

AN EXPLORATION INTO THE DEBT RELIEF LAFFER CURVE FROM THE PERSPECTIVE OF PUBLIC DEBT SUSTAINABILITY ANALYSIS

BORÇ YARDIMI LAFFER EĞRİSİ ÜZERİNE BORÇ SÜRDÜRÜLEBİLİRLİĞİ PERSPEKTİFİNDEN BİR İNCELEME

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ABSTRACT

Debt overhang is a one of the major hindrances to the economic growth in the developing world. It generates a large disincentive for the economies and acts as quasi marginal tax which is an additional burden on a developing economy that is already in economic turmoil. This scenario is also unfavourable for the creditor as their expected payoff decreases dramatically. However, by means of a well-structured debt relief, a new allocation which Pareto dominates the debt overhang situation can be achieved. In the recent past, several attempts have been made, including HIPC by IMF and World Bank and Paris Club countries. Nevertheless, despite these attempts the debt sustainability in developing world is still a far-fetched phenomenon. Debt Relief Laffer Curve can be used as a tool to decide under which conditions a bailout in the form of debt relief could be successful.

Keywords: Debt overhang, Debt relief, Debt Relief Laffer Curve, Sustainability, Pareto dominance.

ÖZET

Borç sarkması, gelişmekte olan ülkelerde ekonomik büyümenin önündeki en önemli engellerden biridir. Bu durum ekonomi üzerinde büyüme aleyhine şevk kırıcı etki yaparken aynı zamanda bir tür vergi gibi özellik göstererek zaten ekonomik sıkıntı içinde olan ülkeye ek yük bindirebilir. Bu durum bu ülkeye borç verenler açısından da beklendikleri borç geri ödemelerinde azalış gerçekleşeceği için istenmeyen bir durumdur. Ancak iyi tasarlanmış bir borç silme programıyla, borç sarkması durumuna göre Pareto üstün bir dağılım elde edilebilir. Yakın geçmişte, bu yönde, IMF ve Dünya Bankası tarafından HIPC ve Paris Klübü üyeleri tarafından da çeşitli girişimler gerçekleştirilmiştir. Ne var ki, günümüzde halen borç sürdürülebilirliği gelişmekte olan ülkeler için gerçekleşmesi pek yakın olmayan bir kavram olarak karşımıza çıkmaktadır. Bu tür bir borç yardımının hangi koşullar altında başarılı olabileceği konusunda fikir edinmek için Borç Yardımı Laffer Eğrisi bir araç olarak kullanılabilir.

Anahtar Kelimeler: Borç Sarkması, Borç Yardımı, Borç Yardımı Laffer Eğrisi, Sürdürülebilirlik, Pareto Üstünlük,

1. INTRODUCTION

Governments all over the world make borrowings from foreign resources for various reasons, including financing budget deficits, making infrastructure investments, refinancing the currently existing debt obligations, just to name a few. Lack of sufficient domestic resources in low income and developing countries is an important hindrance to the implementation of sound economic policies. It is safe to say that those countries, in a way, suffer from excessive reliance on international markets and institutions for their financing needs. The international lenders perceive government bonds as a safe instrument for their funds and as they can charge higher interest rates on those countries, they provide developing world with sufficient financial resources if they are willing to use those funds for their financing needs. On the flip side, if the borrowing schemes are not well planned and the funds are not utilized effectively, the debtor country eventually faces deteriorations in their public finances in particular and in their economy as a whole. When a country's obligations exceed the amount it is able to pay, these obligations act like a high marginal tax on the country. In this case, any surplus created by the government to fulfil those obligations,

will be shared by creditors instead of serving the economy. This renders it difficult for the government to reach higher levels of economic performance and growth as the generated funds are acquired by foreign lenders. This situation is mostly followed by a debt servicing problem and will result in an unsustainable indebtedness along with disruption in trade flows and an inevitable decay in the overall economic performance. This decline arises mainly through disincentives regarding new investments. Potential investors will refrain from making new investments bearing in mind that the government will rise taxes to finance existing debt and also the surplus generated will be devoted to foreign lenders rather than serving the economy. This situation is called debt overhang. In this paper, we will discuss debt overhang and its potential detrimental effects on the economy. On this purpose, we will demonstrate a tool so called “Debt Relief Laffer Curve” which serves the function of determining as to whether the country is in a debt overhang and if there is room for a Pareto improvement by reallocating the amount of debt between debtor and the lender, at the end of our work. In order to understand the underlying principles of the curve, we will firstly touch upon conceptual framework of debt overhang and debt relief which will make the sustainability and debt relief nexus more vivid. Last section will conclude.

2. THE DEBT OVERHANG

The term “debt overhang” has been borrowed from the terminology of corporate finance. It has been incorporated into the vocabulary of public finance by Krugman and Sachs in late 1980s. The term was generated by Myers (1977) in his seminal paper on the determinants of corporate borrowing. The rationale behind the use of the term in public finance literature is based on the idea to provide highly burdened countries with external debt relief to such an extent that will be able to pay back their debt without further assistance.

From the economic standpoint, the intuition behind the argument is that excessive amount of debt has deleterious effects on the solvency of the debtor and therefore obstructs the investment behaviour. The underlying argument regarding this issue is based on the diminishing expected returns on investment due to large debt obligations. In this case, new borrowing will only serve the function of enlarging debt stock and thereby increase the claims of creditors on potential future resources of the economy. In addition to the disincentive channel via investments, this constitutes an additional source of inefficiency caused by debt overhang in the economy. High amount of debt brings about debt overhang if the debtor economy has low expectations regarding transfer of funds in the following periods. As we will demonstrate via *Debt Relief Laffer Curve* (DRLC), for a country with debt overhang, any new loan would be worth less than its par value, which leads the potential new investors to avoid investing in the country as the loss is inevitable under these circumstances. Hence, as a result, there will be no future resource flows to the economy. In the extreme scenario, if the level of debt reaches a point which causes the financing potential of the country to decrease, a looming default possibility increases dramatically. In the case of debt overhang, the amount of debt stock functions as a disincentive to economic growth and to the implementation of reforms.

Economic agents in the indebted country perceive the creditors as the sole party to benefit from the future surpluses generated by the economy, and themselves as the sole bearer of the costs associated with economic adjustment. As the resources are not devoted to plans which can serve the economic growth, the opportunity cost of debt overhang turns out to be excessively high. When debt overhang is prevalent in the indebted country, the accumulated debt serves the function of quasi-tax on investment which is an additional hindrance to economic growth in the economy. If the country uses further external funds to service existing debt, then they will be able to meet the cost of existing debt at the expense of larger accumulation of debt stock. The result will be a noticeable increase in the claims on the future resources of the economy by the external lenders. Therefore there is an inherent need for a reduction in the total amount of debt in the case of debt overhang.



By means of such a write-off, the future resources might be able to be devoted to channels which will lead to a boost in investment and thereby will facilitate economic growth. This is where the debt relief comes into play (Bird, 2003). A debt relief conducted by creditors on the indebted country which is unable to self-contain the existing debt stock, might be beneficial for debtors as well as creditors. We will discuss this point at length in the following section. However, it is worth pointing out that high level of debt stock does not necessarily imply debt overhang for the economy. In order for the debt overhang to occur, the indebted country should be in a position where it fails to defray existing costs of debt stock. As a result of this situation, an anticipation of lower levels of future fund flows to the economy show up in the country which in turn is a sufficient condition for debt overhang to materialize. In order words, rather than the magnitude of debt stock, expectations about the new flows to the economy is more distinctive regarding the existence of debt overhang in the economy. In most cases, it is not certain to what extent this quasi-tax is effective on the economy and how it forces the governments to amend their policies.

Yet, a sole reduction in the amount of debt will not suffice to alter the investment decisions in the economy. It is the expectations regarding future inflow of resources that needs to be reconstructed. Besides, the debt overhang can impair the overall economic performance through other channels including monetary responses and uncertainty. The increase in the fiscal deficits which is brought about by debt accumulation, might lead to an expansionary monetary response which in turn is likely to give rise to inflationary pressure on the economy (Hjertholm, 1997: 194–205). The result of this interaction will eventually be an exchange rate depreciation which can undoubtedly widen the fiscal deficit even further (Rodrik, 1993). In addition, perpetual debt rescheduling maintains uncertainty about the future debt profile of the public sector. Coupled with fluctuations in the macroeconomic indicators such as inflation rate, the uncertainty about the fiscal stance might radiate negative signals to the investors and reduce their incentive to implement new investments which ensue detrimental consequences for economy as a whole. This outlook might induce some concerns not only for the debtor but also for the foreign creditor. Most of the time, the governments in the indebted country will be reluctant to enact policies which entail large and painful measures due to political and economic concerns.

From the creditors' perspective this situation is not favourable as the expected payoff is far smaller compared to the case where the self-containment constraint is satisfied by the debtor country. Total receipts of the creditor will be much smaller in comparison to the position where at least part of the debt was written off and the debtor country has been brought back to a sustainable level of debt stance. At relatively low levels of debt, nominal claims can be expected to be fully repaid. But as the liabilities accumulate the possibility of non-payment increases because of low growth and high debt to service. The capacity of the debtor to meet all future obligations will shrink which creates a disadvantageous case for the lender. Hence, the higher is the debt, the larger the probability of a non-payment, and greater will be the discount on the value of outstanding debt in the secondary market. If the debt is high enough, further increases in the level of debt may actually lead to a smaller expected value of payments. It is clear that under such a scenario the debtor as well as the creditor is worse-off.

At this point, debt relief appears as a potential solution to the problem at hand. By writing off part of existing debt stock, claims by foreign lenders on the future income stream of the country are lowered, and this in turn promotes domestic investment and growth. In the event of debt overhang, a well-structured debt relief can serve the function of rising both secondary market price of debt and expected payoff. In this case, creditors, despite forgoing the chance of full repayment, may benefit from debt relief by guaranteeing a partial payback. As the debtor country cannot attract voluntary credit from abroad in the case of debt overhang, offering some relief to the debtor country can bring it back to a position where new funding possibilities emerge. At this point, there is a trade-off for the creditor between financing the country with the expectation of full repayment or delete part of the existing debt and secure a large amount outstanding debt. Under this dilemma, if the country is

likely to recover by itself then financing might be a good option for the creditor, however, in most cases these highly indebted countries fall short of enough resource and effort to recover by themselves. Therefore, writing down part of the existing debt appears to be the optimal choice for the most creditors.

3. THE DEBT RELIEF

Krugman defines the debt overhang as *“the presence of an existing, “inherited” debt sufficiently large that creditors do not expect with confidence to be fully repaid”* (Krugman, 1988, pp. 1-2). And further comments on the issue as follows: *“Just as governments may sometimes increase tax revenue by reducing tax rates, creditors may sometimes increase expected payment by forgiving part of a country’s debt ... debt relief is in everyone’s interest”*.

According to him, a bailout scheme in the form of debt relief is in the mutual interest of creditors and debtors. On one hand, it grants the creditor the chance of eliminating expected loss, and on the other it gives the debtor the opportunity to boost its economy and reach a better economic outlook. In the case of highly indebted countries, debt relief offers both parties a chance to benefit from a Pareto improvement.

At this point, sustainability argument regarding the debt structure of the country comes into play. The aforementioned Pareto improvement can only be achieved if the debt structure of the country can be moved to a sustainable position. Sustainability can be linked to the capacity-to-pay problems of the debtor economy. These sort of problems arise when the debtor country is unable to or unwilling to meet its obligations which also ruin the creditor-debtor relationships. As a result, the lenders’ incentive to maintain financing to the debtor country shrinks and the indebted country faces an unsustainable debt structure as it is unable to attract new funding to defray the cost of existing debt accumulation. Another channel through which the sustainability is affected is the amount of the outstanding debt. If the accumulated debt is so large, it will have detrimental effects on economic growth and the result will be the same: failure to find new funding and ultimately an unsustainable debt position.

Especially in the 1980s excessive debt levels, gave rise to series of debt crisis especially in the developing world. During this era, bailouts in the form of rescheduling did not prove well for the alleviation of the problem. The reason for the failure of this type of aid was the excessively high level of outstanding debt stock of the indebted countries. In other words, the amount of debt in those countries was so high that even though the maturities were restructured, the countries were still unable to repay their obligations. Put differently, it was a matter of magnitude rather than maturity. As they failed to meet their obligations, the end result was even higher levels of debt accumulation and increased level of burden on the economy. The inefficient results obtained from the rescheduling efforts made the policy-makers search for alternative solution to the problem of debt overhang.

According to policy makers, debt relief had appealing features to get rid of inefficient results obtained from the former policies. By creating a fiscal space to the highly indebted country, it could alleviate the debt overhang problem and thereby could generate incentives for public policy and private activity in the economy. This expansion in the fiscal space in fact allows the government to ease its intertemporal budget constraint. As Heller (2005) points out, this fiscal space provides the government with additional budgetary allowance by which it can increase public expenditures without having any negative effects on its fiscal position. This fiscal space is generated by elimination of ongoing and future payback obligations of existing debt. Heller (2005) stresses that these freed up resources might help the recipient government to reach fiscal sustainability. This connection between fiscal space and fiscal sustainability assures the ability of the indebted country to perform its current budgetary expenditures. This plays crucial role for the highly indebted countries as they suffer from lack of immediate resources. Also the public finances in the country benefit largely from some degree of improvement due to reduced level of burden on the budget.



Thus far, several attempts have been made to constitute widespread debt relief programs, such as; Non-Paris Club Debt Relief, Paris Club Debt Relief, HIPC initiative etc., just to name a few. The Baker, The Bradley, The Schumer-Watkins and The Mitterand plans can be classified as Non-Paris Club debt relief schemes which were named after their initiators. The common feature of these plans were their attempt to sort the Latin American debt crisis via some stringent measures including interest rate adjustments, increased aid inflows etc. Another common point of these programs was their failure to reach sustainable debt positions in South American countries. (Stambuli, 1999:8-20). The Paris Club, despite its informality, provided debt relief during 80s in a bilateral sense as well. Focusing mostly on the potential benefits of debt relief, the Paris Club targeted to eliminate debt as a hindrance to economic development in those countries. Starting with the middle income countries, they offered concessions and debt relief to eventually low income countries provided that they adhere to structural adjustment programs. They also provided the low income countries with rescheduling programs in order to alleviate their debt positions. Those programs were named after the towns where they had been negotiated. The concessional program for middle income countries for instance was called “Toronto Terms” whereas the non-concessional rescheduling program for low income countries was called “London Terms” (Stambuli, 1999:21-24). The cancellation of debt under the Toronto Terms was 33%, but the London Terms scaled it up to 50%. In addition to the adjustments regarding magnitude of the cancellation, they also offered simultaneous adjustments for other aspects of debt including maturity or grace period. In 1999, The Toronto and London terms were combined as “Naples Terms”. This new terms allowed a debt reduction up to 67 % and so far 36 countries benefited from this new agreement. Besides, there are also Houston and Cologne terms serving the similar function of debt relief for indebted poor countries.*

Unfortunately, those initiatives performed well below their expected levels. Consequently, IMF and World Bank launched a new initiative in 1996, called Heavily Indebted Poor Countries Initiative (HIPC). Failure of above mentioned initiatives, obviously left the sluggishness of the economy in highly indebted countries as is. In order to overcome this problem, HIPC appeared as a multilateral initiative supported by 180 countries around the world. The ultimate target of HIPC was to lower the debt burden of countries to sustainable levels (MacArthur & van Trotsenberg, 1999:1-7). According to this plan, debt profile of a country is deemed sustainable if the country is able to fulfil its current and future debt obligations without being dependent on further debt relief programs while maintaining a considerable level of economic growth. According to HIPC, every country is analysed on a case by case basis, and is eligible only after a 3-year period of reforms in public sector, and a program to stabilize the economy and some regulations on public spending towards poverty reduction. At the decision point, creditors might prefer to permit the country with sufficient debt relief in order to reduce their amount of debt to sustainable levels. After another three years of monitoring, the debt relief becomes irrevocable. In the meantime, the creditor might provide the country with provisional relief for the debt, but once the decision point is reached, the debtor country should be able to service debt without relying upon further assistance. Some “top up” debt cancellations might be provided by creditors in case of unexpected extraordinary circumstances (Boote & Thugge, 1997:17-22).

In 1999, some alterations have been made to the HIPC initiative to make it broader, deeper, faster and more effective via several adjustments. For example, the debt thresholds have been lowered to make more countries eligible for the debt relief. Also, the monitoring period has been shortened and loosened. And finally, considerably more stress has been placed on the link between the relieved debt and the reduction in the poverty. Under this modified scheme, each country had to prepare a report for the purpose of fighting the poverty in consultation with the civil society.

* More information is available at: www.clubdeparis.org

Since 1983, the Paris club agreements have rescheduled \$504 billion total debt of developing countries, and the amount of debt relief by the HIPC initiative was only \$56 billion among 28 participating countries. However, apparently all these figures do not suffice to overcome the debt overhang problem of developing world and sustainability of debt in those countries remain as a far-fetched concept for those countries.

In fact, there are numerous reasons for the failure of debt relief or for the insufficiency thereof. To put it another way, despite its charming theoretical properties, there are caveats to note regarding the debt relief theory.

One of them is about the magnitude of the fiscal space generated. The amount of space generated might not be as large as the policy makers wish it to be. The reason for this uncertainty about the magnitude is that the outcomes do not materialize immediately. The benefits become noticeable over time and their size hinges largely on the terms and the structure of the outstanding debt.

Another caveat is made by, Cassimon et al (2013). According to them, fiscal space could only be created in the case where the debt would actually be repaid by the recipient country. As the amount of repayment varies among countries, the immediate cash flow will be contingent on the level of payback.

Conditionality of the provision of relief is another point to make regarding the issue. The way the generated fiscal space is allocated proves crucial for the debt relief to reach its target of bringing the country to a better position. Debt relief is mostly granted on some terms and conditions such as strengthening the economy, improving the quality of governance, pro-development spending etc. Failure to devote the created fiscal space to those areas might reduce the willingness of the creditor to perform further relief as the expected increase in the payoff will not materialize because of improper allocation of newly generated space by the debt relief.

Moreover, moral hazard is one of the biggest concerns of the creditors when deciding on granting the relief to the indebted country. There are several ways by which the debtor country might abuse the relief offered by the creditors. For instance, deliberately eroding their debt servicing capacity, the debtors might attempt to attract more aid and relief from the lenders. In such cases distinguishing the good performing countries from the ones with moral hazard is quite important as a uniform rule might penalize the countries which properly act in accordance with the agreed upon conditions.

Not only through the channels of debt capacity, debtors can also perform moral hazard by purposefully building up unsustainable levels of debt so as to benefit from auxiliary resources arising from the debt relief. In order to prevent this scenario from materializing, the creditors apply stringent conditions which limit the scope in which the debtor can benefit from the generated funds by the lender. Tight controls on the borrowers make them pursue appropriate policies so that they can be entitled to debt relief by the donors.

In addition, moral hazard can also play role on the creditors' side. The private lenders might tend to lend excessively if they are informed that public funds will be utilized as a bailout instrument, should the indebted country accumulate an unsustainable level of public debt. Consequently, the likelihood of a debt crisis or even a default will increase dramatically.

Apart from the moral hazard, the free rider problem is another source of imperfection in the context of debt relief. In the case of multiple creditors, each of them can only have a very little impact on the total amount of outstanding debt of the country. If one of the creditors is certain that the others will implement debt relief, this particular lender might prefer to keep its position and make the other lenders bear the burden of debt relief. Therefore, a cooperative solution is hard to reach in the case of multiple creditors. In fact, as we have mentioned earlier, the higher is the amount of debt relief, the more likely that the creditors will secure their expected payoff from the creditor. In other words, it is in the joint interest of all creditors to act as a group rather than being the free rider. The ultimate

outcome in this case is an inevitable “market failure”. Unwillingness of the creditors to take responsibility to reach a solution, results in a position where the potential benefits of debt relief do not materialize due to the lack of sufficient write off. This mainly relies on the intention of creditors to force other creditors to take responsibility and benefit from the alleviated economic conditions of the debtor. In such a scenario all lenders perceive their common interest in a bailout in the form of debt relief but also all of them refrain from taking the action it is necessary to provide the debtor with the adequate amount of relief. Coupled with the intention of deflecting the cost onto other players, reliance on the market under these circumstances does not reveal the optimal outcome for debtor as well as the creditor. Hence, a concerted activity among the creditors proves useful in order to achieve an outcome which Pareto dominates the initial position of excessive borrowing along with disincentive for further investment, i.e. debt overhang.

However as Krugman (1988) notes, such a broad agreement on debt reform is highly tough to achieve due to considerable risk of non-participation. In an attempt to reap all the benefits which will ensue from the concessions contributed by other creditors, individual creditors act strategically. The inevitable outcome of total market failure arises from the self-interested behaviour of those individual creditors.

There are, in fact, numerous reasons why creditors are unwilling to participate in debt relief schemes. Contagion, for instance, is one of the most prominent reasons why the creditors might refrain from taking place in debt relief programs. As the financial institutions and intermediaries are closely intertwined, a default in one of those institutions might have a disastrous effect on other institutions. In worst case scenario, major insolvencies in leading creditors might bring about a severe financial crisis. Therefore, large lenders tend act in selectivity and flexibility, in order to avoid such unfavourable outcomes. A case by case approach in determining the scope of the debt relief program and design the regulations in a way to produce a flexibility to the alter their decisions throughout the procedure, might permit the banks the opportunity to avoid such immediate losses in the event of an adverse situation.

Besides, creditworthiness of the debtor country might be affected if they fail to channel the new financial freedom they obtain. However, if the interest payments are excessive, the relief would not be directed to real economy which is crucial for the lenders to agree upon a debt relief scheme. If the large amount of degrees of freedom is wasted by non-productive programs and interest payments, the end result would be a termination of relief which in turn ensue even worse scenarios for the debtor country. In other words, if the discipline is somehow weakened by the debtor, the implementation of tough measures and reforms would be more challenging which ultimately result in deleterious outcomes on the economic performance. If the debtor country presented with debt relief as a “free gift”, the expected economic growth might not be achieved due to the irresponsible behaviour of the indebted country. Lack of prudential policies or malimplementation thereof, might result in the absence of future inflow of capital, which in turn is an adverse scenario for the creditworthiness of the country.

Yet, extremely rigid contracts might also hinder the economy from achieving improvements in the overall economic performance. Therefore, the contracts need to allow for some room of alterations for unexpected low-probability occasions. Insisting on the rigidity of the contracts might make the creditors worse off despite the fact that the reason for the existence of the rigidity is to avoid unwanted outcomes. Politicization of the subject, at this point, enhances the framework and renders it more complicated for the creditors to make decisions about the debt relief programs. An additional actor in the field, makes it tougher for the lenders to create generous relief programs, let alone facilitating the procedure. As the politicians mostly have electoral incentives, they might end up with misleading and inefficient decisions about the debt relief and its components. Therefore, a debt relief bailout with least political intervention and with most reliance on a regulated market structure will serve the Pareto improvement goals of debt relief most.



4. THE DEBT RELIEF LAFFER CURVE

The aforementioned two concepts, debt overhang and debt relief, can also be analysed analytically by means of the so called, “Debt Relief Laffer Curve”. Even though it is named after renowned economist Arthur Laffer, the creator of the curve is Paul Krugman in late 1980s. The point he attempts to make via this curve is simple. According to him, a partial debt relief can be in joint interest of creditor and debtor. Reallocation of resources in the case of debt overhang is too costly for the debtor country, as the newly generated funds will always accrue to the foreign lenders rather than to the promotion of the economy. The end result is a *Pareto deterioration* rather than a *Pareto improvement*. As it is too costly for the debtor to enact policies to establish economic growth when the debt overhang is prevalent, they will be reluctant to do so. In the case of debt overhang, the debt serves the function of quasi marginal tax on development. The tax payers has to bear the burden of debt overhang even though they receive no public service in return. Therefore especially the firms will refrain from making new investments as the tax they will pay will be accrued by foreigner lenders. This case can be illustrated in the figure below.

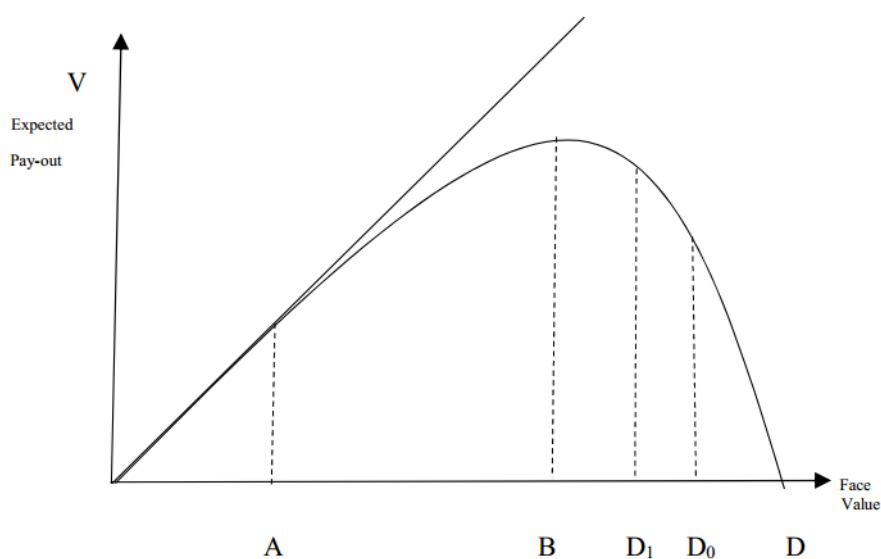


Figure 1: Debt Relief Laffer Curve

In the figure above, the total level of debt (D) is shown on the horizontal axis while the total value of the debt, or in other words, the expected payout of the creditor is located on the vertical axis. According to Krugman, if the debt level (D) exceeds a level such as B on the curve, then, the above mentioned impacts of debt overhang becomes so powerful that in the overall economy a high level of disincentive for new investments will be inevitable. As the economy fails to promote, the likelihood of high levels of repayment will start to decline. Eventually, as the debt level increases the value of debt declines further and ultimately falls to zero. Therefore before it hits the level of zero and expected payout vanishes, a debt repudiation is inevitable, otherwise, the creditor might end up with getting no payback at all.

The only sustainable debt position in the figure above is the section between point A and the origin. Up to the point A, the face value and real value of the debt are equal. The lender expects a full repayment. Hence, there is no concern about the sustainability of the debt in this trajectory.

Up until the summit of the curve, expected payout keeps increasing despite its diminishing marginal increments. To the righthand side of the summit, the expected payoff of the lender starts to decline. This is the point where the risky position for both parties play role. From a debt forgiveness in this region, say from D0 to D1, there is a clear gain for the debtor as this reduction creates a fiscal space to the domestic economy by removing the foreigner claims on the resources. Therefore it is quite beneficial for the debtor as its ability to service debt obligations increase dramatically. However,



for the creditor the gain is contingent on the initial location of the debtor. By reducing the amount of debt, they forgo part of their claims on the debtor economy. To compensate this loss, the potential gain from the expected payoff must be higher than the amount of debt relief. In other words, the loss of D_0 D_1 needs to be compensated by the upward movement in the vertical axis, namely an increase in the expected payout or real value of the debt. This is only possible if the debtor country is on the righthand side of point B. In this region the creditors can benefit from writing off a portion of debt and establish a Pareto improvement compared to initial position.

As we mentioned earlier, the OA region is already representing a sustainable debt position, therefore there is no problem for any party. In the AB Despite the fact that, the face value and the real value of debt starts to diverge, there is no room for gain from the lenders' perspective, as any amount of reduction in the stock of debt will only decrease the expected payout, which constitutes a double loss for the creditor. Therefore only to the right of point a mutual gain is possible when a debt relief is to be conducted. Krugman defines this region as the "wrong side" of the curve.

According to Krugman (1988), this type of debt relief is an application of "less is more" principle. However, in order for this principle to hold, the initial extreme condition is quite important. Unfortunately, in practice, it is very difficult to determine the exact location of the country on the curve. But most highly indebted countries with weak governments are very likely take place on the righthand side of the curve, therefore there is a potential in those countries for a Pareto improvement in the above mentioned manner.

Despite its practical difficulties, DRLC is a useful tool for debt sustainability analysis from a theoretical and policy-oriented perspective. It outlines a counter argument for the widely accepted view about the debt forgiveness. By means of this curve, we generate new arguments as to whether the debt should ever be deleted by the creditor to bring the debtor to sustainable levels and if the creditor might ever be better off by this type of debt reduction. These contributions are indeed non-trivial regarding the analysis of debt sustainability in developing and low income countries.

5. CONCLUSION

Debt sustainability is more of concern in developing and low income world rather than in industrialized countries. The reason for this situation is the credibility of each country and their various level of access to the financial markets. Given the fact that low income countries have limited link with world markets, their ability to borrow is also hindered. In the case of a debt overhang, the scenario get even more deleterious as the domestic economy lacks the necessary impetus for economic growth to create surplus which could be used to finance their ever lasting debt obligations. In this case, it might be in the mutual interest of both creditor and the debtor to write off part of the existing debt to bring the debtor country in a more sustainable trajectory. Once such a position is achieved, the debtor country will be in a better economic stance and will have the fiscal space it takes to meet its debt obligations and the creditor will be able to receive the payout which will not be available if no action is taken. The possibility for such a Pareto improvement is possible only if the country is on the righthand side of the Debt Relief Laffer Curve. However, this possibility hinges on several factors to materialize. In order to avoid moral hazard issues, the contracts should be prepared in a stringent manner and the performance of the economy should be monitored closely and thoroughly.

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