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## Assessing the Prospects of Accelerated Graduation of the Least Developed Countries

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# Assessing the Prospects of Accelerated Graduation of the Least Developed Countries\*

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## Summary: Theme of the paper, what is new, and key messages

This paper provides a first systematic examination of the graduation trends and prospects after the 4th UN Conference on the least developed countries and the adoption of the Istanbul Plan of Action (IPoA). A major statement of the IPoA is “the aim of enabling half the number of least developed countries to meet the criteria for graduation by 2020”. This goal has been referred to or reiterated in several official UN documents (UN Resolutions of December 2012). While considered at the time of the Istanbul Conference as moderately realistic, it has evidenced a change in international attitudes towards graduation.

.../...



\* This paper is intended to be used both as a contribution to the first report of the LDC IV Monitor and as an input to Guillaumeont (Edr) Out of the trap, forthcoming. Preliminary drafts were presented at the LDC IV Monitor meetings in Dhaka (September 2012) and Dar es Salaam (February 2013) and London (June 2013), where authors benefitted from useful comments, supplemented by new relevant comments from Ana Cortez, Christophe Bellman, Olav Bjerkholt, Lisa Borgatti and Hoseana Lunogelo, All are acknowledged, without being responsible for any opinion expressed or possible errors in the present paper.

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## **Summary: Theme of the paper, what is new, and key messages**

*This paper provides a first systematic examination of the graduation trends and prospects after the 4th UN Conference on the least developed countries and the adoption of the Istanbul Plan of Action (IPoA). A major statement of the IPoA is “the aim of enabling half the number of least developed countries to meet the criteria for graduation by 2020”. This goal has been referred to or reiterated in several official UN documents (UN Resolutions of December 2012). While considered at the time of the Istanbul Conference as moderately realistic, it has evidenced a change in international attitudes towards graduation. Graduation has less been considered as a threat for development of the graduating countries, and more as the signal that these countries were reaching a new phase of development. After Istanbul the fear of graduation has been dampened by the General Assembly resolution on “Smooth transition” adopted in December 2012 (and following the Report of an Ad Hoc Working Group of the GA on this topic).*

*The value added by this paper is to show the implications of the present rules for the graduation prospects and to question the consistency of the IPoA graduation goal with these rules.*

*1. The prospects of graduation depend on the rule and criteria applied. Since the origin of graduation there is an asymmetry between inclusion and graduation criteria, set up for precautionary reasons. Its impact is high. At the 2012 review, among the 49 LDCs under consideration, 26 were no longer meeting the three complementary inclusion criteria. It means that without the present asymmetry the IPoA goal would have already been reached.*

*2. In order to examine the graduation prospects it should be supposed that the graduation criteria remain unchanged: two criteria need no longer to be met (initial rule), or only income per capita criterion at a higher threshold (additional 2005 rule). Other results could be obtained with alternative rules.*

*3. There is an important difference between the EVI or HAI criteria and the per capita GNI criterion. The former ones have been relative thresholds designed by the quartile value of a reference group the number of which remains approximately the same, while the latter is an absolute threshold, unchanged in constant dollars. This difference has significant implications for eligibility. Graduation prospects have been considered first according to the initial rule of two criteria to no longer be met, at least one of which was a relative one, second according to the only one income per capita absolute criterion. While until now the eligibility to graduation has mainly resulted from the application of the initial rule, it is likely to be more driven in the future by the application of the new second rule.*

*4. The graduation prospects are constrained by the time frame of the graduation process. In order to “meet the criteria by 2020”, a country should be found eligible at two successive triennial reviews, strictly speaking no later than at the 2015 and 2018 reviews! And the country meeting the criteria in 2018 cannot effectively be graduated before 2021...*

*5. Accordingly, the next LDCs likely to meet the graduation criteria in this time frame include first the three countries the graduation of which has already been decided, but is not yet effective (Samoa, Equatorial Guinea, Vanuatu), the three other ones either recommended (Tuvalu) or found eligible a first time (Angola and Kiribati), and those few countries which could be found eligible a first time in 2015. According to the traditional two criteria rule, it seems that only Solomon Islands could meet two criteria, the HAI criterion (assuming the reference group does not shrink) and the GNIpc criterion (assuming a*

rapid economic growth). According to the income-only rule, it could be the case of Timor Leste and possibly Bhutan, if their growth is sustained. Thus at the end of the decade, there could be ten out of the 49 present LDCs having met the graduation criteria (seven of which having effectively graduated), what means around one quarter instead the IPoA goal of one half. Although graduation prospects are substantial, they are likely to significantly lag behind the IPoA goal.

6. In a longer term (and as soon as the 2024 review), several other LDCs can meet the income-only criterion, if they achieve a rate of growth corresponding to the 7% target of IPoA. For reasons endogenous to the design of the criteria, the key driver of the eligibility to graduation is likely to become the growth of income per capita, if sustained. Economic growth will progressively push LDCs to meet the income-only criterion, while an improvement in the component indicators of HAI and EVI will have little direct impact on graduation likelihood. This results from the fact that HAI and EVI have been until now relative criteria which can be met only through a change in the country situation with respect to the thresholds. An improvement in HAI and EVI as a result of IPoA is rather expected to have an impact on graduation as a factor of higher economic growth.

7. The General Assembly in its December 2012 resolution on Follow-up to the Fourth United Nations Conference on the least developed countries rightly expressed "serious concern" that, after a decade of steady growth, the LDCs are facing significant challenges in sustaining their economic growth. Of course the growth of the GNI per capita may be influenced by exogenous factors other than the structural features identifying LDCs. Such factors have already been working during the last decade, the main of which being the international price of commodities, in particular oil. But some other ones may appear in the next decade, in particular new oil or mineral exports, as a result of recent discoveries. Another set of highly important factors is the improvement in domestic as well as international policies, in particular those recommended by the IPoA. Difficult to assess and predict, it has not been considered in this paper, except through the simulation of the achievement of the 7% IPoA target of economic growth. The rather limited prospects of graduation in the period covered by the IPoA should be an incentive to implement and hopefully reinforce the support measures agreed upon in Istanbul.

8. The paper has supposed the graduation rules roughly unchanged, avoiding to consider any important change. However it underlines the significant impact of the way by which is designed the reference group of countries used for the determination of the HAI and EVI criteria thresholds. Moreover, following a previous suggestion of the CDP, some refinement in the present rules has been proposed to combine the two structural handicap indices in a synthetic index, used as an alternative criterion, not without a possible impact on the path of graduation.

## **1. Introduction: the context of prospects**

The Least Developed Country (LDC) category, established by the United Nations in 1971, was from the start meant to comprise low income countries impeded by structural handicaps from achieving economic growth (in the 2011 CDP formulation economic growth has been replaced with “sustainable development”). The structural handicaps considered for the identification of the LDCs are deficient human resources and high economic vulnerability. The LDCs are identified by three mandatory complementary criteria for inclusion into the category (CDP and UNDESA 2008; CDP 2012): income level as measured by Gross National Income per capita (GNlpc), and two indicators of structural handicaps, the Human Asset Index (HAI) and the Economic Vulnerability Index (EVI)<sup>1</sup>. Poor countries simultaneously facing these two kinds of handicaps have been described as “caught in a trap”, and in need of special international attention and support measures (Guillaumont 2009a).

### ***When graduation rules were set up and what they are***

The graduation from the list of LDCs, when an LDC no longer fulfill the conditions of membership, was not considered during the first twenty years of the category. The possibility and conditions of graduation were introduced in 1991, a date since which the list of LDCs has undergone triennial reviews. Three main precautions were be taken before an LDC could be recommended for graduation: (i) not only one, but two of the three criteria of inclusion should cease to be met; (ii) margins were set up between inclusion and graduation thresholds for each criterion,; (iii) a country is recommended by the CDP for graduation only after having been found eligible at two successive triennial reviews. Moreover since 2004 the country is graduated only three years after the endorsement by the General Assembly of the CDP recommendation. An exception to the initial “two criteria rule” was introduced in 2005: a country can be found eligible for graduation if its GNlpc is at least twice as high as the ordinary income graduation threshold and deemed sustainable, making income per capita the only one criterion for graduation in these cases. While such cases at the introduction of the rule in 2005 were considered exceptional, they appeared later not to be so, as we shall see below. In what follows we refer to these two alternative rules of graduation as the “two criteria rule” and the “income-only criterion” or “income-only rule”.

### ***How graduation rules have been implemented***

The history of graduation of the least developed countries since 1991 can roughly be divided into two periods. From 1991 to the middle of the 2000 decade, only one country graduated from the category according to the rule prevailing at the time, namely Botswana on 19th December 1994. This modest outcome is mainly due both to the economic trends in LDCs and to the precautionary graduation conditions.

The graduation process has also been impacted by the resistance of eligible countries since the end of the 1990s<sup>2</sup> (CDP, 1997, 2000, 2003, 2006, CDP and UNDESA 2008, Guillaumont 2009a). Actually, from 1994 and before the Istanbul Conference two countries graduated from the group,

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<sup>1</sup> HAI is a composite index relying on four indicators reflecting health and educational status. EVI is a composite index relying on eight indicators reflecting both the size of natural and external recurrent shocks and the structural exposure to these shocks (see UN DESA, CDP website and 2008 and 2012 references and Guillaumont 2009a, 2009b, 2011)

<sup>2</sup> Initially Vanuatu, followed by Maldives, Cape Verde (to a lesser extent), then Samoa, Equatorial Guinea (see the history of this process in Guillaumont 2009a),. More recently Vanuatu has again marked resistance.

Cape Verde 20<sup>th</sup> December 2007 and Maldives 1<sup>st</sup> January 2011, both on the basis of their high GNI per capita and human asset index (HAI). At the time of the LDC IV Conference (Istanbul, May 2011) the attitudes towards graduation among LDCs seemed to be changing.

### ***Graduation since LDC IV: the meaning of an enabling goal***

What's new since Istanbul (or May 2011)? Samoa, after obtaining a three year postponement from the General Assembly (A/RES/64/295 of October 2010) is scheduled for graduation in January 2014.

The graduation of Equatorial Guinea, recommended by the CDP in March 2009 and agreed by the Economic and Social Council in July 2009 (Resolution 2009/35), has been waiting the decision by the General Assembly for an unusually long time, being repeatedly considered as imminent : after having been agreed upon at the end of May 2013(A/67/L.XX, compilation text agreed ad ref, based on A/67//L.31), the adoption of that resolution has itself be postponed to September 2013 at the request of concerned countries...then again agreed upon so that the resolution has been adopted on 4 December (A/RES/68/18).

At the last (2012) triennial review Tuvalu and Vanuatu have been found eligible for the third consecutive time and recommended for graduation from the list by the CDP (they were already found eligible for a second time in 2009, but then not recommended for graduation by the CDP). The Tuvalu's case is still to be examined by ECOSOC, while Vanuatu's recommendation, endorsed by ECOSOC, has taken some time to be examined by the General Assembly. Vanuatu had requested a postponement on the basis of climatic circumstances, as was previously obtained by Maldives and Samoa, on the basis of a tsunami. A shorter postponement by one year called "additional preparatory period on an exceptional basis" has finally been retained before the decision to graduate this country be taken by the General Assembly, at the same time as for Equatorial Guinea to which an "additional preparatory period of six months has also been given "on an exceptional basis", without any explicit reason. It will make Vanuatu graduation expected at the end of 2017 (and that of Equatorial Guinea at the mid of 2017).

At the 2012 review, Angola and Kiribati were also found to meet the eligibility criteria for graduation for the first time and might be recommended for graduation at the next triennial review, in 2015, if they are still found eligible (CDP 2009, 2012).

### ***Timeframe for a reduction by half***

A change of attitude towards graduation has been evidenced at the UN LDC IV Conference with the Istanbul Programme of Action, often interpreted as including a goal of reduction by half of the number of LDCs by 2020. The exact wording as included in the IPoA is more cautious: it underlines "the aim of enabling half of the number of least developed countries to meet the criteria for graduation by 2020" (United Nations 2011, §28, see also §1).

We remember that since 2004 the graduation is effective only three years after the General Assembly has “taken note of” the recommendation of the CDP to graduate a country (a recommendation proposed only after the CDP has found the country eligible at two successive triennial reviews, i.e. meeting the criteria)<sup>3</sup>. It follows that after the country has met the graduation criteria and been recommended for graduation by the CDP, it needs at least three more years to achieve an effective graduation.

It should be noted that, according to the present rules, for a country to be actually graduated by 2020, it should already have been found eligible for a first time in 2012, and, if again found eligible in 2015, recommended for graduation. If the recommendation is rapidly endorsed by ECOSOC and the General Assembly, it could be graduated at best in 2018. This only applies to Angola and Kiribati, the two countries found eligible for a first time in 2012. With, in the meanwhile, the graduation of Samoa and Equatorial Guinea, probably of Vanuatu in 2017 and possibly of Tuvalu, it would mean that a maximum of six among the 48 LDCs of Istanbul (49 since the December 2012 decision of the General Assembly to include South Sudan) would have graduated before 2020, a decrease by one eighth, far from a reduction by half.

More LDCs can “meet the graduation criteria by 2020”, which means that they be found eligible for the first time at the 2015 review and a second time in 2018, the last triennial review before 2020. They can then be graduated at the earliest in 2023. Even more LDCs could meet the criteria at the 2021 review, although the prospects are limited, as we shall see below. Anyway to be actually graduated in 2021, an LDC should have been found eligible for a first time in 2015.

#### ***A possible acceleration by voluntary graduation ?***

The move towards an attitude more favorable to graduation is illustrated by the wish expressed by some LDCs to graduate as soon as possible. This should be understood as the wish to be soon able to meet the present graduation criteria and so be recommended for graduation.

Another possibility would be for a present LDC to request a graduation even if the criteria are not yet met. Such case has not yet occurred. Is it conceivable? As far as a country may refuse to be included as an LDC when found eligible, it seems difficult to argue that an LDC cannot leave the category if it wants to do so. Why might it want? From such a “voluntary graduation” the country might expect to receive the benefits from a good performance signal, worth more than the lost benefits of LDC membership. At the same time it would not reveal a high perception of the benefits of the category!

#### ***Smooth transition more clearly addressed***

Alongside, a concern about “smooth transition” has been raised, first reflected by the CDP in 2000, strongly and recently illustrated by the UN GA Ad Hoc working group on this issue (UNGA, A/67/92): its report, adopted in July 2012, has resulted in a resolution of the United Nations General Assembly in December 2012 (A/C.2/67/L.51). This resolution can be seen as a post-Istanbul

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<sup>3</sup> This interpretation of “to meet the criteria” is consistent with the traditional wording of the CDP about the graduation process. While for inclusion, three complementary quantitative criteria are to be met (see above), for graduation the thresholds of quantitative criteria are to be met, and they are to be met twice, what is also a graduation criterion. For that reason the CDP in 2005 made a clear distinction between the fact that a country is eligible a first time, and the fact that it “qualifies”, when it meets the graduation thresholds of the quantitative criteria at the next triennial review: it then fully meets the graduation criteria.

complement of the previous 2004 resolution 59/209 of the General Assembly on the smooth transition strategy for countries graduating from the list of least developed countries. The need for a new resolution had risen both from the fear and resistance of the countries recommended or found eligible for graduation during the previous years and from the perspective of an acceleration of the number of graduations, as stated in the IPoA.

We shall not here to examine the content of this resolution which includes a set of propositions to make the transition smooth in order to avoid a “disruption” in the development path of countries losing the benefits of the LDC status: it does not directly affect the graduation prospects examined in this paper, except by possibly dampening the resistance of eligible countries to their graduation.

Let us note that paragraph 23 of this resolution invited development partners “to consider least developed country indicators, gross national income per capita, the human assets index and the economic vulnerability index as part of their criteria for allocating official development assistance”. This part of the resolution, following the recommendation of the Ad Hoc Committee, and suggestions made by members of the LDC IV Monitor previously or at the Ad Hoc committee, is significant to make the LDCs graduation smoother, but also as a more general principle of aid allocation: by taking into account structural handicaps aid allocation would become more equitable.

The resolution also decided that the General Assembly should take note of the decisions of ECOSOC regarding graduation at its first session “following the adoption of such decisions by the Council” (paragraph 10). This is intended to avoid delays, as those recorded for the Equatorial Guinea in the last years.

### ***Graduation prospects: rules supposed not to be changed***

The aim of this paper is to assess the prospects of graduation since the Istanbul Conference, with a special focus on methodology. The meaning of an accelerated graduation from the LDCs category would have to be examined with regard to the rationale of the category. If LDCs are countries “caught in a trap”, when will they be considered as “out of the trap”, and ready to develop without longer needing special support measures? Which factors can lead to an accelerated graduation?

The prospects of graduation depend on the rules applied. It is to be recalled that there is an asymmetry between inclusion and graduation criteria, which was set up for precautionary reasons. Its impact is high. At the 2012 review, among the 49 LDCs under consideration, 26 were no longer meeting the inclusion criteria (the three complementary criteria). It means that without the existing asymmetry in the inclusion/graduation criteria, the IPoA goal would have already been reached.

In order to examine these prospects, we make the assumption that the graduation criteria remain unchanged: two criteria to no longer be met (initial and general rule) or the only income per capita criterion at a higher threshold (income-only rule added in 2005). There is indeed an important difference between the EVI or HAI criteria and the per capita GNI criterion. The former ones have been from 1991 relative thresholds designed by the quartile value of a reference group, while the latter was an absolute threshold in constant dollars. Since this difference has significant implications for eligibility, the following sections 2 and 3 consider the graduation prospects first according to the two criteria rule (two criteria to no longer be met, at least one of which is a relative one), second according to the income only rule or criterion. In this second part, we are led to come



back to the rationale of the category by focusing on the “expected natural income level per capita”, the income level the country could reach in a given future year if its structural handicap remained the same.

## **2. Graduation prospects according to the ‘two criteria’ principle**

According to the two criteria rule for graduation, a country is eligible for graduation if it reaches the graduation threshold for at least two criteria: for HAI and EVI a threshold by 10% above the inclusion threshold, and for per capita GNI a threshold by 20% above the absolute level used by the World Bank to separate low income and middle income countries (LICs and MICs). HAI and EVI are composite indices, scaled relatively to the maximum and the minimum (or two normal bounds) of a reference group, which converts them to relative indicators, while the World Bank GNI per capita low income threshold is an absolute level remaining constant in real terms over time. This means that at least one, and possibly two, of the criteria met to satisfy this rule should be a relative one (more details in Guillaumont 2009a).

### **2.1. Importance of the reference group**

The LDCs likelihood of meeting a relative graduation criterion depends on the size of the reference group and on the location of the threshold set up to identify LDCs. The reference group had traditionally included all LDCs and other LICs and the threshold for inclusion has traditionally been put at the (better) quartile of the reference group. The higher the number of countries which are not LDCs, the lower the probability for an LDC to be in the better quartile.

#### ***A risk of endogenous graduation...***

More and more former non-LDC LICs have become MICs since 2000<sup>4</sup>. As a consequence, the reference group has been shrinking over time (from a maximum of 67 in 2000 to a minimum of 60 in 2009)<sup>5</sup>, making the attainment of the graduation threshold easier. If there were no longer LICs non LDCs, the reference group would become the group of LDCs itself. Then, with around one quarter not reaching the inclusion threshold, a proportion a little smaller (due to the margin between inclusion and graduation thresholds), but still significant would necessarily reach the graduation threshold whatever the evolution of HAI and EVI for the whole set of countries. With graduation occurring, it would correspond to a renewed set of LDCs. By this way, the probability to reach the graduation threshold would remain unchanged for a decreasing number of non-graduated LDCs. It would result in an endogenous process of graduation, whatever the rate of improvement in the indicators on which HAI and EVI rely<sup>6</sup>.

#### ***...avoided by an enlargement of the reference group***

It would not be logical that, with the reduction of the number of non-LDC LICs the reference group be reduced to the only group of LDCs. This would not be consistent with the concept of LDCs as poor countries suffering the most from structural handicaps. From the beginning the purpose was a differentiation between LDCs and other developing countries. For this reason, the CDP has

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<sup>4</sup> And more LDCs have become MICs as well

<sup>5</sup> After been expanding from the 1991 first triennial review, where the number was only 58, to the year 2000. It was 65 for the 2003 and 2006 reviews (cf Guillaumont, 2009a, p 54).

<sup>6</sup> More precisely for the countries in the better quartile of the distribution

extended the design of the group at the 2012 review, where there were only three non LDC-LICs. The reference group has then included all the LDCs and “all other developing countries whose per capita income in any of the three years used to determine average incomes (i.e. 2008-2010) was less than 20 per cent above the low-income threshold determined by the World Bank” (CDP, 2012). This extension led to the inclusion of nine additional countries, without which the reference group (according to its previous definition) would have fallen to 51 (instead of 60 in 2009), and made the probability to attain the relative graduation criteria higher, as explained above. Without this extension, so with a reference group of 51 countries, the new quartile thresholds (then between the 12<sup>th</sup> and the 13<sup>th</sup> ranks) would have led Bangladesh to meet the EVI graduation criterion and Solomon Islands to meet the HAI graduation criterion. However it would have not made these two countries eligible since they were not meeting another graduation criterion<sup>7</sup>.

Retaining in 2015 the same principle as in 2012 for the extension of the reference group would probably not avoid this group to shrink on, since some of the nine added countries will have durably crossed the line located 20 per cent above the low-income threshold. This would raise again the question of a revision in the design of the reference group: it could be done for instance by including all developing countries with a per capita income lower than the average of the ordinary graduation threshold and the only income threshold, i.e.  $0.5(120\% + 240\%) = 180\%$  of the inclusion criterion), with a resulting reference group staying around sixty countries<sup>8</sup>... Or, if the present number of 60 countries is considered as adequate to maintain the same reference over time, the reference group can simply include all LDCs and the number of other developing countries, ranked by increasing order of income per capita, which are needed to reach 60.<sup>9</sup>

To assess the prospect of graduation with regard to the two criteria rule, and measure the progress towards graduation threshold, we carried out two kinds of empirical exercises. The first one aims at giving a global view on the evolution of the positions of LDCs with regard to each of the two relative criteria HAI and EVI, making possible to test an “endogenous” eligibility. The other one aims at giving a country by country view on the evolution of the relative position with respect to the three criteria and so for each country in order to evidence the trends towards eligibility to graduation.

## **2.2. How are relative positions globally changing?**

The first exercise, considering the whole of LDCs, and successively for each criterion, consists of comparing the position of the countries with respect to graduation thresholds at different review years. We choose 2000 and 2012 as review years to keep, since the EVI criterion has been

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<sup>7</sup> And in 2015, still with the definition of the reference group prevailing until 2009, the reference group would become even smaller, at least by the graduation of Samoa (and of Equatorial Guinea at the mid-year),

<sup>8</sup> Retaining in 2015 the principle adopted in 2012 for the extension of the reference group would probably lead to exclude four or five MICs non LDCs which were in 2012 (according to the average 2008-2010) above or very close to the low-income threshold increased by 20% (India, PNG, Ghana, Cameroon, Nigeria), reducing the group to no more than 54 countries: in that case the inclusion threshold would be between the 13<sup>th</sup> and the 14<sup>th</sup> ranks. Supposing that all countries improve their HAI and their EVI at the same rate, Solomon Islands and Bangladesh would reach the graduation threshold for HAI and EVI, respectively. This would be without implications for eligibility of Bangladesh, but with a possible eligibility for Solomon Islands, if their economic growth is high enough to make them reaching the ordinary income graduation threshold.

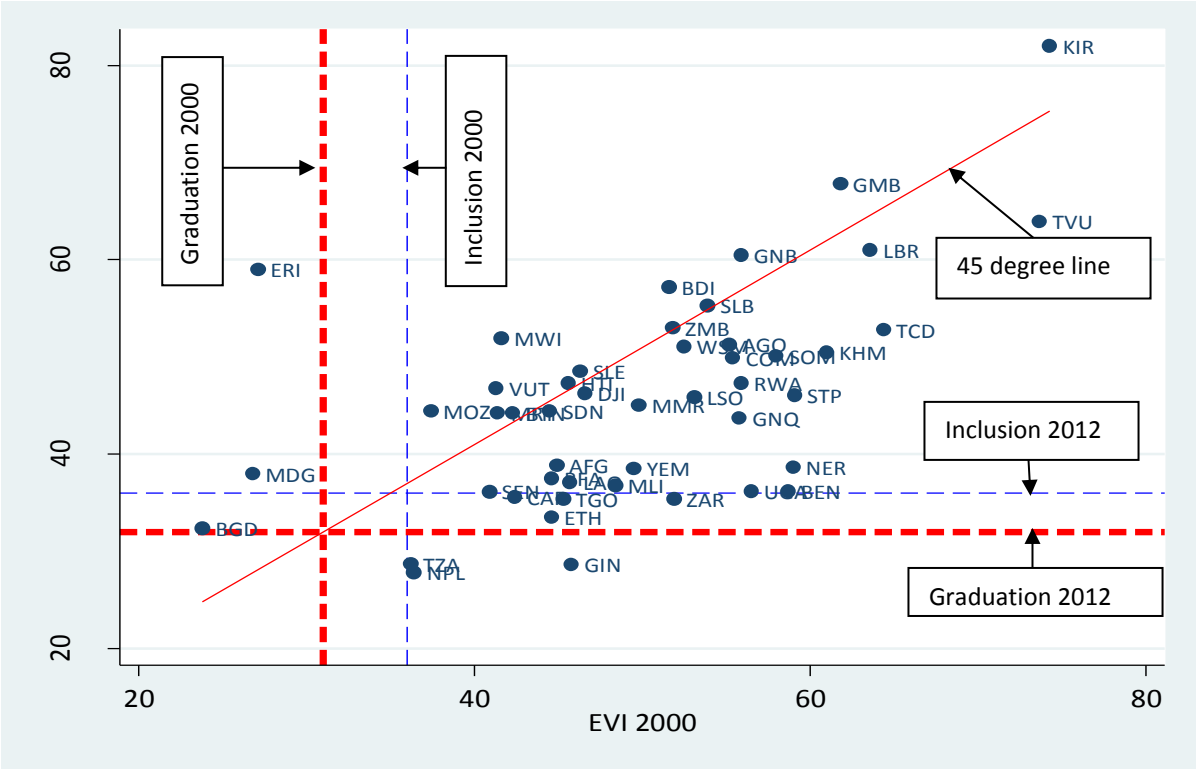
<sup>9</sup> Another solution considered by the Expert Group Meeting preparing the 2015 review of the CDP is to transform the relative thresholds into absolute thresholds fixed at their present level.

introduced in 2000, so that the comparison will be relevant. However the composition of EVI (more than that of HAI) has changed during this period, in particular at the 2006 and 2012 reviews (see Guillaumont 2009a and 2013). In particular it should be noted that the definition of EVI changed slightly from 2012 by a reduction by half of weight given to the small size population indicator and the addition of the new component reflecting population in low coastal areas. For that reason, we also compared the evolution from 2006 to 2012 of an EVI corresponding to the (unchanged) definition of the 2006 and 2009 reviews, i.e. using an EVI calculated in 2012 on the basis of the 2006-09 definition.

Graphs 1 and 2 present the results for EVI, graph 3 for HAI. The red and thick dash lines represent the graduation thresholds for both years, while the blue and thin dash lines represent the inclusion thresholds. On graph 2 the black and thick horizontal line represents the graduation threshold of EVI for the year 2006 applied to 2012.

On Graph 1, a relative progress towards graduation threshold between 2000 and 2012 does not appear clearly. None of the countries that met the EVI graduation threshold in 2000, Eritrea, Madagascar, (and Bangladesh) met it in 2012, while three other countries that did not fulfill this criterion in 2000 do it in 2012: Tanzania, Nepal, and Guinea. On the other hand a majority of LDCs have come closer to the graduation threshold, as shown by their position with respect to the 45 degree line, and four of them stay between the inclusion and the graduation thresholds. Do these results come from the change in the definition of EVI, or from the structural change of countries?

**Graph 1: Positions of LDCs with regard to EVI 2012 and EVI 2000**

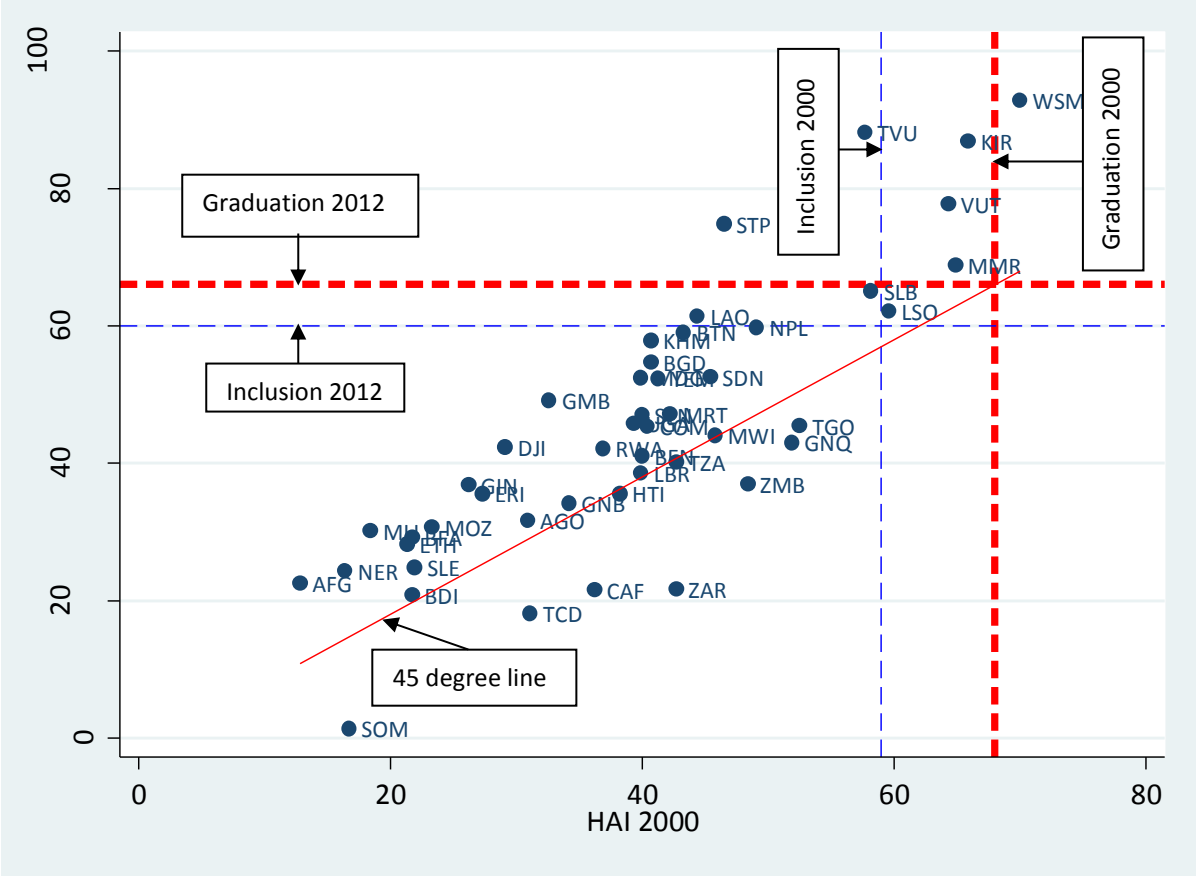


Note: The 45 degree line has been drawn from the intersection of the graduation threshold lines. It does not go through the inclusion thresholds intersection since the margins between the graduation and the inclusion thresholds have changed.



appears for this indicator. A larger number of LDCs (6) reach the graduation threshold in 2012 than in 2000 (1): Samoa, reaching it in 2000 has been joined in 2012 by Tuvalu, Kiribati, Vanuatu, Sao Tome and Principe, and Myanmar. It cannot be said with certainty that this improvement in their location on the graph would have not been possible without a real progress in their human assets. It may also have been enhanced by the endogenous effect of the reduction in the reference group, or, but less likely, by the small changes introduced in the measurement of the index components.

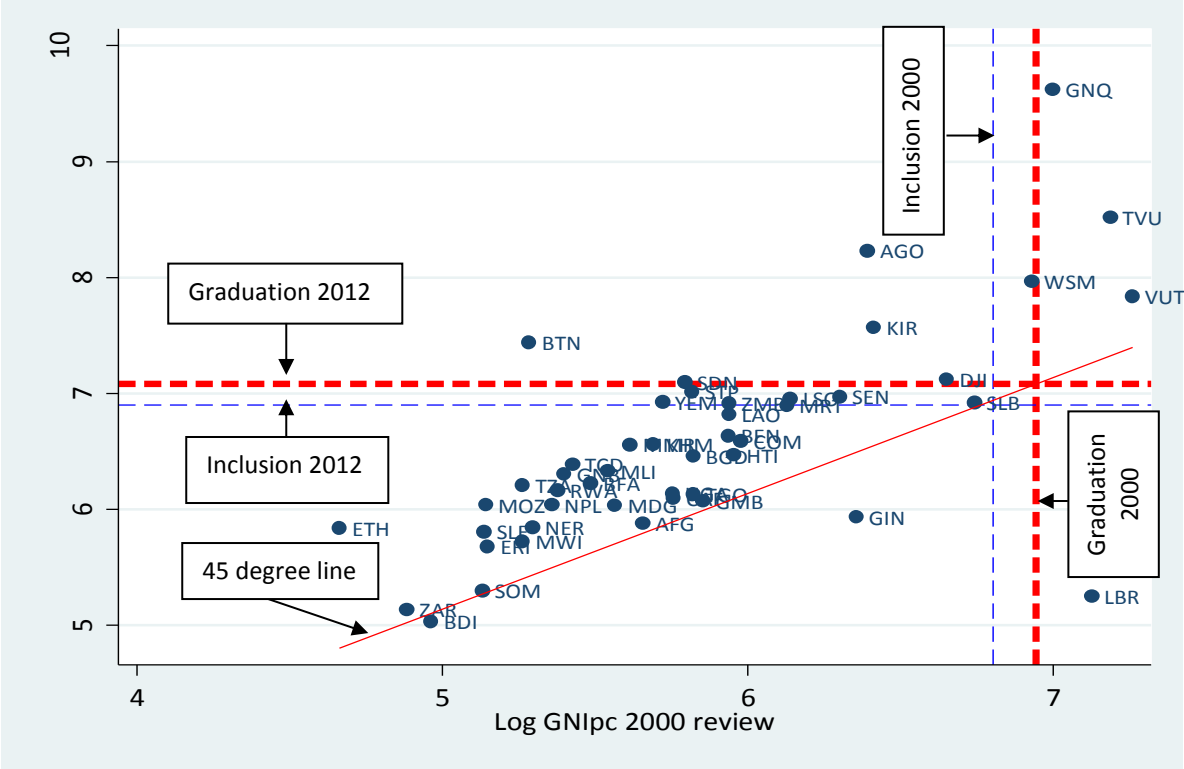
**Graph 3: Positions of LDCs with regard to graduation thresholds of HAI (APQLI) in 2000 and 2012**



Note: The 45 degree line has been drawn from the intersection of the graduation threshold lines. It does not go through the inclusion thresholds intersection since the margins between the graduation and the inclusion thresholds have changed.

With respect to the GNlpc criterion, an absolute level not changing in real terms over time, the results are of course clearer as presented in Graph 4. They show a global move towards the graduation threshold (i.e. the increased low income upper threshold) between 2000 and 2012. Nine countries fulfilled the graduation threshold in 2012, compared to only four in 2000. Only one country (Liberia) met the threshold in 2000 without meeting it in 2012. Most of LDCs (exceptions are Guinea and Liberia) are above the 45 degree line, which shows an increase in the level of GNlpc. A higher proportion of LDCs are close to the income graduation threshold in 2012 than in 2000.

**Graph 4: Positions of LDCs with regard to log of GNlpc 2012 and log of GNlpc 2000 reviews.**



Note: The 45 degree line has been drawn from the intersection of the graduation threshold lines. It does not go through the inclusion thresholds intersection since the margins between the graduation and the inclusion thresholds have changed.

As a result, all the graduation eligibilities have been obtained from the per capita GNI and the human asset index (Maldives, Tuvalu, Samoa, Vanuatu, etc.). It should be recalled that the evolution observed in the position with respect to the relative HAI and EVI criteria should not be taken as a measure of the real change in the level of human assets or of economic vulnerability (a measure requiring to set up homogenous series of these two indices, as done in Cariolle & Guillaumont, 2011, and Korachais, 2011). It is an evolution with regard to moving thresholds, determined from the definition of the indicators prevailing at each review. Drawing from the previous graphs, it is possible to identify which countries, besides those meeting two criteria of graduation, are closer to doing so, by no longer reaching at least two inclusion criteria. It seems that there are only two, Lesotho and Solomon Islands. Senegal, no longer a LIC, is very close to the EVI inclusion threshold. We remember that we found above Solomon Islands likely to meet the HAI graduation criterion, depending on the definition of the reference group.

Anyway the chance of those countries to move forward in the graduation direction and cross the thresholds should also be assessed with regard to the trend they show in their relative position.

### 2.3 Country evolutions with regard to the set of criteria: resulting LDC groups

In a second empirical exercise, we present for each country on a graph its position with respect to the graduation and inclusion thresholds over the five last triennial reviews.<sup>11</sup> For each country, and each criterion indicator, we transform its value into the relative deviation with respect to the inclusion threshold as follows:

$$RelativeX_{it} = \frac{100 * (absoluteX_{it} - inclusion_t)}{inclusion_t}$$

Where  $RelativeX_{it}$  and  $absoluteX_{it}$  are respectively the relative and absolute value of variable  $X$  (EVI, HAI or per capita GNI country level value, inclusion and graduation thresholds) of LDC  $i$  at time  $t$  (2000, 2003, 2006, 2009 or 2012). Here "inclusion" represents the inclusion threshold of the indicator considered. Since an increase in the index is an improvement for HAI and the reverse for EVI<sup>12</sup>, the difference (100 – EVI) is instead used with regard to this criterion and make easier the interpretation. Thus, all inclusion thresholds are represented on a horizontal line at zero on the vertical scale: a country does not fulfill the inclusion criterion if its relative value is below this line. All the graduation thresholds before 2003 are represented by a horizontal line scaled at 15 (since before 2003 the margin between the inclusion and graduation thresholds was 15% for all three criteria), while from 2003 the horizontal line representing the graduation thresholds of EVI and HAI is 10, and that of per capita GNI is 20 (according to the respective margins of 10% and 20% applied from this time). The country meets the graduation criterion if its relative value is above the horizontal line representing the graduation threshold. Similarly, the horizontal line scaled at 140 is the graduation threshold applied with the income-only rule (according to which, countries reaching 2.4 times the per capita GNI inclusion threshold may be considered as eligible for graduation). All the per capita GNI above 140 are brought back to 140 to make the graph readable, meaning that above 140, the graph does not indicate actual scores.

It is worth noting that the evolution of EVI is affected by the changes in the index definition : an example is given by the Bangladesh where for 2012 we can observe seemingly increase of vulnerability on its graph as well as a decrease of the positive deviation of EVI from the graduation threshold clearly due to the change in the EVI definition. So, the evolution of the relative indicator used does not measure structural change per se, as it can be done with the retrospective EVI, calculated at Ferdi over a long period (Cariolle and Guillaumont, 2011). But, it shows to what extent a country is becoming closer to the current graduation criteria. It should be underlined that in this paper we only consider the evolution of countries with regard to moving HAI and EVI criteria and thresholds, not their structural transformation per se, as we do elsewhere (Cariolle, Goujon and Guillaumont 2014, Guillaumont et al. forthcoming, and Guillaumont 2013). Of course the IPoA can be expected to accelerate or induce such a transformation, but its possible and relative impact on the various LDCs cannot be assessed in this paper: it is as if the assumption was made that this impact does not differ among LDCs.

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<sup>11</sup> This exercise is close to, graphs set up at UNCTAD and recently updated (2013, forthcoming).. but slightly different from them since here all the indicator values are presented on the same graph, normalized with respect to the inclusion thresholds...and expressed in the same direction.

<sup>12</sup> See footnote 1 above for the definition of HAI and EVI

### **Box 1 EVI move towards the graduation threshold: a Bangladesh puzzle**

At the 2009 review of the list of the Least Developed Countries Bangladesh had the LDC lowest level of EVI (23.2), putting it quite beyond (-39%) the graduation criterion (set at 38). This deviation from the graduation threshold had been increasing during the previous years (being respectively -10.6 and -32.2 at the 2003 and 2006 reviews), what could be seen as a progress towards graduation through a declining structural economic vulnerability. But at the 2012 review the size of the deviation suddenly decreased, with an EVI estimated at 32.4 for a threshold of 32, meaning that Bangladesh was no longer meeting the graduation threshold (deviation of + 1.25%), while Nepal, Guinea and Tanzania, less well ranked than Bangladesh in 2009, were still meeting the graduation criterion.

The lower level of the graduation threshold (32 instead of 38 in 2006 and 2009) has contributed to the deterioration of the position of the countries having reached the threshold in 2009, including those (quoted above) still meeting it in 2012. But it cannot explain the dramatic change in the ranks. This change results from the revision in the definition of EVI that occurred between 2009 and 2012.

While between these two reviews (2009 and 2012) the "official" or "review" EVI increased from 23.2 to 32.4 (+9.2), the EVI re-estimated on the basis of an unchanged definition decreased: on the basis of the 2006-09 definition, with new data, it moved from 22.1 to 19.1 (-3.0); on the basis of the 2012 review definition, still with new data, it moved from 34.1 to 32 (-2.1), suggesting that some structural progress with regard to vulnerability has been going on.

Which kind of change in the definition of EVI did result in the increase of the official EVI? The major change is in the composition or weighting of EVI, namely the reduction by half of the 25% weight given in 2006-09 to the population size, a major factor of Bangladesh low EVI, the lost 12.5% having been allocated to a new component, the share of population located in low coastal areas, which is significant in this country. Between the 2009 and 2012 reviews, this change accounts for an increase by 8.8, nearly one hundred percent of the increase by 9.2 in the Bangladesh official EVI. But it is not enough to explain the difference between the increase in the official EVI and the decrease of EVI with an unchanged definition (by 2.1 to 3.0), due to an improvement in its components. The missing factor is a change in the way by which each component has been measured, and updated, the impact of which (on official EVI) has also been significant (by more than +3).

The sources of the difference between the change in the review EVI and in an EVI with constant definition is even better illustrated on a longer period, from the 2006 to the 2012 review: while the review EVI increased from 25.8 to 32.4 (+6.6), the unchanged EVI decreased from 23.5 to 19.1 (-4.4), on the basis of the 2006-09 review definition, evidencing a structural progress. The change in the composition (or weighting) of the review EVI contributed by 8.4, more (by 1.8) than the official increase (of 6.6). The change in the way by which some components have been calculated had another positive impact on the review EVI: in particular the index of natural shock was calculated in 2006-09 from the homeless indicator and in 2012 from the broader indicator of the share of population victim of natural disaster; also important are the change in the calculation of the remoteness indicator, and to a smaller extent in the length of the period on which the export instability has been calculated. All these changes in the method of measurement of the EVI components contributed to increase the EVI by 4.5. But some updating of data when the retrospective EVI were calculated had a small impact in the opposite direction (by -1.9). Taken together these three factors ( $8.4 + 4.5 - 1.9 = 11$ ) explain the gap between the increase by 6.6 of the review EVI and the decrease by 4.4 of the EVI calculated on the basis of the 2006 definition, a decrease which only results from the improvement of the EVI components. Similar results are obtained using the 2012 definition for the retrospective EVI.

Only the evolution of an EVI calculated through a constant definition (involving both the same weighting and the same measurement of components), as done in the Ferdi retrospective EVIs, may reflect a structural economic change, a change which did occur in Bangladesh, although moderately (calculations made at Ferdi with Joël Cariolle).



The detailed country results obtained from this exercise, here summarized in two tables and eight graphs, each of which representing an LDC, are available upon request. LDCs can be divided into several separate groups according to the trend towards graduation. Table 1 and Table 2 present these different subgroups, the former classifying positive trend in six groups, the latter classifying negative trends in two groups. Each group among these eight is illustrated by a graph related to one country (in Annex).

**Table 1: Countries with positive trends towards graduation criteria (2000-2012)**

Criteria for which there is a positive trend		Income-only rule (3 LDC)	HAI and GNI (10 LDCs)	EVI and GNI (1 LDC)	EVI and HAI (2 LDCs)	the 3 criteria (2 LDCs)
Countries with positive trends towards graduation	Already eligible	<b><i>Equatorial Guinea</i></b> Angola	<b><i>Samoa</i></b> <b><i>Vanuatu</i></b> <i>Tuvalu</i> Kiribati			
	Not yet eligible	Timor Leste	Bhutan Cambodia Lesotho Sao Tome Principe Solomon Islands Yemen	Benin	Bangladesh Nepal	Laos Senegal

NB. In bold and italics: countries the graduation of which has been already decided, in italics only a country for which the graduation has been recommended by the CDP but not decided.

Countries presenting a positive trend towards graduation criteria are presented in Table 1. The first column includes six LDCs for which positive trends have led to eligibility for graduation, according either to the two criteria rule (4 countries) or to the income-only rule (2 countries). The five other columns classify those twelve LDCs that, without becoming eligible to graduation, have evidenced positive trends towards graduation criteria (GNI/HAI, GNI/EVI, EVI/HAI, GNI/EVI/HAI). Depending on the initial level of the corresponding indicators, these countries present more or less good prospects for graduation. The graphs 5 to 10, respectively giving the evolution in Vanuatu, Angola, Lesotho, Benin, Bangladesh and Laos illustrate each case of a positive trend towards graduation.<sup>13</sup>

On the opposite, thirty LDCs evidence negative trends towards two or three graduation criteria. As shown in Table 2, this group includes LDCs presenting a positive trend for only one criterion (a

<sup>13</sup> As noted in the previous box 1, the increase of Bangladesh in 2012, following a previous decrease in 2006 and 2009, is essentially due to the change in the EVI definition in 2012. More important for the graduation prospects of Bangladesh is the upward trend in the level of HAI with regard to the (inclusion or) graduation threshold. However to meet the HAI graduation threshold in the future it would involve for Bangladesh to continue to improve its HAI level faster than the other countries of the reference group. It would then make the “atypical approach of graduation” proposed by Bhattacharya and Borgatti (2012) achievable on the basis of the two relative criteria.

negative trend for the two other ones) and those without any positive trend (three negative trends), respectively 17 and 13 countries. The two groups (or columns) of the table 2 are respectively illustrated below by graphs 11 and 12 giving the evolution in Djibouti and Burundi.

**Table 2: Countries with negative trends towards graduation criteria (2000-12)**

	Positive trends in only one criterion (17 LDCs)	All trends are negative (13 LDCs)
Countries with negative trends towards graduation	Djibouti (GNI) Mauritania (GNI) Sudan (GNI) Zambia (GNI)  Madagascar (HAI)  Afghanistan (EVI) Burkina Faso (EVI) Central African Rep. (EVI) Dem.Rep. of Congo (EVI) Ethiopia (EVI) Gambia (EVI) Guinea (EVI) Mali (EVI) Niger (EVI) Togo (EVI) Uganda (EVI) Tanzania (EVI)	Burundi Chad Comoros Eritrea Guinea Bissau Haiti Liberia Malawi Mozambique Myanmar Rwanda Sierra Leone Somalia

Looking again at the Table 1, it can be noticed that among the 18 countries having shown a positive trend for two criteria, two thirds of them (12) have registered this trend both for per capita GNI and for the Human Asset Index (see for instance graph 5 for Vanuatu). It is anyway the case for all the 6 LDCs already found eligible, with the two exceptions of oil exporters (Equatorial Guinea, Angola, both having already met the only income criterion discussed below, see for instance graph 6 for Angola).

Among the 17 countries with negative trends towards two graduation criteria and a positive trend towards one criterion, as presented in the first column of Table 2, twelve have such a positive trend for the Economic Vulnerability Index, four for the GNI pc and only one for HAI.

On the whole, putting aside oil exporters, there seems to be a stronger link between the progress towards the GNIpc and HAI criteria than between the progress towards the GNIpc and EVI criteria, and there is little prospect of graduation without an increase in the GNIpc, which may be the main driver of graduation.

In the near future, it seems that few countries are likely to graduate from the two criteria rule, due to the inertia of the relative position of the LDCs with respect to the HAI and EVI criteria. This does not mean that HAI and EVI are not important for graduation. The progress in their absolute level is the key of income growth, except in the case of rapid oil export growth. EVI and HAI should continuously be monitored, using retrospective indices measured on an unchanged basis. There is therefore a need of an integrated approach to the graduation prospects.

## 2.4. Implications for graduation prospects

Caveats should be brought to the interpretation and conclusions of the previous tables. The focus has been put on the trends, but the impact of these trends for the likelihood to graduate depend on the level already reached. A positive trend gives a relevant indication of this likelihood if the country is already close to the graduation threshold for the criterion considered. We are then led to come back to the results of the beginning of this section.

Few LDCs are both close to two graduation thresholds and evidencing positive trends towards them. Those countries close to the EVI threshold are still rather far from the HAI or the income one: Nepal, Guinea, Tanzania, already meeting the graduation threshold, Ethiopia, Togo, Democratic Republic of the Congo, Central African Republic, located between the inclusion and the graduation thresholds, are all far from the other two, except Nepal, close to the HAI inclusion threshold, and showing a positive trend for the two indicators.

The association between the income and HAI criteria has been a more successful factor of graduation: it has led to the eligibility of six countries, the graduation of which has been decided for four ones (Cape Verde, Maldives, Samoa, Vanuatu), the other two being Tuvalu and Kiribati. It is not sure it will be as effective in the near future: it may only concern Solomon Islands and Lesotho. Besides two oil exporters, the LDCs meeting the graduation criteria have essentially been countries benefitting of a relatively high level of human capital, which in turn has supported their economic growth.

On the whole during the next decade the potential of graduation on the basis of the initial two criteria rule seems limited and it will fundamentally depend on the principle applied for designing the reference group. With the group number remaining unchanged, the probability of graduation on the basis of this rule will be low. It will of course increase if the group is allowed to progressively shrink as a result of the income growth of non LDCs ...and of the graduation of some LDCs from the category which will then become more and more endogenous.

Briefly stated, with the number of the reference group maintained around 60 countries, as in 2012, and with the normal length of the process leading to fully meet the criteria, one cannot expect more than very few countries to do so through the ordinary two criteria rule: only those already found eligible a first time in 2012, plus one to three others...

Are there more countries likely "to meet the criteria" thanks to the income-only rule?

### **3. Graduation prospects according to the income-only rule**

According to the only income criterion rule introduced in 2005, eligibility for graduation is possible when a country reaches twice the ordinary income graduation threshold, that is to say when its income per capita is at least 240% of the inclusion threshold, which is the threshold used by the World Bank to identify low income countries (the countries with an income per capita lower than this threshold).

It is accordingly possible to look for the least developed countries likely to reach such a level at the coming reviews or before 2020. To simply be recommended for graduation in the coming reviews before 2020 (2015, 2018), which are the countries likely to meet this income-only criterion?

#### **3.1. Assuming that each LDC is growing as in the 2000's**

To identify these countries, we need to make an assumption about growth prospects. For that we first suppose they maintain their rates of economic growth of the past decade during the next one. Also supposing the rate of growth of GNI similar to that of the Gross Domestic Product (GDP), we first estimate the rate of growth of the per capita GDP from 2001 to 2011 by ordinary least squares method and from data of the (on line) *World Development Indicators*. Using these growth rates, we then extrapolate the GNI per capita from the latest available GNI per capita. The results obtained are summarized in Table 3. They show that seven (7) LDCs are likely to reach 2.4 times the level of the low income (LI) threshold before 2020, including four ones already graduating. Eleven (11) LDCs are expected to reach this threshold in 2030.

A variant of this analysis is to consider the situation in which the previous average (extrapolated) growth rate of each LDCs per annum is uniformly increased by 1%. This might be considered as a result of the implementation of IPoA, uniform for all LDCs. Table 3 also presents the results of this analysis. They are similar to the previous figure for 2020, but four (4) additional countries are likely to reach 2.4 times the LI threshold in 2030 (three in 2024).

An alternative approach to this analysis is to assess in how many years each LDC is likely to reach the threshold, according to the present level of income per capita and the estimated rate of growth. Table 4 shows the results of this exercise. Based only on the income rule and on the above assumptions, the number of LDCs not meeting this graduation criterion will decrease by half just before 2050. Those countries having registered very low or even negative rates of growth during the last decade will not be able to meet the only income criterion during this century, unless their economic growth is not boosted.

**Table 3: Countries likely to meet the income-only graduation threshold at the next six reviews if they keep last decade growth rate of GNI or grow at the 7% target of IPoA.**

Review Years	2015	2018	2021	2024	2027	2030
List of countries likely to reach the income-only graduation threshold if their per capita growth rates remain those of 2001-2010	Angola Bhutan Equatorial Guinea Samoa Timor-Leste Tuvalu Vanuatu  (7 countries)	<b>Idem as 2015</b>  (7 countries)	<b>Idem as 2018</b>  (7 countries)	<b>Idem as 2021</b>  (7 countries)	<b>Idem as 2024+4</b>  Cambodia Lao PDR Sao Tome and Principe Sudan  (11 countries)	<b>Idem as 2027</b>  (11 countries)
List of countries likely to reach the income-only graduation threshold if their economic growth rates increase by 1%, compared to those of 2001-2010.	<b>Idem as above</b>  (7 countries)	<b>Idem as above</b>  (7 countries)	<b>Idem as above</b>  (7 countries)	<b>Idem as above + 3</b>  Lao PDR Sao Tome and Principe Sudan  (10 countries)	<b>Idem as above</b>  (11 countries)	<b>Idem as above + 4</b>  Afghanistan Djibouti Lesotho Zambia  (15 countries)
List of countries likely to reach the income-only graduation threshold if their <b>economic growth</b> rates were 7%.	<b>Idem as above + 1</b>  Kiribati  (8 countries)	<b>Idem as 2015</b>  (8 countries)	<b>Idem as 2018</b>  (8 countries)	<b>Idem as 2021 + 4</b>  Djibouti Lesotho Sao Tome and Principe Sudan  (12 countries)	<b>Idem as 2024 + 1</b>  Lao PDR  (13 countries)	<b>Idem as 2027</b>  Zambia  (14 countries)
List of countries likely to reach the income-only graduation threshold if their <b>per capita economic growth</b> rates were 7%.	<b>Idem as above</b>  (8 countries)	<b>Idem as 2015</b>  (8 countries)	<b>Idem as 2018 + 3</b>  Djibouti Sao Tome and Principe Sudan  (11 countries)	<b>Idem as 2021 + 6</b>  Lao PDR Lesotho Senegal Solomon Islands Yemen, Rep. Zambia  (17 countries)	<b>Idem as 2024 + 1</b>  Mauritania  (18 countries)	<b>Idem as 2027 + 6</b>  Bangladesh Benin Cambodia Chad Comoros Haiti  (24 countries)

**Table 4: Year (before 2050) at which each LDC is likely to meet the GNI per capita graduation threshold, would its rate of growth be that of 2000-2010**

Countries	Years of reaching graduation threshold
Equatorial Guinea	Already reached
Samoa	Already reached
Angola	Already reached
Vanuatu	Already reached
Timor-Leste	Already reached
Tuvalu	Already reached
Bhutan	2014
Lao PDR	2025
Sudan	2027
Sao Tome and Principe	2027
Cambodia	2027
Afghanistan	2032
Zambia	2035
Chad	2036
Bangladesh	2037
Lesotho	2037
Mauritania	2039
Djibouti	2039
Ethiopia	2040
Solomon Islands	2041
Rwanda	2042
Guinea	2045
Mozambique	2048
Uganda	2048
Tanzania	2049

### **3.2. Assuming IPoA fully effective: each LDC is growing at the 7% target rate**

One of the objectives of the Istanbul Programme of Action is the achievement of “sustained, equitable and inclusive economic growth in least developed countries, to at least at the level of 7 per cent per annum, by strengthening their productive capacity in all sectors through structural transformation and overcoming their marginalization through their effective integration into the global economy, including through regional integration” (United Nations, 2011, P6) (see Box 1). What does 7% mean? In the context of this sentence it seems to refer to the growth of the GDP. Of course a goal of 7% of GDP *per capita* would be very different since LDCs still have high population growth rates...

**Box 2 Not confusing goals and means: income growth and structural transformation**

*The IPoA clearly states that the goal is a sustained growth and the means by which it can be obtained is the strengthening of productive capacity through structural transformation. Whatever the usual reservations about the meaning of income growth, it is a notion rather clearly measured. Structural transformation is more ambiguous and its content has to be adapted to the specific situations of countries. The valuable transformation is that leading to a sustained growth. When growth has been sustained and lasting enough to lead to a significant level of income, some structural change has probably occurred. Is it necessarily sustainable in the future? Obviously never. Economic history evidences declines of prosperous nations. But the countries having experienced sustained growth had the means to adapt themselves to new situations, in particular by reducing the two structural handicaps featuring LDCs, and first by enhancing their human capital. While the IPoA gives orientations for structural transformation, the choice of the precise transformation likely to promote growth in a given country can only be the country choice. The most useful monitoring of the structural transformation should refer to the evolution of the indicators on which the two structural handicap criteria rely, EVI and HAI.*

To assess the relevance of this goal, we first identified countries on track to reach the income graduation criterion if their average GDP growth rate was 7 per cent per year. We assume that they keep their population growth rate of last decade and calculate the per capita growth rate as the difference between 7 and their population growth rate. We then extrapolate the GNI per capita from the latest available GNI per capita (2011). In effect, we assume that the LDCs would benefit from the implementation of the IPoA all the more that their previous growth was low. The results are presented in the third row of table 3 above. Only one additional country (Kiribati) reaches the income criterion threshold by 2021 as compared to the previous assumption.

Let us now suppose that the 7% target refers to the per capita GDP growth rate, which is a very high rate indeed, reached during the previous decade only by two oil exporters (Angola and Equatorial Guinea). The result obtained is of course better, they are summarized in the fourth and last row of Table 3. Eleven (11) LDCs are likely to reach the income criterion threshold by 2021 and twenty (20) by 2030.

**3.3. Back to the rationale of the category: the structural likelihood to graduate**

The least developed countries (LDCs) have traditionally been defined as low income countries (LICs) suffering from structural handicaps to growth (more recently to sustainable development). As such they are the countries the most likely to stay poor. Their “least development” can be expressed in a synthetic measure, the natural expected income, obtained from the combination of the indices corresponding to the three criteria, present level of income per capita, human capital and economic vulnerability. As explained in Guillaumont (2009a)<sup>14</sup>, expected natural per capita income is the per capita income that could be expected if each country structural handicaps remained unchanged, and all other factors affecting growth were identical across all countries.

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<sup>14</sup> Guillaumont, *Caught in a trap*, (2009a), chapter 9

More precisely, it is the future per capita income calculated from its present level of per capita income, and its present level of human capital and economic vulnerability. The calculation is based on the assumptions that the relative levels of human capital and economic vulnerability remain roughly unchanged during the estimation period, that their marginal impact on growth also remain the same and that all other factors affecting growth are identical for all countries. Countries can be ranked by their risk of having a per capita income below a certain level in a given future for reasons not depending on their present and future policy. The reverse order corresponds to a ranking in a structural probability to be graduated in x years. The advantages of this approach come from its ability to take into account the three structural features/criteria identifying the LDCs, and to lead to rank LDCs in 2020 (or later) according to this index.

This method should not be seen as assuming that there is no impact of the IPoA on the rate of growth. As the previous methods applied relying on extrapolation of the past growth, possibly increased by a given and uniform rate, it only supposes that the growth impact is the same among LDCs. (On the reverse relying on an uniform projected rate of growth was supposing a differentiated impact).

### ***Assuming each LDC growing at its expected structural or natural rate***

Methodologically, as done in Guillaumont (2009a), economic growth is regressed on the logarithmic forms of initial per capita income level ( $Y_0$ ), the economic vulnerability index (EVI) and the complement to 100 of the human asset index (100-HAI) as followed:

$$growth(Y) = \alpha \log(Y_0) + \beta \log(EVI) + \delta \log(100 - HAI) + \varepsilon$$

The logarithmic specification is used to capture interaction between the two handicaps, as assumed by the identification through complementarity criteria (mutual reinforcement of handicaps). The estimated coefficients obtained (assumed unchanged) are used for the projection of a virtual future ("natural") income from the latest value of the three variables (present income and handicaps assumed unchanged).

In Guillaumont (2009a) a cross section estimation of the coefficients over the period 1970-2000 was used for the projection to 2025. And, the ranking obtained was consistent with on-going graduation.

Here, we make new estimations of the impact of the structural handicaps (and convergence factor) on per capita income growth, with same specification of the criteria variables. Unlike Guillaumont (2009a), GMM estimations on a panel of five year periods over 1970-2010 are used. Table 5 presents the results of the regression. The coefficients of the logarithmic form of initial GNI per Capita, 100-Human Asset Index, and Economic Vulnerability Index are negative and significant, still consistent with the previous findings of Guillaumont (2009a). The sample of 73 countries includes 29 LDCs.



**Table 5: GMM Estimation of Growth impact of structural Handicap (HAI and EVI).**

Dependent Variables	(1) GNI per Capita growth rate
Log of initial GNI per Capita	-0.025*** (3.22)
Log of (100-Human Asset Index)	-0.032*** (3.80)
Log of Economic Vulnerability Index	-0.010* (1.96)
Constant	0.328*** (3.93)
Observations	382
Countries	73
AR(1)	0.000
AR(2)	0.874
Hansen OID P. Value	0.153

Absolute *t* statistics in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

This result underlines the important role played by HAI and EVI in economic growth, and the existence of conditional economic convergence among developing countries (including LDCs) when these variables are taken into account.

Then the growth of the per capita income to 2020 and 2030 is simulated, starting from the level of the criteria variables used at the 2012 review, except for EVI, recalculated according to the method of 2006-09, more appropriate for this exercise<sup>15</sup>. The results are presented in Table 6. They are close to those of Guillaumont (2009a), except for new oil exporters.

***The half of LDCs likely to be the closer to graduation at the end of the next decade.***

Let us first look at the ten countries the most likely to graduate: they include the presently four graduating countries (Samoa, Equatorial Guinea, Vanuatu, and Tuvalu), two other LDCs already found eligible a first time in 2012 (Angola, and Kiribati) and four other ones (Timor Leste, Bhutan, Djibouti and Sudan), half (three) of six not yet graduating being oil exporters. The half of the 48 Istanbul LDCs, 24 LDCs, which are the most likely to graduate for structural reasons include these ten previous countries, and 14 other ones of various kinds (among which 4 island and 2 landlocked countries, 3 mineral and 3 manufactures exporters). Among the following countries, some may catch up the top group as a result of rapidly increasing exports of fuels or minerals recently discovered (such as Mozambique). This leads to underline once again that the present exercise is illustrative of the factors at work, and not at all a prevision. It is clear that graduation prospects are first determined by those structural variables featuring the least developed countries, but also dependent on new exogenous factors not captured in the criteria indicators, on the respective quality of policies implemented by the countries, and on the benefits they will be able to draw from international support measures.

<sup>15</sup> The use of the 2006-09 definition instead of the 2012 one, is legitimate because the new component added (low coastal area population) is intended to reflect a risk for long term and sustainable development, but would weaken the relationship of EVI with growth, as estimated on the past and still relevant for the next two decades.

**Table 6: 2020 expected natural income ranking**

Country	2020 ranking	Country	2020 ranking
Equatorial Guinea	1	Chad	25
Tuvalu	2	Mali	26
Angola	3	Guinea-Bissau	27
Samoa	4	Burkina Faso	28
Vanuatu	5	United Republic of Tanzania	29
Timor-Leste	6	Rwanda	30
Kiribati	7	Uganda	31
Bhutan	8	Togo	32
Djibouti	9	Central African Republic	33
Sudan	10	Gambia	34
Sao Tome and Principe	11	Nepal	35
Senegal	12	Mozambique	36
Lesotho	13	Madagascar	37
Yemen	14	Guinea	38
Solomon Islands	15	Afghanistan	39
Zambia	16	Niger	40
Mauritania	17	Ethiopia	41
Lao People's Democratic Republic	18	Sierra Leone	42
Benin	19	Malawi	43
Comoros	20	Eritrea	44
Cambodia	21	Somalia	45
Myanmar	22	Liberia	46
Haiti	23	Democratic Republic of the Congo	47
Bangladesh	24	Burundi	48

#### **4. A step further: revising or simply refining graduation criteria?**

It is always possible to revise the graduation criteria so that they will be met in 2020 by half of the countries still LDCs at the time of the Istanbul Conference. But, of course, if a revision is needed, it should be consistent with the principles of the category, and be equitable over time, with regard to the previous practices of graduation...It will moreover possibly make graduation easier.

The previous and purely illustrative exercise (3.3) invites to stick to the principles of the category by simultaneously considering the present level of income per capita and the two kinds of structural handicaps to growth. The expected natural income could be used as a revised only income criterion, with an appropriate threshold to be determined. Since it would not be acceptable to rely on an econometric estimation, debatable and politically not transparent, another composite index averaging the three indicators of low income per capita, low human capital and economic vulnerability, as presented in *Caught in a trap*, could also be used, all the more that this index would be available for a larger number of countries than the LDCs group. But to some extent it would blur the meaning of the category...or would involve a revision of the inclusion criteria as well.

A minor revision, applicable if needed only to graduation and fitting the rationale of the category, is possible, which has been already considered by the CDP. The CDP agreed in 2005 to consider

simultaneously two structural handicaps (HAI and EVI)...in such a way as to take into account some degree of substitutability among the criteria and the possible combined impact of the handicaps as captured by the HAI and EVI" (CDP, 2005). Actually in 2006, before recommending Samoa for graduation, it noted that "the average of the two indices,  $(100 - \text{HAI})$  and EVI was "at a level similar to that of Cape Verde, whose graduation has been decided by the General Assembly".

This previous additional information can become a more formal graduation rule, added to the present ones: let us call "*structural handicap index*" (SHI), as done and discussed in Guillaumont *Caught in trap* the combined level of  $(100 - \text{HAI})$  and EVI, then we can determine thresholds from the reference group of countries, by the same way it is done for each of the two present HAI and EVI indices. The SHI index can be calculated as an arithmetic average, what supposes a perfect substitutability between the two handicaps or as a reverse geometric average, supposing a limited substitutability, closer to the rationale of the category (it means that the handicaps interact to make growth more difficult).

We have applied these two measures of SHI to the figures of the 2012 review, with a graduation threshold put at the quartile level (implicit inclusion threshold) less 10%. The list of LDCs meeting this alternative graduation threshold includes only one more country with the arithmetic average, Nepal, and two countries with the reverse geometric average (Nepal and Sao Tome and Principe). To be noted, with the arithmetic average Tuvalu and Kiribati would not have been eligible, while it would have been so with the geometric one, Kiribati evidencing a quite higher SHI than Tuvalu. Regarding the prospects, the LDCs which are the closest to the threshold would be Sao Tome, Lao PDR, Mozambique and Tuvalu with the arithmetic average, and Mozambique with the geometric one. Bangladesh is the next one (next on the list and just above the implicit inclusion threshold is Bangladesh<sup>16</sup> as well as Lao PDR with the geometric average). Thus a simply revised or refined additional rule of graduation, according two indicators, income per capita and structural handicaps index, the latter involving a partial substitutability between HAI and EVI, would remain consistent with the previous practice, as well as the principles, and at the same time would open some new prospects of graduation.

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<sup>16</sup> Using this additional rule would make more feasible for Bangladesh to implement the "atypical approach" suggested by Bhattacharya and Borgatti (2012) to become rapidly eligible by accelerating the improvement of human capital.

## Conclusion

The IPoA set up a goal of enabling half of the number of LDCs to meet the graduation criteria in 2020, a goal recalled by the General Assembly in two December 2012 resolutions, the first one on “Smooth transition for countries graduating from the list of least developed countries” (A/C.2/67/L.51), the second one on “Follow-up to the Fourth United Nations Conference on the Least Developed Countries” (A/C.2/67/L.53). Although graduation prospects are substantial, they are likely to significantly lag behind the IPoA goal. A first reason is the time needed for a country to “meet the criteria”, since this country should be found eligible at two successive triennial reviews, strictly speaking no later than at the 2015 and 2018 reviews! To be recalled, the country meeting the criteria in 2018 cannot effectively be graduated before 2021...Next LDCs likely to meet the graduation criteria in this time frame include first the three countries the graduation of which has already been decided, but is not yet effective (Samoa, Equatorial Guinea, Vanuatu), the three other ones recommended (Tuvalu) or found eligible a first time (Angola and Kiribati), and those few countries which could be found eligible a first time in 2015: according to the traditional two criteria rule, it seems that only Solomon Islands could meet the HAI criterion (assuming the reference group does not shrink) and the GNIpc criterion (assuming a rapid economic growth); according to the income-only rule, it could be the case of Timor Leste and possibly Bhutan, if their growth is sustained (also possibly joined by Kiribati, already meeting the HAI criterion). At the end of the decade, there could be ten out of the 49 present LDCs having met the graduation criteria (seven of which having effectively graduated), what means around one quarter instead the IPoA goal of one half.

In a longer term, and as soon as the 2024 review, several other LDCs can meet the income-only criterion, if they achieve a rate of growth corresponding to the 7% target of IPoA. For reasons endogenous to the design of the criteria, and under the assumption that the size of the reference group is unchanged, the key driver of the eligibility to graduation would likely be the growth of income per capita, if sustained. Economic growth will progressively push LDCs to meet the only income criterion, while an improvement in the component indicators of HAI and EVI would have little direct impact on graduation likelihood, due to the working of these relative criteria, as explained above (it involves a change in the country situation with respect to the criteria thresholds, determined from a reference group maintained at a number quasi constant). An improvement in HAI and EVI is rather expected to have an impact on graduation as a factor of higher economic growth.

With regard to the last decade trend of economic growth only seven countries among the 48 LDCs of Istanbul, only one in Africa, are likely to have met in 2020 the only one income criterion, and only one more country if in all the LDCs the GDP will be growing at the 7% target rate of the IPoA. The General Assembly in its December 2012 resolution on Follow-up to the Fourth United Nations Conference on the least developed countries (A/C2./67/L.53, par.3) expressed “*serious concern* that after a decade of welcomed steady growth, the LDCs are facing significant challenges in sustaining their economic growth and their economies are projected to grow by an average of 4.1 per cent in 2012, which is considerably below the target of 7 per cent per annum as set out by the Istanbul Plan of Action”.

Of course the growth of the GNI per capita may be influenced by exogenous factors other than the structural features identifying LDCs. Such factors have already been working during the last decade

and are reflected in the various approaches of this chapter, the main of which being the international price of commodities, in particular oil. But some other ones may appear in the next decade, in particular new oil or mineral exports, as a result of recent discoveries. Another set of highly important factors is the improvement in policies. Difficult to assess and predict, it could not be considered in this chapter.

No more considered was a significant change in the graduation rules. Have however been drawn the implications of the composition of the reference group of countries used to determine the eligibility thresholds, as well as the simultaneous consideration of HAI and EVI in a composite index of structural handicaps.

The rather limited prospects of graduation in the period covered by the IPoA should be an incentive to implement and hopefully reinforce the support measures agreed upon in Istanbul.

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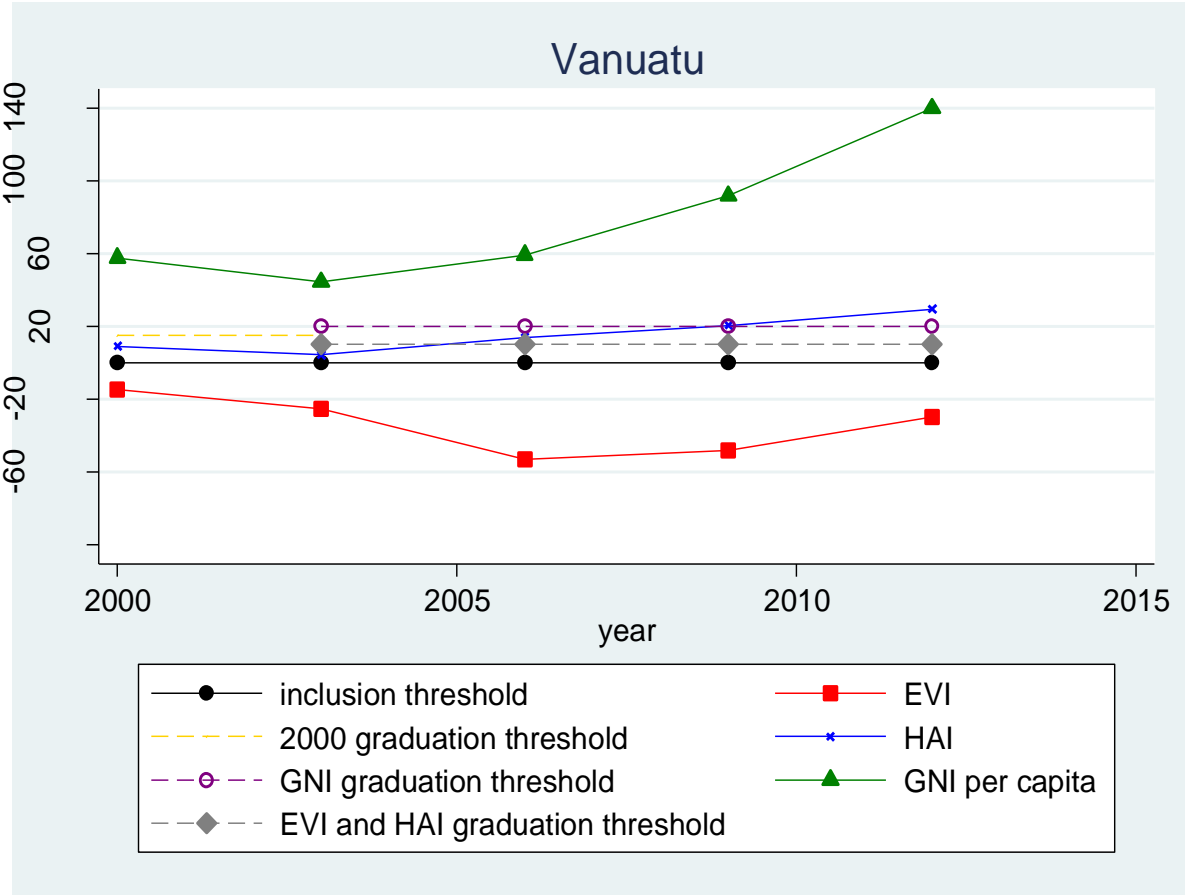
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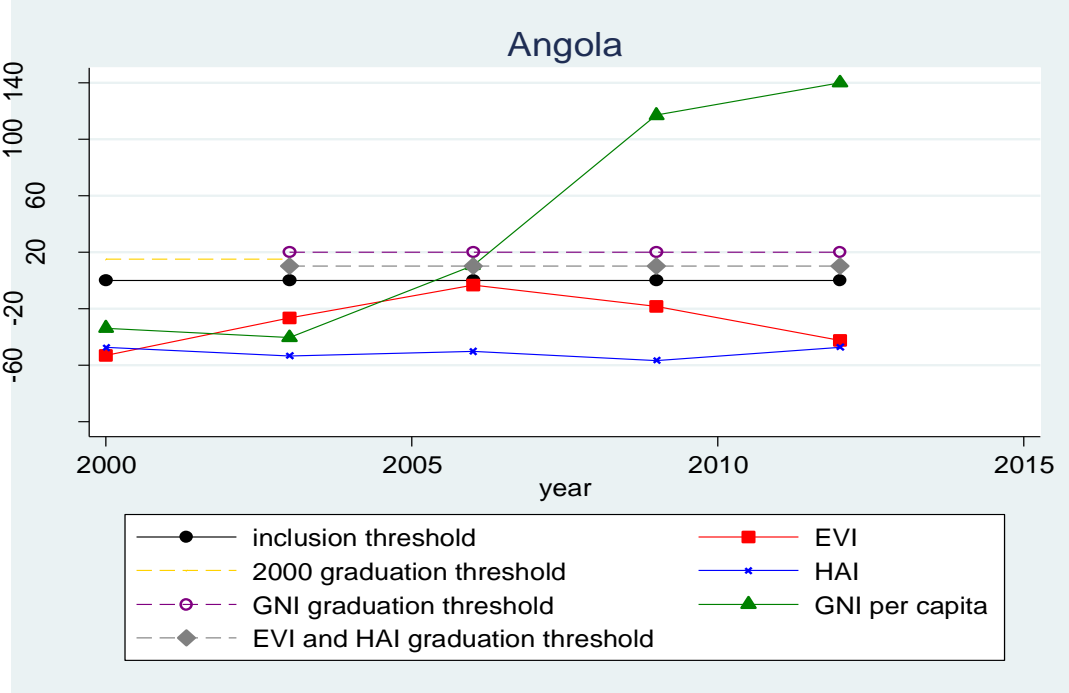
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**Graph 5: Relative evolution of Vanuatu's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**

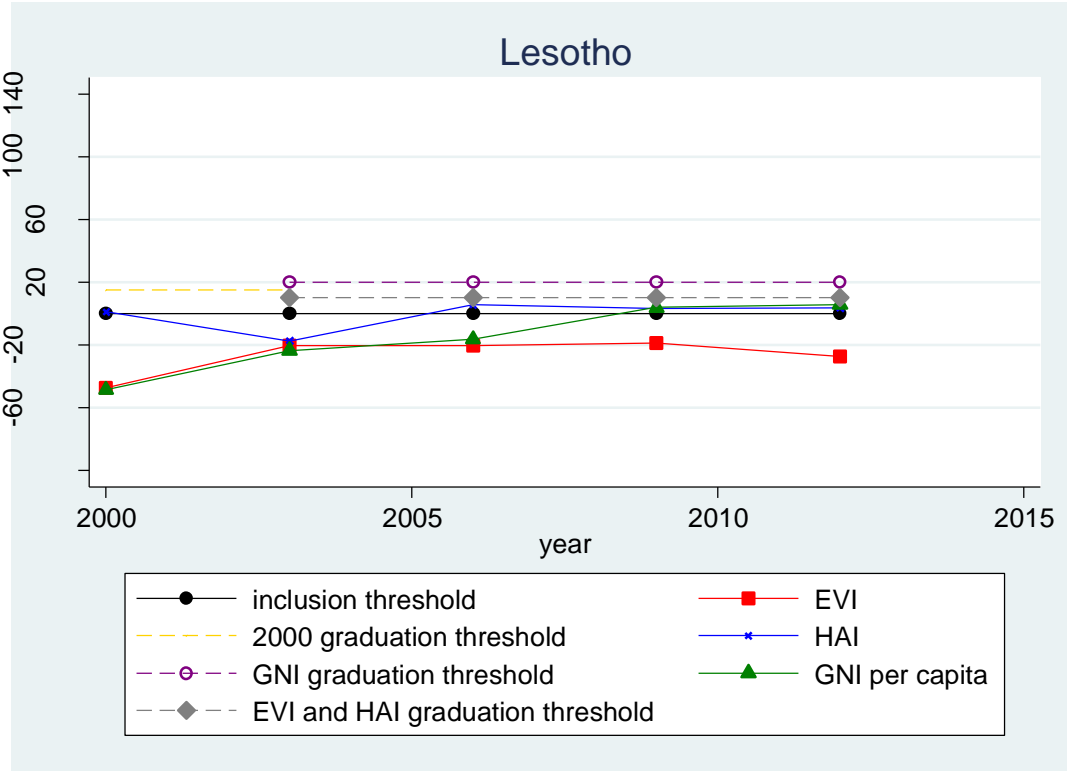


**Graph 6: Relative evolution of Angola's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**

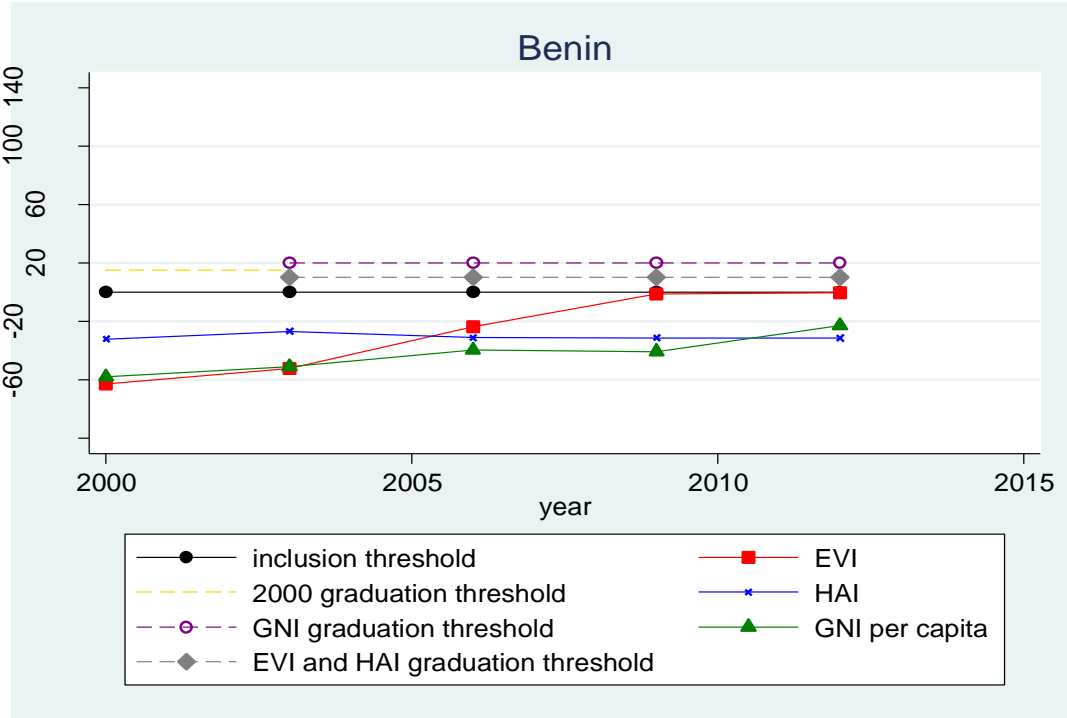




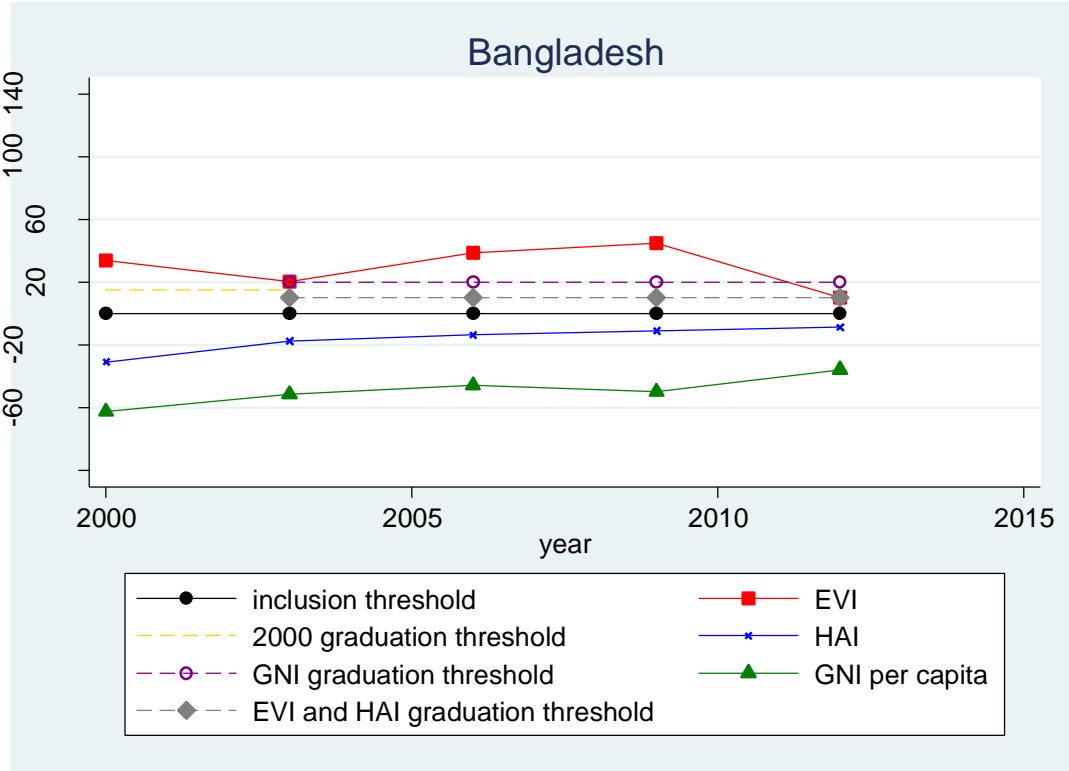
**Graph 7: Relative evolution of Lesotho's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**



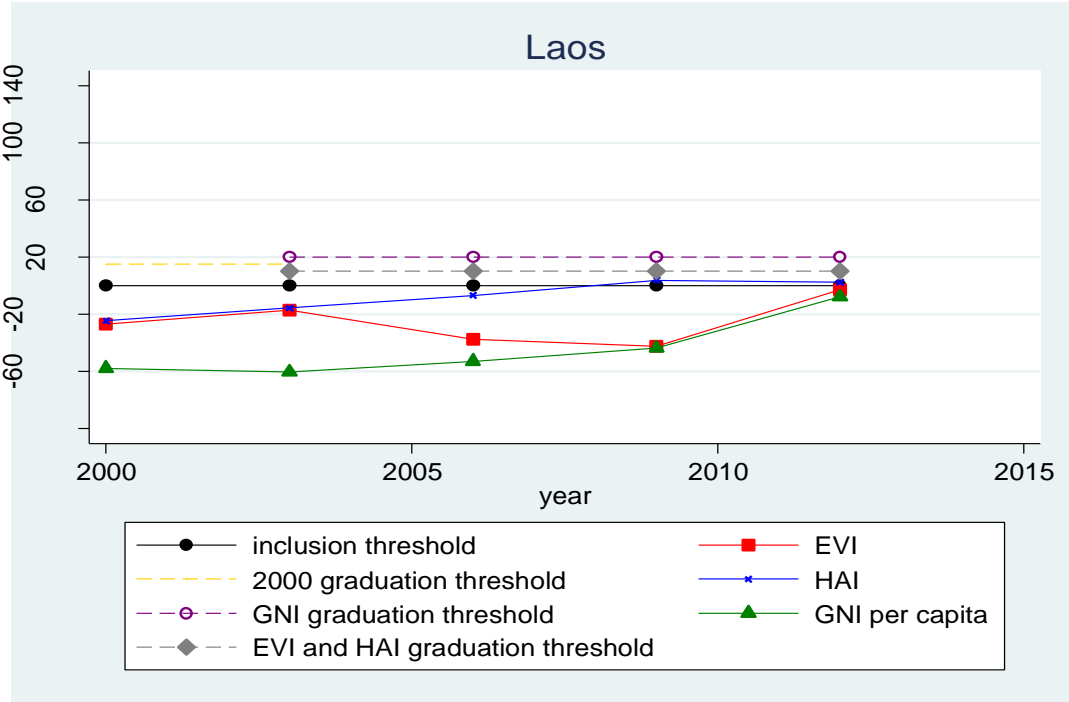
**Graph 8: Relative evolution of Benin's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**



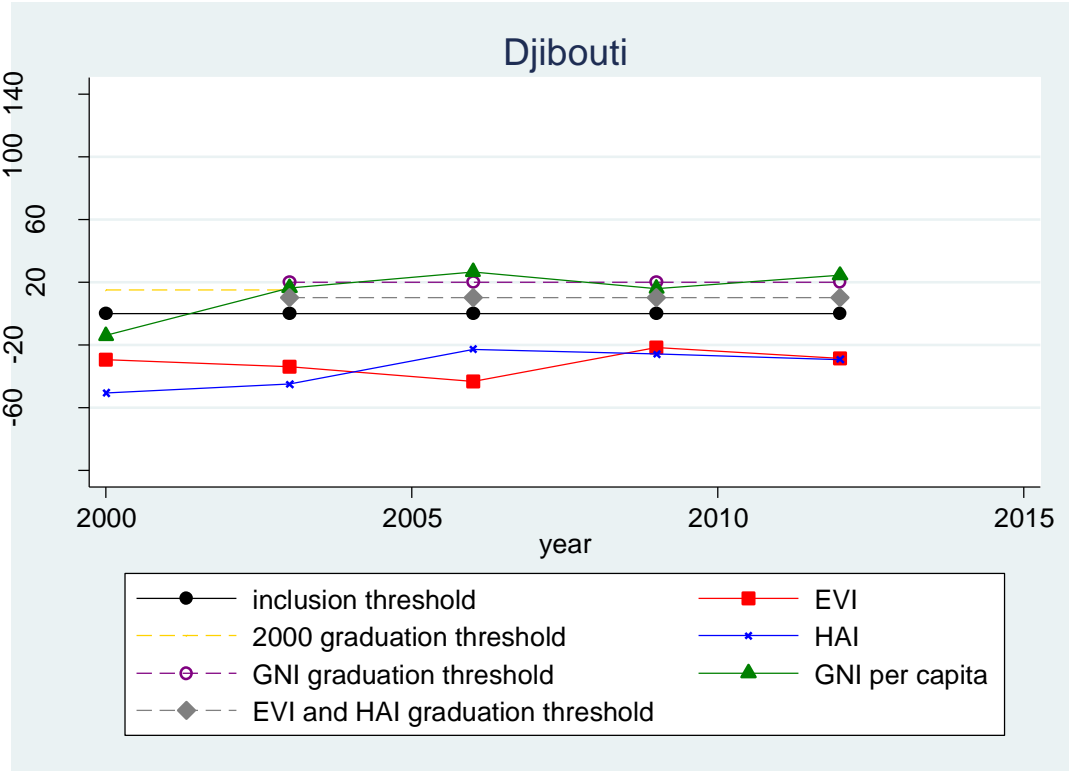
**Graph 9: Relative evolution of Bangladesh's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**



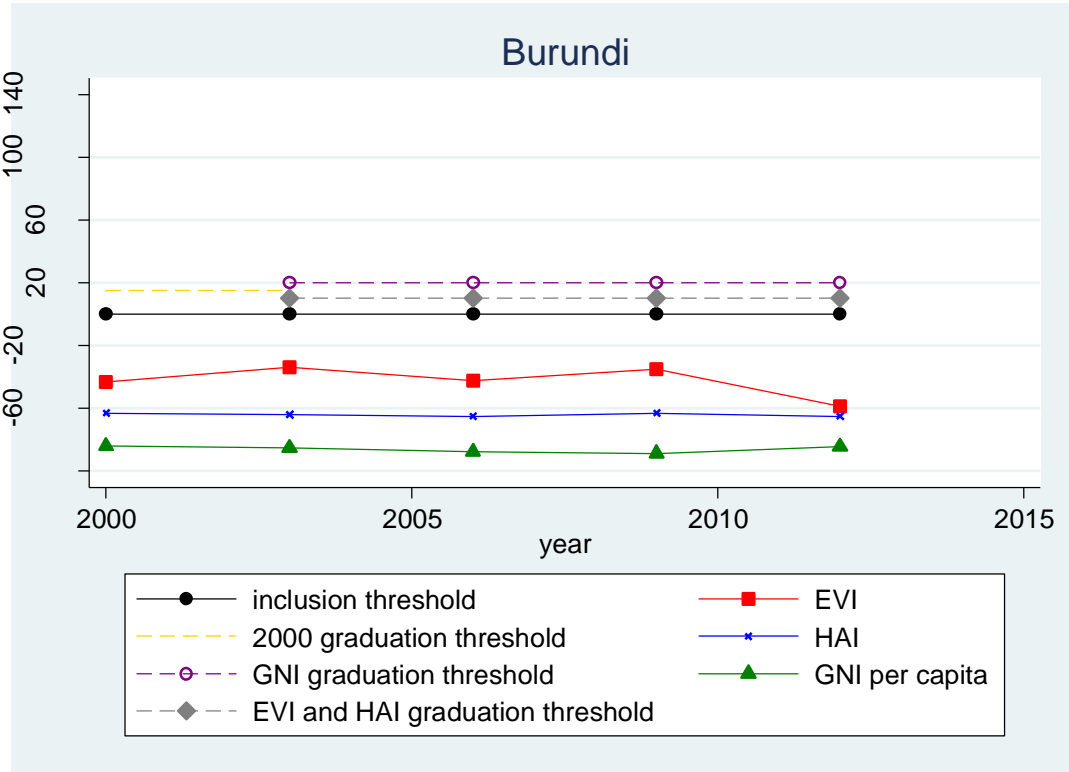
**Graph 10: Relative evolution of Laos's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**



**Graph 11: Relative evolution of Djibouti's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**



**Graph 12: Relative evolution of Burundi's position with respect to the graduation and inclusion thresholds over the five last triennial reviews**





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