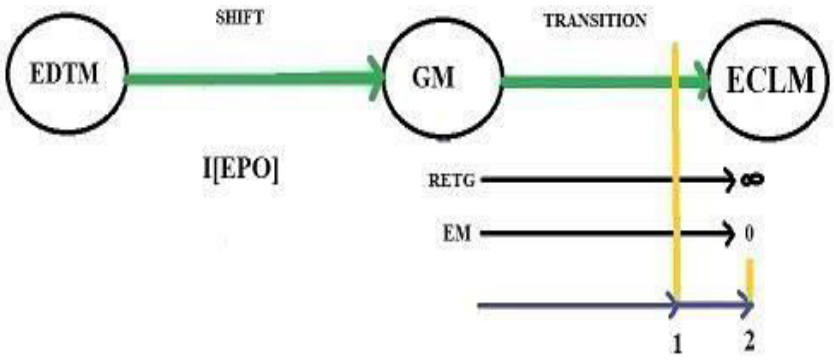


Fig. 9. The points in the transition from green markets (GM) to environmentally clean markets (ECLM), where the green market (GM) becomes a partially dominant renewable energy-based economy and fully dominant renewable energy-based economy, at point 1 and point 2 respectively.

Fig. 9 above shows the transition point where the green market (GM) reaches the partially dominant renewable energy-based market status at point "1"; and the transition point where the green market (GM) becomes a fully renewable energy dominant-based market status at point "2". Notice that at point "2" the green market (GM) becomes an environmentally clean market (ECLM) as at point "2" we have EM = 0. The idea that closing the renewable energy technology gap (RETG > ∞) is needed to transition to clean economies; and that failure to do that may even lead to economy blackouts has been recently pointed out (Muñoz 2014).

**2.6 Contrasting the Friendliness of Dwarf Green Markets and Green Markets**

We can contrast the structure of transition friendliness and model structure displayed by dwarf green markets (DGM) and by green markets (GM) by placing their structures in the same plane as detailed in Fig. 10 below.

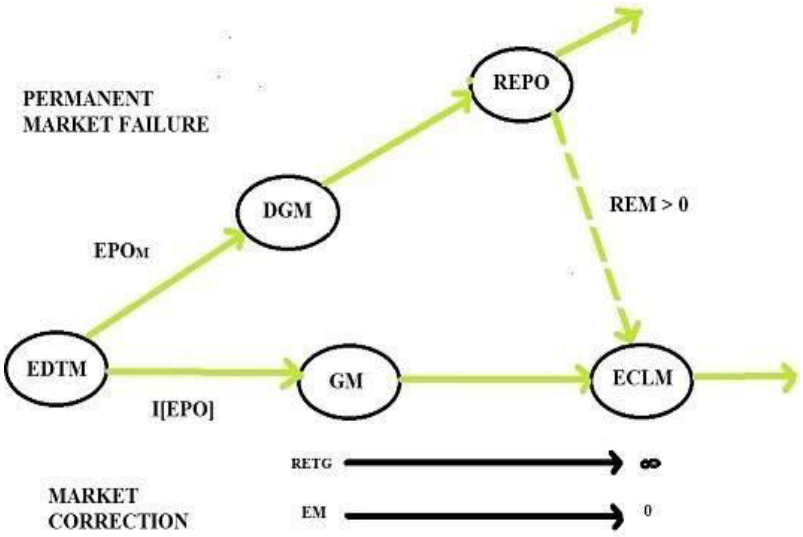


Fig. 10. The environmental clean market (ECLM) transition-friendly and transition-unfriendly framework in terms of green markets (GM) and dwarf green markets.

The following key aspects can be highlighted based on Fig. 10 above: i) at the top we can see that dwarf green markets(DGM) work under a permanent environmental market failure that creates the remaining environmental problem(REPO), and which leads them away from the goal of environmental clean markets(ECLM) as indicated by the green arrow going away from environmentally clean markets(ECLM); ii) at the bottom we see a market correction that shift the environmentally dirty traditional market(EDTM) towards the green market(GM), which by means of closing the renewable energy gap (RETG > ∞) to reduce the environmental margin moves towards the environmentally clean markets until they become one; iii) the further away the dwarf green markets (DGM) are from environmentally clean markets, the greater the remaining environmental margin(REM > 0); and iv) When environmentally clean markets (ECLM) come to exist, they will tend to expand at the lowest clean market price possible as indicated by the green arrow going from left to right from ECLM. In other words, dwarf green markets (DGM) are not environmentally clean economy (ECLM) transition-friendly, but green markets (GM) are (Muñoz 2024a).

### 2.7 The Setting up of Dwarf Green Markets and Green Markets in Terms of Supply and Demand Thinking

We can use supply and demand theory to show the two different approaches to dealing with the environmental pollution problem (EPO) created by the environmentally dirty traditional market (EDTM) in a way consistent with the information in the figures above with respect to dwarf green markets (DGM) and green markets (GM) as shown in Fig. 11 below:

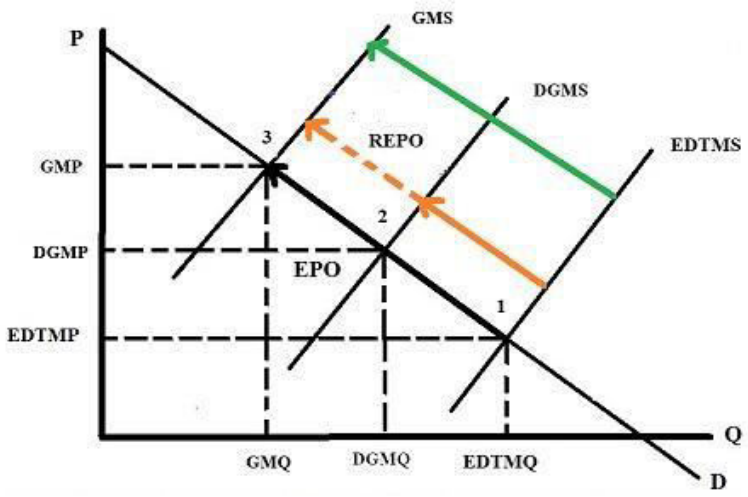


Fig. 11. The way that dwarf green markets (DGM) and green markets (GM) deal with the environmental pollution problem (EPO) created by the environmentally dirty traditional market in terms of supply and demand theory.

Fig. 11 above indicates the following: i) at point 1 we have the environmentally dirty traditional market (EDTM) creating the environmental problem (EPO) that goes from point 1 to point 3 as indicated by the black arrow from point 1 to point 3; ii) at point 2 we have the dwarf green market (DGM) as indicated by the orange arrow from point 1 to point 2 with its remaining environmental pollution problem(REPO) as indicated by the broken orange arrow from point 2 to point 3; iii) at point 3 we have the green market (GM) with no remaining environmental pollution problem as indicated by the continuous green arrow from point 1 to point 3. At point 1 we have full environmental cost externalization, at point 2 we have partial environmental cost internalization, and at point 3 we have full environmental cost internalization.

### 2.8 The Working of Dwarf Green Markets and Green Markets Once in Place in Terms of Supply and Demand Thinking

The idea that dwarf green markets (DGM) and green markets (GM) work in opposite ways has been recently shared (Muñoz, 2023c), which is stated as summarized in Fig. 12 below:

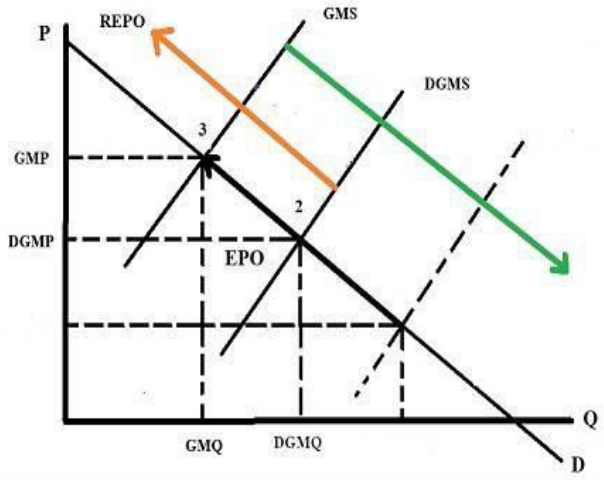

Fig. 12. How dwarf green markets (DGM) and green markets (GM) work once in place in terms of supply and demand theory, one contracts from right to left and the other expands from left to right.

Fig. 12 above tells us among other things i) that dwarf green markets (DGM) once in place contract from right to left to contract pollution production as indicated by the orange arrow as the pollution management cost is increased as they are pollution management-based markets; and that as they contract the remaining environmental pollution problem (REPO) stays with it as pollution is being generated while the dwarf green market works; and ii) that green markets (GM) once in place expand from left to right as indicated by the green arrow as they tend to produce at the lowest green market price (GMP) possible.

**2.9 The Nature of the Transition to the Environmentally Clean Economy Friendliness Displayed by Dwarf Green Markets and Green Markets in Terms of Supply and Demand Thinking**

Now we can link how dwarf green markets (DGM) and green markets (GM) work to environmentally clean economy transition friendliness by setting as the ultimate goal of development to be to transition to an environmentally clean economic world (ECLM), a situation captured in Fig. 13 below:

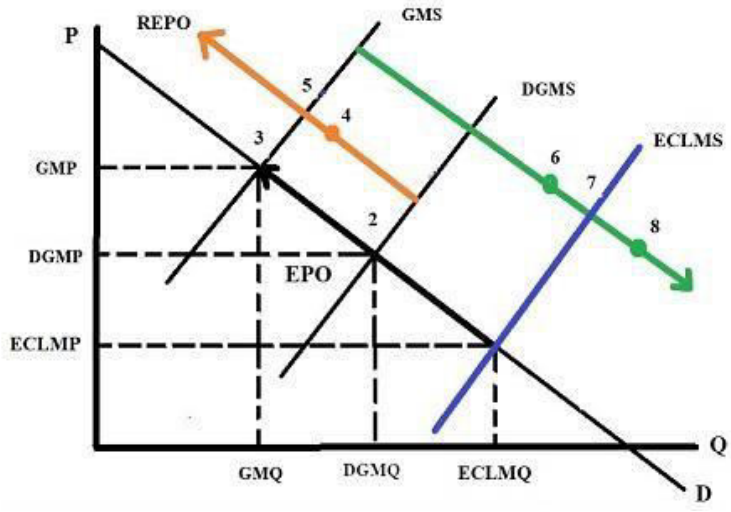


Fig. 13. Environmentally clean economy (ECLM) transition friendliness in terms of supply and demand theory as it relates to the working of dwarf green markets (DGM) and green markets (GM).

Fig. 13 above reflects the transition friendliness displayed by dwarf green markets (DGM) and green markets (GM), where we can see that i) as dwarf green markets (DGM) expand for example from point 2 to point 4 as indicated by the point 4 on the orange arrow we move further away from the position of the environmental clean market (ECLM) that we have as a goal at point 7 on the green arrow coinciding with the environmentally clean market supply (ECLMS) shown in blue. Hence, dwarf green markets (DGM) contractions are not environmentally clean economy transition friendly as they operate under permanent market

failure due to remaining environmental pollution problem (REPO); and ii) as green markets (GM) expand such as for example from point 3 to point 6 on the green arrow they get closer to the environmentally clean market (ECLM) at point 7. Therefore, green markets (GM) are environmentally clean economy (ECLM) transition-friendly as they expand as environmental pollution costs tend to be zero. Notice that on the green arrow, at point 6 we have a point of dominant renewable energy-based green economy, at point 7 the green economy becomes the environmentally clean economy as the green market price (GMP) is equal to the environmentally clean market price (ECLMP) as the environmental margin is then zero (EM = 0), and at point 8 we have an environmentally clean economy (ECLM) expansion.

### 2.10 Food for Thoughts

1) Is environmental pollution reduction a profitable opportunity under dwarf green markets? I think No, what do you think? 2) Is investing in environmental pollution reduction technology a profitable opportunity under green markets? I think yes, what do you think? 3) Can cost externalization theory be used to explain why dwarf green markets will tend to move away from the goal of environmentally clean markets once in place? I think yes, what do you think? And 4) Should the transition from dirty economies to clean economies been at the heart of "Our Common Future" (WCED, 1987) or at least at the heart of "The Future We Want" (UNCSD, 2012a; 2012b) or the heart of the 2015 Paris Agreement/sustainable development goals agenda (UN, 2015a: UN, 2025)? I think Yes, what do you think?

## 3. CONCLUSIONS

It was pointed out that dwarf green market solutions are partial solutions that lead to permanent environmental market failure, which prevents them from being environmentally clean economy transition friendly, and which moves them away from the transition goal as environmental cost externalization is still taking place by means of the remaining environmental margin. Additionally, it was stressed that green market solutions are full solutions that lead to a distorted market correction, which transforms them into being environmentally clean economy transition friendly as pollution reduction now is a good profitable opportunity, the economic incentive that leads them towards environmentally clean economies. It was also indicated that the transition from green markets once in place can reach a point of partial renewable energy dominant green market and fully renewable energy dominant green market, and when fully renewable energy dominant green market, then the green market becomes and behaves as an environmentally clean market. Finally, it was shown, graphically and analytically, using supply and demand thinking that once in place we should expect dwarf green markets to move away from the goal of environmental clean market transition as they contract as pollution management costs are increased; and we should expect green markets to move closer and closer to the goal of environmentally clean economy transition as for green markets environmental pollution reduction becomes a good business opportunity so they will tend to produce at the lowest green market price possible, but for dwarf green markets it is not a good business opportunity.

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