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Response and Recovery
Mobilizing financial resources for development

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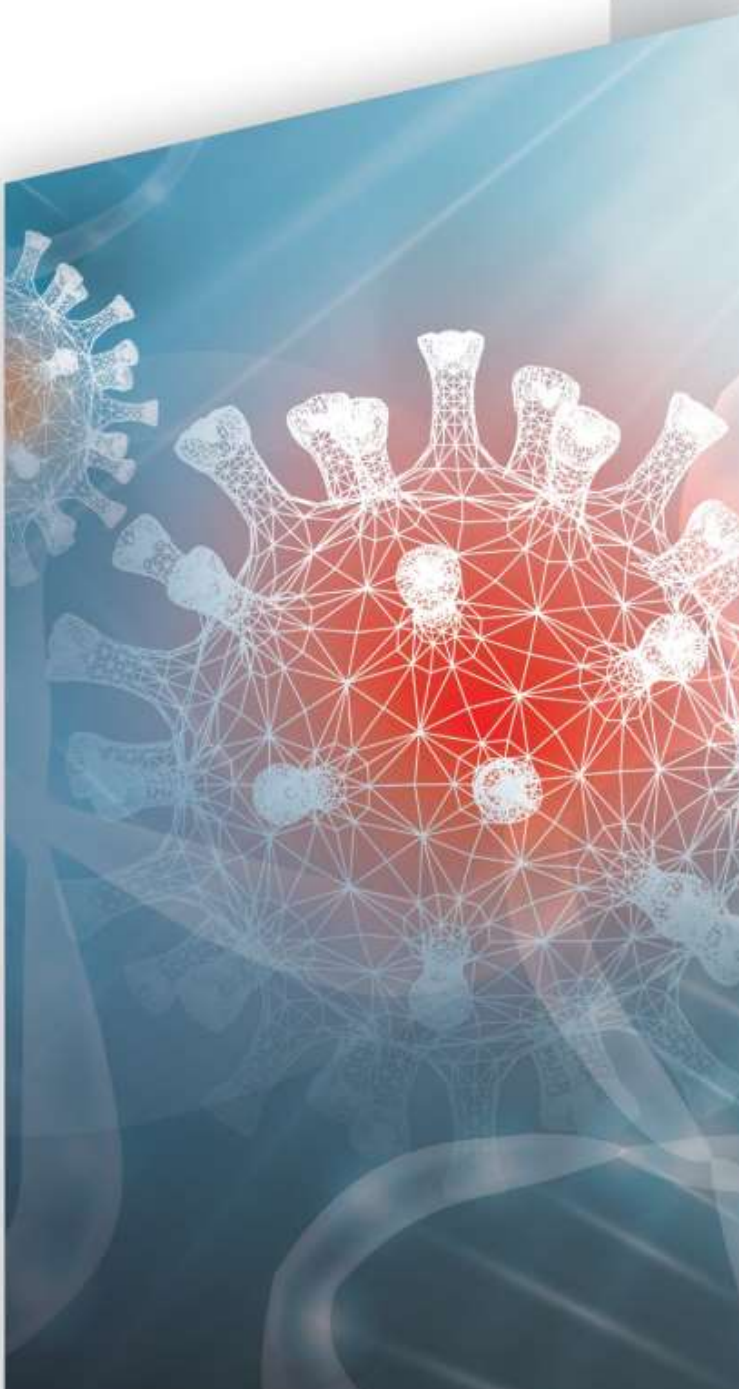

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An appraisal of the UNCTAD Sustainable Development Finance Assessment (SDFA) model Mark 1

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About the COVID-19 Response and Recovery project

This paper is an output from the project "Response and Recovery: Mobilising financial resources for development in the time of COVID-19", which is co-ordinated by the Debt and Development Finance Branch of UNCTAD and jointly implemented with ECA, ECLAC and ESCAP. This project is one of the five UN Development Account short-term projects launched in May 2020 in response to the COVID-19 crisis.

Abstract

This report looks at the UNCTAD Sustainable Development Finance Assessment (SDFA) framework, and the research (theoretical and empirical) undertaken by UNCTAD consultants from a policy perspective. To do this, the report explores the contributions of Thirlwall and Pasinetti, whose work forms the main theoretical foundation of the UNCTAD SDFA framework. The Appendix produces an overview of how derived Pasinetti points can show the public deficit and debt trajectory of countries, particularly during the pandemic.

Contents

1. Introduction

In conventional economics it is usually assumed that the economy under investigation displays a tendency to full employment, even if it is currently not in such a position. An alternative approach (sometimes referred to as heterodox) would argue that there is no such tendency, particularly in the case of small open economies, in which a balance-of-payments constraint may be operative. The conventional response would argue that such a constraint would not be binding if exchange rates (and wages and prices) were flexible.

The alternative model proposed acknowledges the possibility of balance-of-payments constraints in the belief that this constitutes a more realistic way of understanding economic issues. Such a heterodox view did not suddenly emerge from a vacuum – the model is based on the work of Thirlwall (1979) and Pasinetti (1998a, 1998b). It should also be pointed out that the appearance of Covid-19 also played a role in encouraging an alternative way of seeing things.

Debt burdens constitute a major and immediate roadblock not only to economic recovery in developing countries, but also undermine the achievement of the Sustainable Development Goals (SDGs). The aim of the UNCTAD SDFA framework was to identify the development finance needs of countries to achieve structural transformation through the most significant SDGs within the bounds of their balance of payments constraints and how to make this compatible with external debt sustainability and public debt sustainability. Under these auspices, UNCTAD contracted Gustavo Bhering to providing a mathematical model which captured this interplay. Carlos Schonerwald added the dynamics of such a model. Their contributions represent the theoretical side of the picture, referenced here as Bhering (2022) and Schonerwald (2022). These theoretical models were presented as the UNCTAD SDFA framework (Mark I).

Once the theoretical side of the story had been presented and analysed, it was apparent that the empirical side of the analysis required attention and to this end Keith Lockwood was brought into the picture. He examined the data requirements for the theoretical model and to what extent the IMF and other institutions provide the data needed. The countries considered were Indonesia and Sri Lanka, in the first instance, and his contributions appear as Lockwood (2022a) and Lockwood (2022b). He has also produced various Excel files which contain the data employed. These appear in the references under the Lockwood (2022c) entry. The report that follows examines the above-mentioned theoretical and empirical contributions.

To evaluate what we can refer to as the Bhering approach, we need to see where it comes from. His work relies principally on the contributions of Thirwall (1979) and Pasinetti (1998). Section 1 that follows seeks to outline the relevant features of their contribution.

Because Bhering's sustainability analysis revolves to a large extent around type of diagrams presented by Pasinetti, we need to spend some time discussing the derivation of what we refer to as Pasinetti points. Because such a presentation is quite time-consuming, we place the discussion in the Appendix where we generate Pasinetti points for six countries for the years 2010 to 2020. Although there are different ways to conceive of government expenditure and revenue, we submit that the actual generation of Pasinetti points should not present too much controversy, however laborious a task it is. The more difficult part of the analysis is how to conceive of the sustainable region when a whole series of Pasinetti points are generated for successive years.

With such thoughts in mind, the Pasinetti points are placed in the Appendix, whereas the addition of the sustainability areas is discussed in Section 2. In Section 3 we briefly discuss how the arguments surrounding the Sustainability Area are applied by Bhering to external debt. To be more precise, Bhering here considers Net External Liabilities which he refers to as NEL. In terms of public or internal debt, Bhering refers to PSNL or Public Sector Net Liabilities. For consistency we prefer to compare NEL to NIL, where NIL stands for Net Internal Debt. We use NIL where Bhering uses PSNL, but they amount to the same thing.

2. The approaches of Thirlwall and Pasinetti

Bhering acknowledges his debt to Thirwall but does not provide much background on his contribution. It is fair to say that Thirwall is best known for his work on the balance of payments constraint. Thirlwall's work has accordingly concentrated on open economies, whether they be small or large. The openness of the economy is conventionally seen in the light of the components of the external sector, namely exports and imports. If we take the average of imports and exports and express this as a percentage of total output, we can get an idea of the importance of this sector. Although there is no hard and fast rule, an economy is generally viewed as open if the average of the exports and imports is more than around 10 per cent of GDP. On this basis the United States economy has sometimes been regarded as open, and sometimes as closed.

The two countries that form part of the current investigation into sustainability are Indonesia and Sri Lanka. Lockwood presents the proportional contribution of the external sector and both countries can accordingly be regarded as open. The balance of payments constraint can be illustrated by the following narrative. Suppose that the exports of an economy increase. This constitutes an increase in aggregate demand and economic growth ensues. When national output and income increase, so do imports. As might be expected, economists measure the sensitivity of imports to income by means of the elasticity concept. When the rest of the world imports more, and our exports increase, we measure the extent of the increase in exports in terms of the elasticities involved. As economic growth continues, the balance of payments may come under strain. Much depends, of course on the income elasticity of imports. If the monetary authorities see fit to nip the expansion in the bud, via interest rate

hikes, the economy could be viewed as suffering from a balance of payments constraint. After all, the expansion could have been greater if the monetary authorities did not deem the balance of payments on current account as severe. What matters a great deal in such a narrative is the extent to which the country needs to import goods of a capital nature to sustain the boom. If the manufacturing sector is not advanced enough to provide the machinery for expansion, the balance of payments comes under pressure each time a reasonable amount of growth takes place. Thirwall accordingly sees growth being hampered by a balance of payments constraint. We grow when we export more, but when we grow, our imports go up. Thirwall developed a theoretical model of the processes involved and as can be expected the elasticities of exports and imports play an important role in his approach.

In Thirlwall's vision, a balance of payments constraint can thwart the movement towards full employment. Aggregate demand turns out to be too low to ensure a full employment level of output. The irony is that in the above narrative it is an increase in aggregate demand that sets the growth in motion. The seeds of the subsequent recession are seen to be an excessive reliance on imports. It will often be the case that the imports involved consist mainly of investment items, necessary to sustain the upswing because such items cannot be produced locally.

In the more conventional view of the process, prices adjust to bring the economy to a state of rest at full employment, where the price vector includes exchange- and wage-rates. If there is an increased demand for foreign currency as growth proceeds, this should (in the absence of restrictions) lead to a deterioration in the value of the local currency which will of its own accord inhibit imports. Those who view the movement towards full employment inexorable often take the view that the root cause of unemployment is the unwillingness of labour to accept a lower wage rate. If wages were allowed to fall, employers would find it more attractive to hire them. Nearly a century ago this was the view proposed by those of a classical persuasion:

"*What, then, is the classical view? It is … that full employment does, indeed, not always exist, but always tends to be established."* (Pigou (1941, 78))

"*If there were no friction, no immobility, and perfect competition among wage-earners, these correcting adjustments would keep practically the whole available labour force continuously employed."* (Pigou (1941, 81-82))

Those of a more heterodox persuasion would disagree. In the absence of frictions, the system does not ensure that practically the whole labour force would be continuously employed.

In the mainstream or conventional view, therefore, the economic system is seen as a type of clockwork machine. In the absence of some or other spanner-in-the-works, it is argued that the system tends to gravitate towards full employment. In the heterodox view of economists such as Thirwall and Pasinetti, it is lack of aggregate demand that thwarts the movement towards full employment. In open economies, the balance of payments constraint brings the expansion process to a halt before full employment is reached, and those who are unemployed are unable to procure employment by offering their services at a lower wage.

The SDFA approach put forward by Bhering acknowledges the presence of constraints. It points towards an alternative way of conceiving the economic system. In the more conventional or mainstream approach, there are no constraints as far as the movement towards full employment are concerned.

3. The Sustainability Area for Net Internal Liabilities (NIL)

The other pillar of Bhering's approach is the treatment of the sustainability issue by Pasinetti (1998a, 1998b). To keep his model as simple as possible, Pasinetti (1998a, 105) begins by 'considering the shortest time horizon, that is 1 year'. The debt to GDP ratio is taken as given, and its level is held to be acceptable. Pasinetti defined the public debt as sustainable "when the ratio D/Y decreases or, at least remains constant". Here D stands for debt and Y is the nominal GDP. As Pasinetti points out, he is investigating the debt ratio in the subsequent year. He investigates the sustainability area in a diagram in which the debt ratio (D/Y) appears on the horizontal axis and the change in debt (the government deficit or surplus) along the vertical axis. This deficit is also presented as a ratio and once again the denominator is nominal GDP. Allowance is made for the fact that the deficit employed can be either the overall budget deficit (which includes interest payments) or the primary deficit (government expenditure minus tax, without regard to interest payments).

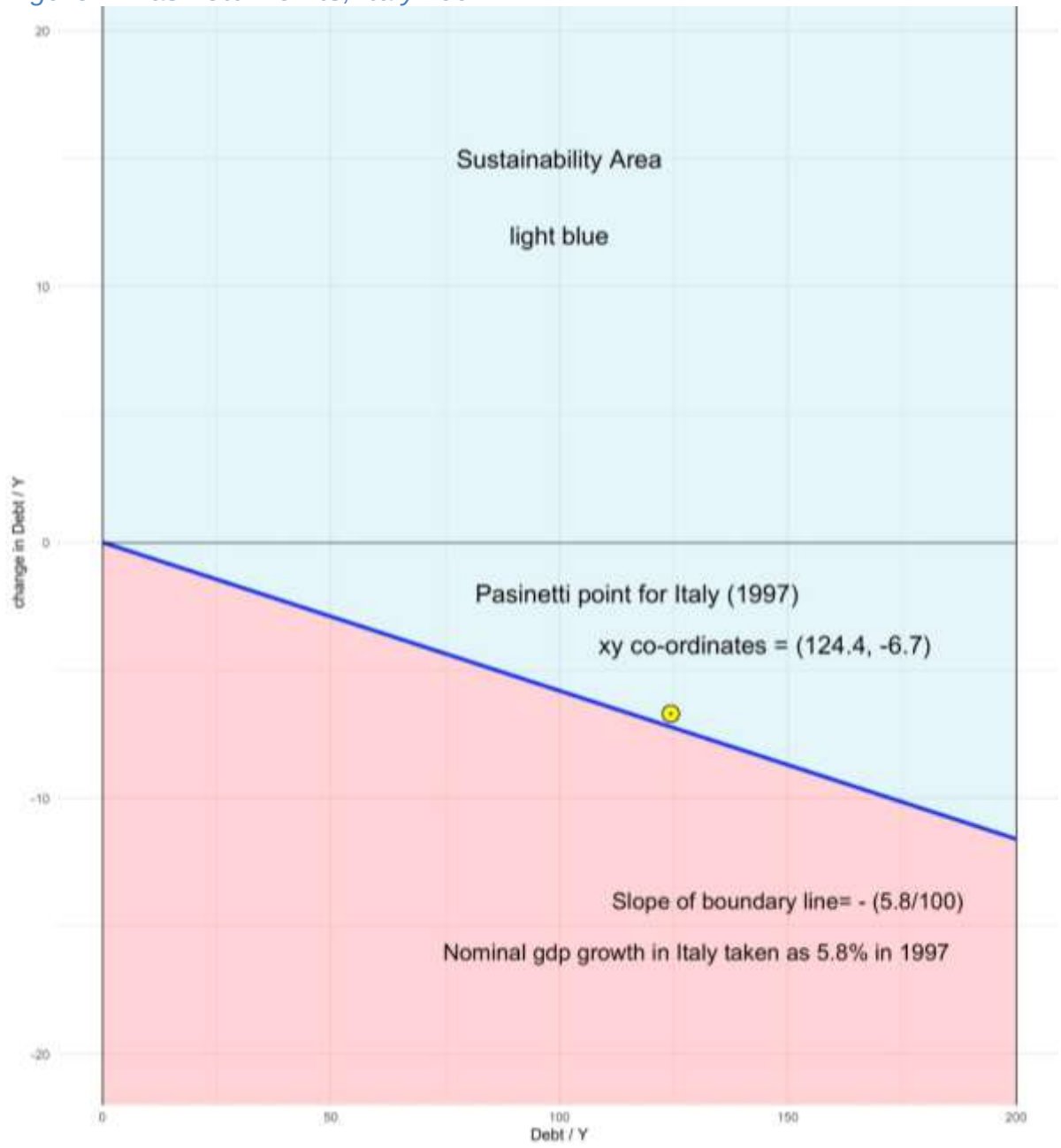
In his diagrams, Pasinetti shows that his sustainability area can be presented in either of the following two ways. The simplest way is to place the overall deficit ratio on the vertical axis and to draw a straight line through the origin, with its slope given by the growth rate of nominal GDP. If one is considering the primary deficit ratio, the slope of the straight line through the origin is now given by the difference between the interest rate and the growth of nominal GDP.

The straight line through the origin (in either of the two diagrams) gives the boundary between sustainability and non-sustainability. Because Pasinetti defines things in terms of a government surplus, the deficit that arises when government expenditure exceeds revenue is a negative quantity. Bhering prefers using a deficit as a positive number. In the primary deficit case this means that if government expenditure is 100 units and tax revenue is 90 units, the deficit is regarded as plus 10, not minus 10. We need to take such matters into account when we consider how the diagrams are drawn, or else we might end of placing the straight line through the origin in the wrong quadrant. Moreover, the difference between the interest rate (r) and the growth rate

(g) can be expressed as either g-r (as in Pasinetti) or as r-g (as in Bhering). In Pasinetti's diagrams, the sustainability area lies above the straight line drawn through the origin, whether we are considering the overall budget deficit or the primary deficit. In Bhering's diagrams, the sustainability area lies below the straight line drawn through the origin.

With the above caveats in mind, let us consider the boundary line as drawn by Pasinetti in 1998. He employed 1997 data which has subsequently been revised. To avoid complicating matters, we stick to Pasinetti's original figures and consider the overall deficit case.

Figure 1. Pasinetti Points, Italy 1997



Source: Pasinetti (1998a)

In Figure 1, the Pasinetti point for Italy in 1997 has the x-y co-ordinates of (124.4, -6.7). For clarity the point is by a yellow disk. The slope of the blue boundary line is dictated by the nominal GDP growth rate and because of the way Pasinetti defines the surplus, the growth rate for nominal GDP (plus 5.8 % in Italy in 1997) must be drawn with a negative slope. Points above the blue boundary line indicate the area of sustainability. The yellow disk shows that we are just inside the sustainability area. The growth rate of nearly 6 % ensures the sustainability of the system. If the growth rate had been a bit lower, the yellow disk would have appeared in the pink (non-sustainable) part of the diagram.

For his purpose in 1998, it was sufficient for Pasinetti to consider a time horizon of one year. The sustainability of the system is investigating by whether or not Italy lay inside the area of sustainability or not. He performed the same exercise on five other countries. Hence his analysis comes across as a cross-section type of approach for those six countries, and we are given no indication of how he intends to extend his analysis if, for example, he was considering years prior to 1997 as well. If the period involved was (say) 1987-1997, a series of Pasinetti points for each country for each of the six countries involved would be produced. Such an extended period was presented in the Appendix where the 2010 to 2020 period was considered for illustration of the Pasinetti points for six sample countries.

For the extended period, it could be considered that taking a succession of one-year intervals, each with six growth rates for the six countries Pasinetti was investigating would be appropriate. A series of blue and pink areas depicting the sustainable and unsustainable areas for each year and for each country could be established. In the Appendix it is shown that for a period of 11 years, it is necessary to resort to a red line showing to make the diagram less crowded and to indicate disks for only 2010 and 2019 and 2020.

Further investigations working with a slope containing some or other weighting process for the various growth rates could also be considered. A host of alternative methods could be used.

At the start of this section, we noted that Pasinetti mentions that he would be ‘considering the shortest time horizon, that is 1 year’. This was to simplify matters. He mentioned that other had used three time horizons, namely 1, 5 and 40 years. We could, accordingly, could try other time horizons. For instance, we could regard the whole of the 2010 to 2020 interval as one period, and work with averages and/or weighted averages to define a sustainable area for the extended time horizon.

The area of sustainability represents a crucial part of the analysis. The theoreticians need to guide us on how best to identify the sustainability region. Pasinetti illustrated how to go about it for a particular year but did not spell out the procedure for a time horizon other than one year. Bhering and Schonerwald have also not provided enough detail on how to identify the sustainability area when the time horizon is longer than a year. Under such circumstances, it is inevitable that the person investigating the empirical side of the story will have to adopt some sort of ad hoc rule to identify an area of sustainability that will generate a workable solution. But here the data is

doing the talking rather than the theory.

It is suggested in the Appendix that once we draw the series of Pasinetti points for different countries, there is a possibility that we can identify some common traits in the proceedings. It goes without saying that to do so we need to examine several countries. This is one of the lessons we can learn from Pasinetti's paper. He didn't just investigate the sustainability issue with respect to one country such as Italy. He did so for six European countries and in the process identified countries that seemed to be within or without the sustainability area. His results were surprising, for the very countries that conventional wisdom seemed to regard as being within a sustainability area were the ones that appeared to lie outside it as far as Pasinetti's definition of sustainability was concerned.

As indicated, Bhering's approach owes allegiance to work of Thirwall and Pasinetti. We are accordingly presented with a model which by its very nature is a model in which there is no inherent tendency to full employment. We read a lot about the growth rate and the interest rate and how the difference between the two helps to identify the area of sustainability. The word unemployment, however, appears in neither Bhering (2022) nor Schonerwald (2022). When we stare at the trapeziums that are constructed to identify the sustainability area, we do not know what the impact on unemployment would be if the powers that be adopted a particular policy in the hope of (say) reducing NEL or NIL.

4. The Sustainability Area for Net External Liabilities (NEL)

Bhering also discusses Pasinetti points with regard to the external sector. Once again, he prefers to work with the net concept of debt, which he terms Net External Liabilities (NEL). The diagrammatic presentation is like the PSNL (Public Sector Net Liabilities) diagram. As indicated, it might be more useful to contrast NEL with NIL (for Net Internal Liabilities). The horizontal axis once again depicts the net debt situation, but this time the denominator is Xstar, where Xstar consists of exports plus remittances and is referred to as exports augmented. They are augmented because exports alone are not the only earner of foreign currency. Remittances should be included as well in this context. The extent of net external debt is hence seen in relation to the means with which it can be repaid, which is Xstar. As in the case of internal debt, the numerator of the variable appearing on the vertical axis consists of the change in net debt, which in this case is NEL. We now have (change in NEL) / Xstar on the vertical axis, whereas we have NEL / Xstar on the horizontal axis. The Pasinetti points can also now be plotted for the country concerned. If we are considering only a single time horizon, we can construct a boundary line for the sustainability region in the same way that we constructed a boundary line for net internal liabilities (NIL). This time the slope of the boundary line is dictated by the difference between the growth rate of Xstar and r, where r can be viewed as the cost of obtaining debt. When the growth of Xstar increases relative to r, the sustainability area increases in size. As in the case of internal debt, however, we must once again

decide how to obtain the sustainability area when more than one period is involved.

In combining the internal and external analysis of debt we arrive at what is referred to as the integrated view of the sustainability area. Bhering argues that the presence of a balance of payments constraint will further restrict the size of the sustainability region. The intention is admirable but once again one gets the impression that more time could have been spent in elaborating on how the procedure is to be carried out. In the absence of more explicit help from the theoretical side, the person working with the data is left to make some or other decision on how to determine the boundary line. The identification of the boundary line constitutes a crucial part of the analysis – it determines what is sustainable.

5. Conclusion

In a report of a couple of thousand words, one cannot do justice to the immense amount of research (theoretical and empirical) undertaken by Bhering, Schonerwald and Lockwood.

However laborious and intricate it might appear initially to draw Pasinetti points, we soon realise that such a process constitutes the initial and easy part of the exercise. Pasinetti showed us how to proceed when there was one growth rate, one interest rate and one x-y coordinate (Pasinetti point) to deal with. When we are faced with multiple periods it is not immediately obvious what procedure to follow when attempting to identify the sustainability area. In my opinion it is theory that should inform us how to proceed in such a situation. This is not a problem that is unique to the social sciences. The Italian-American mathematician and philosopher, Gian-Carlo Rota has remarked (1985, 104) that “We need to understand how sense-making arises out of staring at physical data that by themselves are meaningless.”

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Appendix - Pasinetti points for six countries

The Italian economist Luigi Pasinetti wrote a series of papers in the 1990s in which he set out diagrams depicting the government deficit (surplus) and the government debt for six European nations. Both the deficit and the debt were considered in ratio form, with the denominator being the gross domestic product of the countries concerned. In this Appendix we take three of those European countries and add Indonesia, Sri Lanka, and South Africa. The six countries considered below are: Italy, Germany, France, Indonesia, Sri Lanka, South Africa.

Pasinetti's diagrams have the public debt to GDP ratio on the horizontal axis and the government deficit (surplus) to GDP ratio on the vertical axis. Gustavo Bhering and Carlos Schonerwald prefer to place Public Sector Net Liabilities (PSNL)) on the horizontal axis, once again expressed as a ratio of GDP. In other words, they are considering government debt minus government assets. When they examine the external sector, they accordingly also consider the net picture, which is then Net External Liabilities, which they refer to as NEL. For the sake of consistency it seems appropriate to use the terms NEL and NIL, where NIL stands for Net Internal Liabilities. In the diagrams that follow we accordingly usually employ NIL / Y along the horizontal axis. Pasinetti, of course, measures the debt / Y ratio on the horizontal axis. If government debt is accordingly regarded as the gross concept, we can write GIL for Gross Internal Liabilities.

To sum up the nomenclature procedure adopted below, we express the debt / Y ratio as the GIL / Y ratio, and we call the PSNL / Y ratio as the NIL / Y ratio.

We employ NEL for net external liabilities and NIL for net internal liabilities. What is being measured along the vertical axis is the change in the NIL of the horizontal axis, once again divided by GDP.

What is being measured along the horizontal axis is a stock, whether it is the debt measure of Pasinetti (the gross concept) or the net liabilities of Bhering and Da Silva (PSNL or NIL). What is being measured along the vertical axis is a flow concept. It is depicting the change of the variable employed along the horizontal axis. The things that we are measuring along the horizontal and vertical axes are both divided by Y = GDP. Hence, we can say that we are measuring NIL / Y along the horizontal axis and the change in NIL / Y along the vertical axis. With the external sector NEL / Y is on the horizontal and the change in NEL / Y on the vertical.

Three explicit Pasinetti points in Figure 1. They actually appear as disks. We are considering the years 2010 to 2020 and the end points represent two years of global crises (the global economic crisis of 2010, and the onset of the Covid-19 crisis, in 2020). The yellow, green and pink disks show the combinations of the ratios involved for 2010, 2019 and 2020. There are, of course, 11 years involved, but we include three only for each country since things would get a bit crowded if we were to superimpose another eight disks of equal size. In Figure 1 such eight extra disks would have to be squashed into the space between the yellow 2010 disk and the green 2019 one. The red line, however, connects the implied dots for the intervening years. Note the long

straight red line between 2019 and 2020 - in all seven diagrams. It gives us an idea of the impact of Covid, seen in relation to the non-Covid period (2010 to 2019).

Perhaps the easiest way to understand the diagram is to see it against the background of the two Maastricht ratios at issue at the time that Pasinetti wrote. Pasinetti pointed out that the two ratios (3 % for the government deficit ratio and 60 % for the debt ratio, where both are expressed as a percentage of GDP) represent just one possible combination out of many possible ones. The obsession with the 3 % and 60 % ratios meant that it was but a small step to imply that sustainability was to be related to those two ratios. Pasinetti sought to broaden the concept of sustainability.

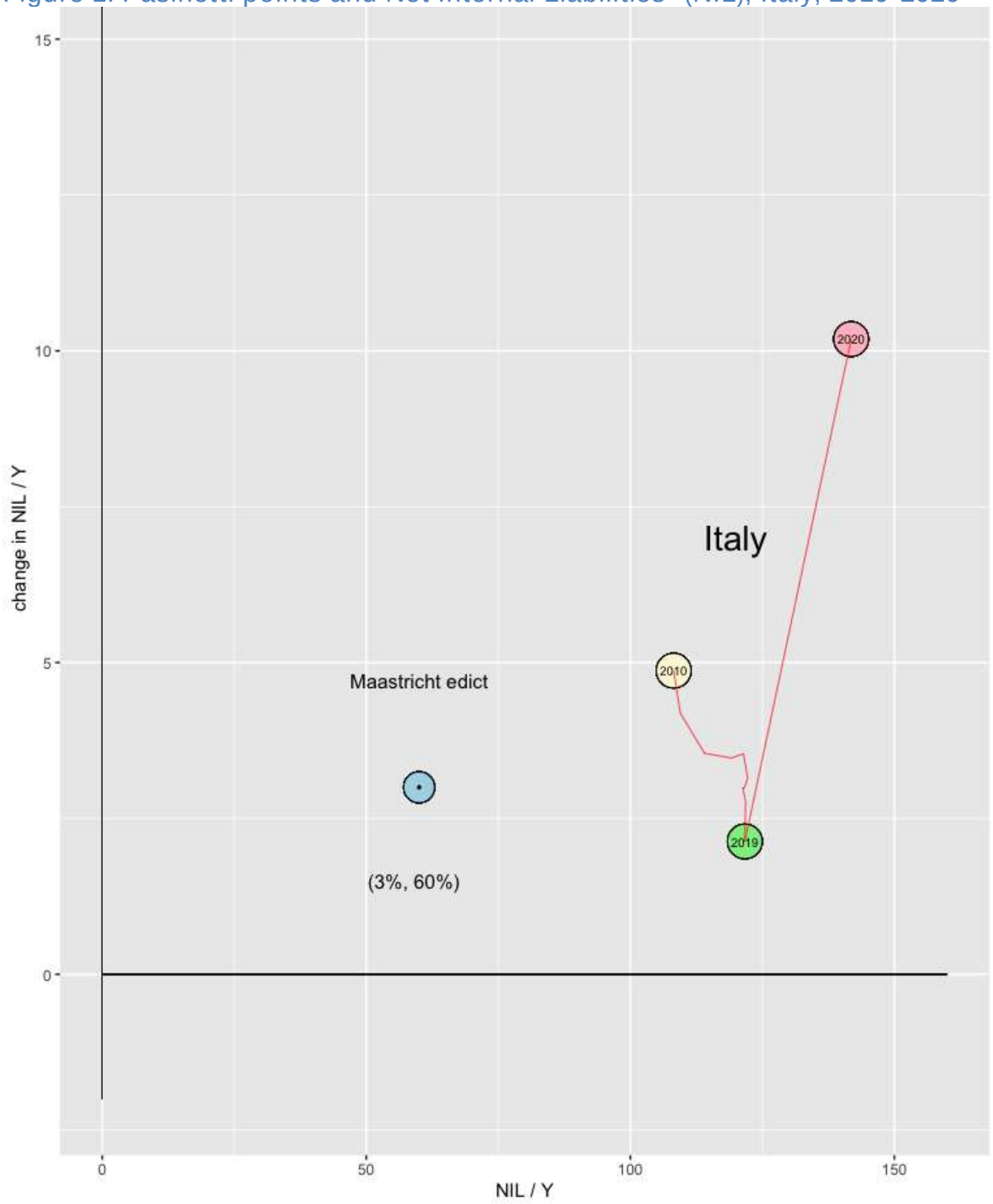
For ease of reference, we plot the Maastricht combination in Figure 1 - it is represented by the blue disk at the (3%, 60%) co-ordinates.

In Figure 1, Net Internal Liabilities (or Public Sector Net Liabilities) are employed along the horizontal axis, divided by GDP. Pasinetti, however, employed (gross) debt, divided by GDP. In Figure 2 we show how things look if we change to debt or gross internal liabilities (GIL). Both gross and net versions are provided by the IMF.[1]

Figures 1 and 2 illustrate see what difference it makes if we shift from the net concept (NIL) to the gross one (GIL). In Figure 2, the graph shifts to the left by a few percentage points when the gross concept of debt is brought back into the picture. The general look of the diagram remains much the same. We stick to Bhering's suggestion (use NIL), and the data are, in general, available. It does, after all, come across as a broader view of the debt concept. We should not however, forget that it may from time to time be more convenient to use GIL instead of NIL. A case in point is the Sri Lanka situation. The IMF does not provide net data on debt for Sri Lanka. Gross data are, however, available. With the above as background, we now present Pasinetti points for the five other countries under consideration.

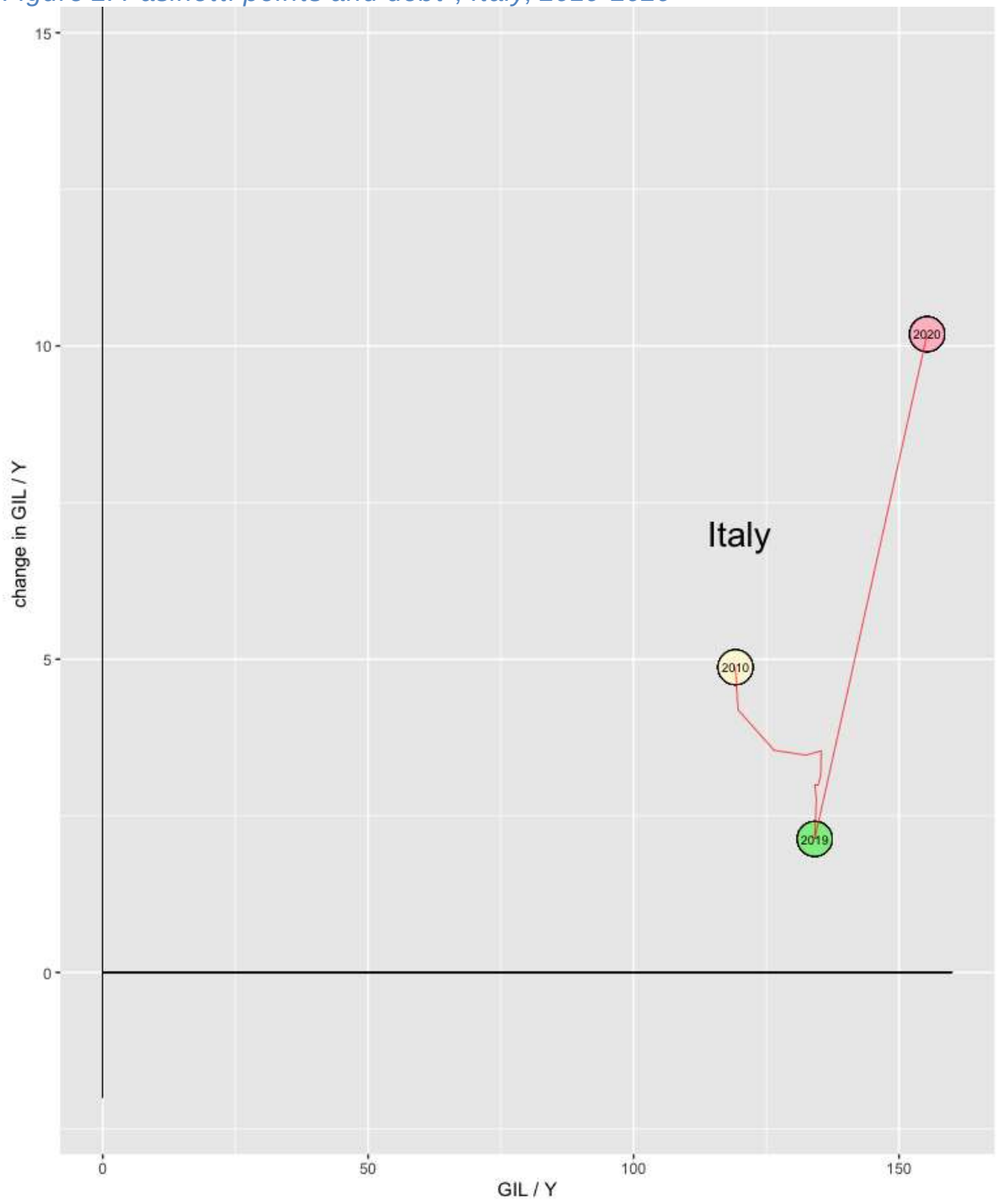
[1] Available here: https://data.imf.org/?sk=061a17b2-7e6a-4b58-9b17-042af9e59a3d&sId=1409151544549

Figure 1. Pasinetti points and Net Internal Liabilities* (NIL), Italy, 2010-2020



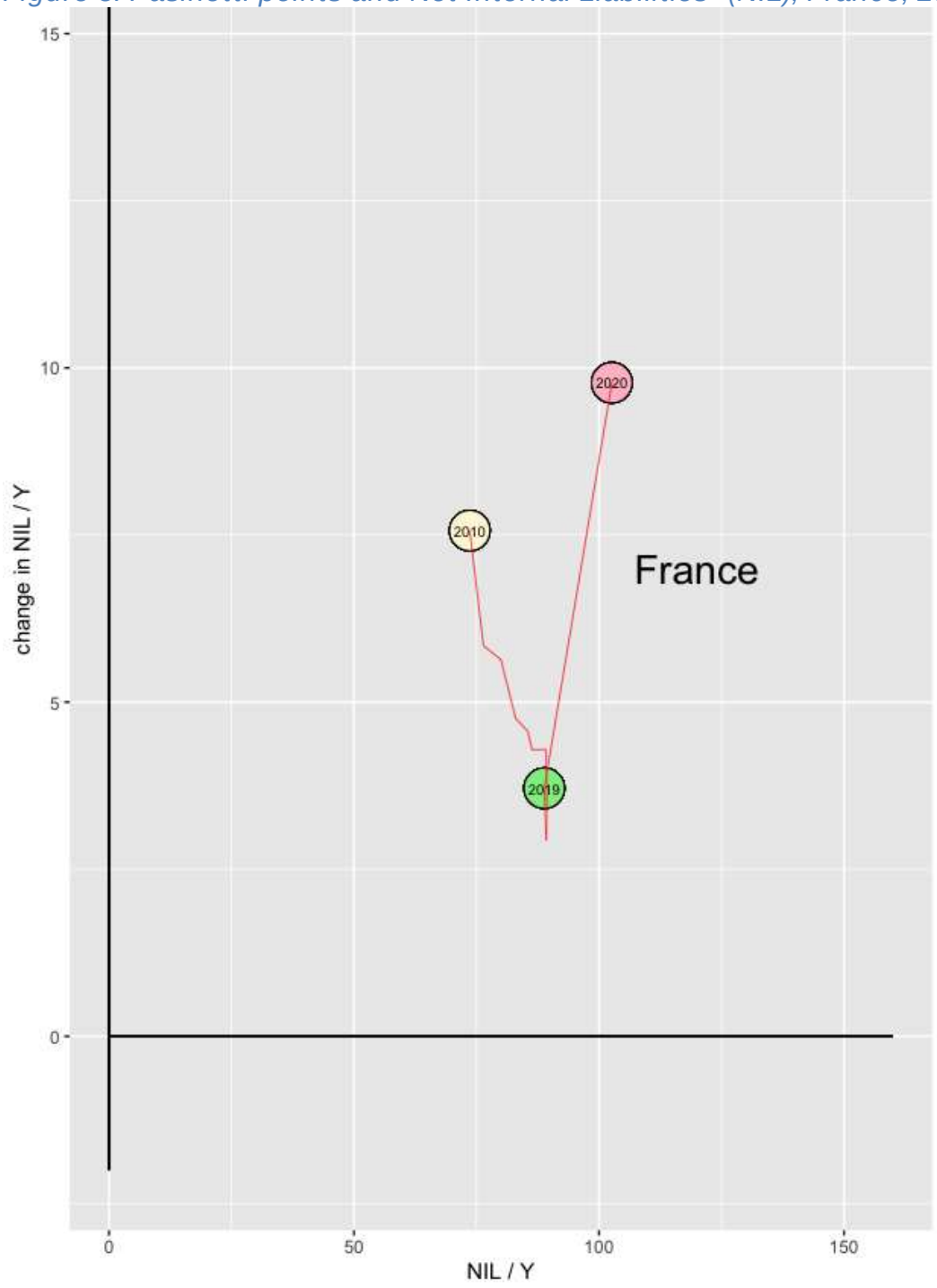
Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b)
**Also referred to as PSNL (Public Sector Net Liabilities)*

Figure 2. Pasinetti points and debt, Italy, 2010-2020*



Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b) *Debt (Gross Internal Liability) measure along the horizontal axis

Figure 3. Pasinetti points and Net Internal Liabilities (NIL), France, 2010-2020*



*Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b) *Also referred to as PSNL (Public Sector Net Liabilities)*

At first sight, the situation for France (Figure 3), does not seem very much different from that of Italy. From the initial 2010 point we move downwards towards the 2019 point and thereafter comes the big Covid line movement to 2020. With a bit of imagination, we can regard it as a type of V (or U shape), with the left arm of the V much shorter than the right arm.

For Italy, the government deficit as a percentage of GDP is around 5 per cent in 2010 (Figure 1) and it drops to about half of that by 2019. Thereafter it shoots up to 10 per cent.

For France the original government deficit position is about 7.5 per cent and it also drops to about half of that by 2019, before climbing (like Italy) to around 10 per cent.

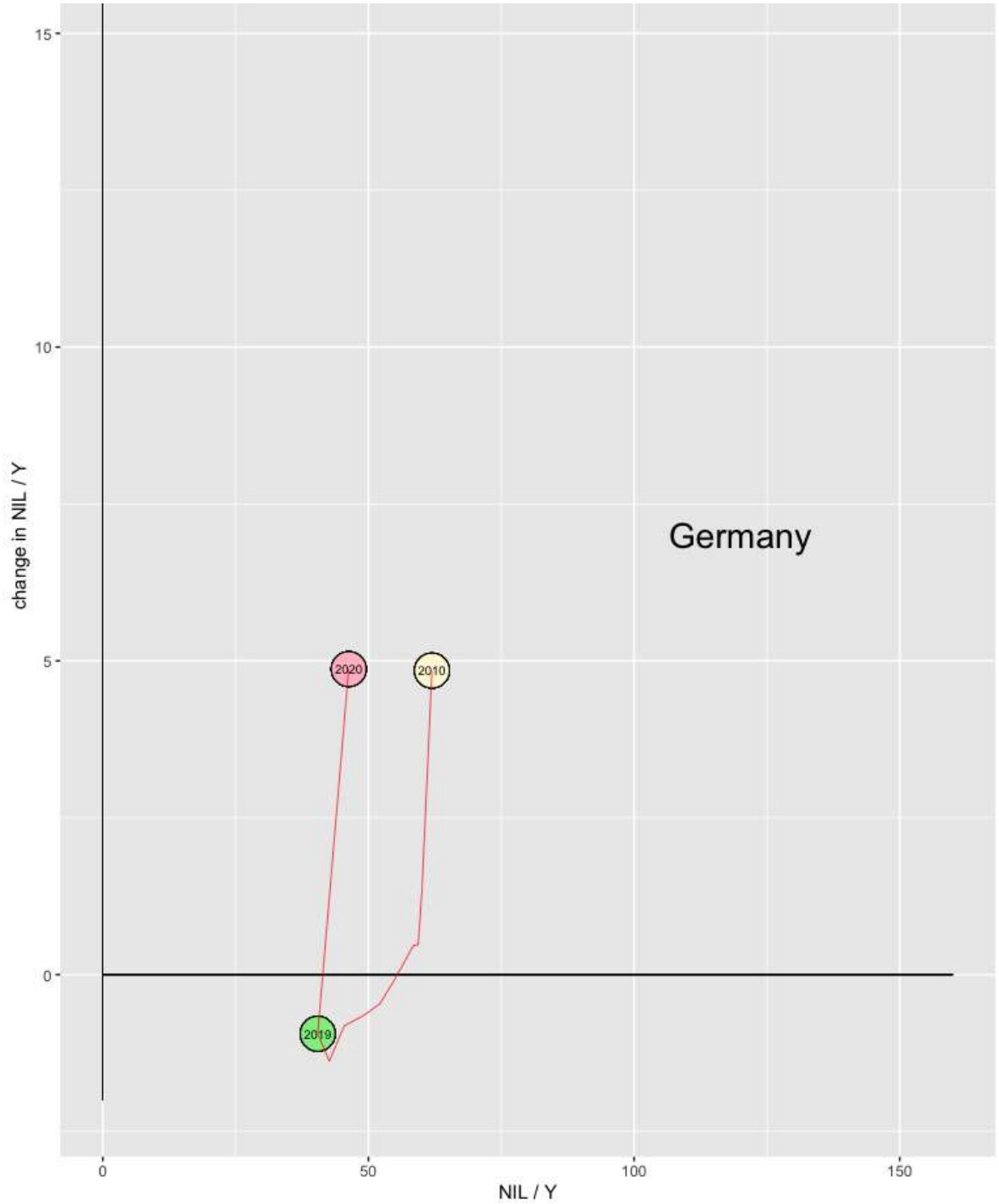
The marked difference between France and Italy lies in what is happening along the horizontal axis. To see this, we need to refer to Figure 1 (for Italy) in order to compare the net debt percentages of the two countries. In 2010, the net debt situation for Italy is well over 100 per cent, and by the time the Covid era begins, the figure is around 140 per cent. For France, however, the starting-off point is much lower than Italy - it is around 75 per cent in 2010 and by 2020 is has passed the 100 per cent mark. France's endpoint for 2020 is lower than Italy's starting off point (for 2020). Roughly speaking, the overall movement to the right is from about 75 to 100 for France, whereas for Italy the overall movement is from around 110 to 140.

In the case of Germany (Figure 4) we also see a type of V or U shape. A major difference, from what we have seen so far, however, is that the movement from 2010 to 2019 is towards the left (and downwards), in other words, Germany was simultaneously reducing the debt and deficit ratios. The sharp Covid-induced movement from 2019 to 2020 brings us back to the 2010 deficit ratio level, with a lower net debt ratio than in 2010.

For the three countries consider so far, we have squeezed a type of V or U shape out of the proceedings. In the remaining three countries we consider, the situation is different. In all three, there is a movement to the upwards and right in Figure 5 (Indonesia), Figure 6 (Sri Lanka) and Figure 7 (South Africa). In all three cases, the Covid-effect is quite marked.

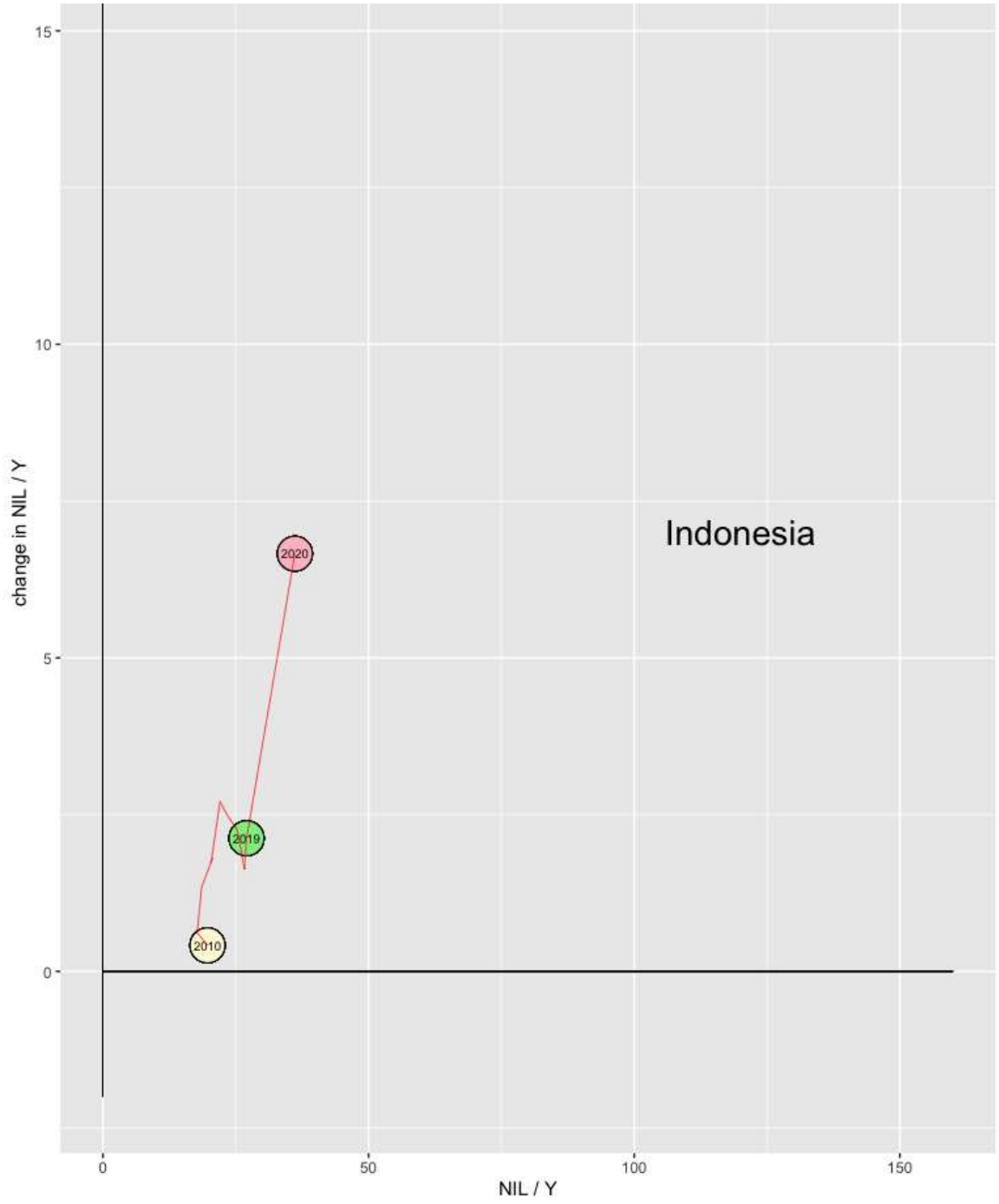
By 2020, the (net) debt situation for Indonesia (as a percentage of GDP) was in the mid-thirties. (See Lockwood's report on Indonesia, page 39.)

Figure 4. Pasinetti points and Net Internal Liabilities (NIL), Germany, 2010-2020*



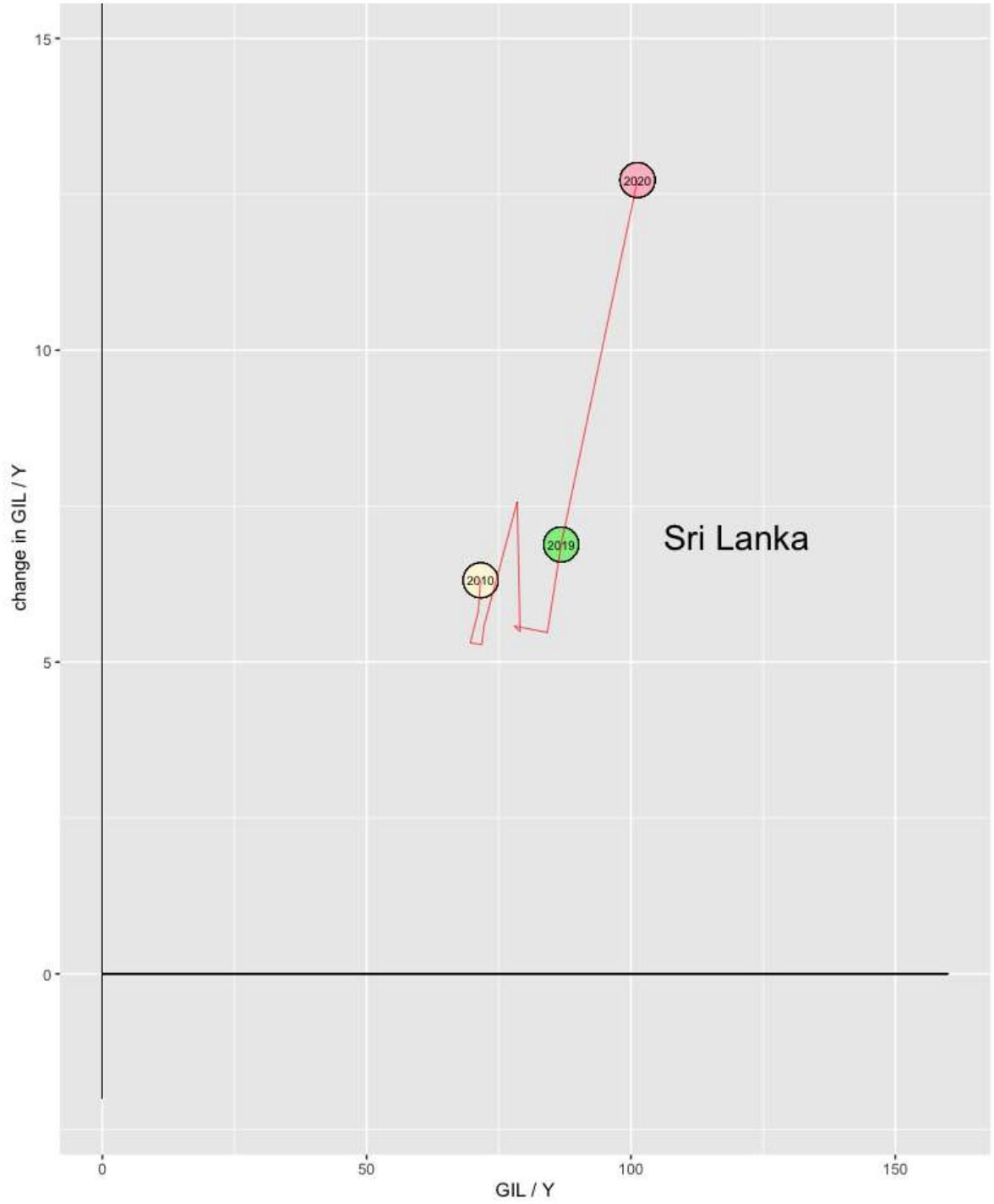
*Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b). *Also referred to as PSNL (Public Sector Net Liabilities)*

Figure 5. Pasinetti points and Net Internal Liabilities (NIL), Indonesia, 2010-2020*



*Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b). *Also referred to as PSNL (Public Sector Net Liabilities)*

Figure 6. Pasinetti points and Gross Internal Liabilities (GIL), Sri Lanka, 2010-2020*

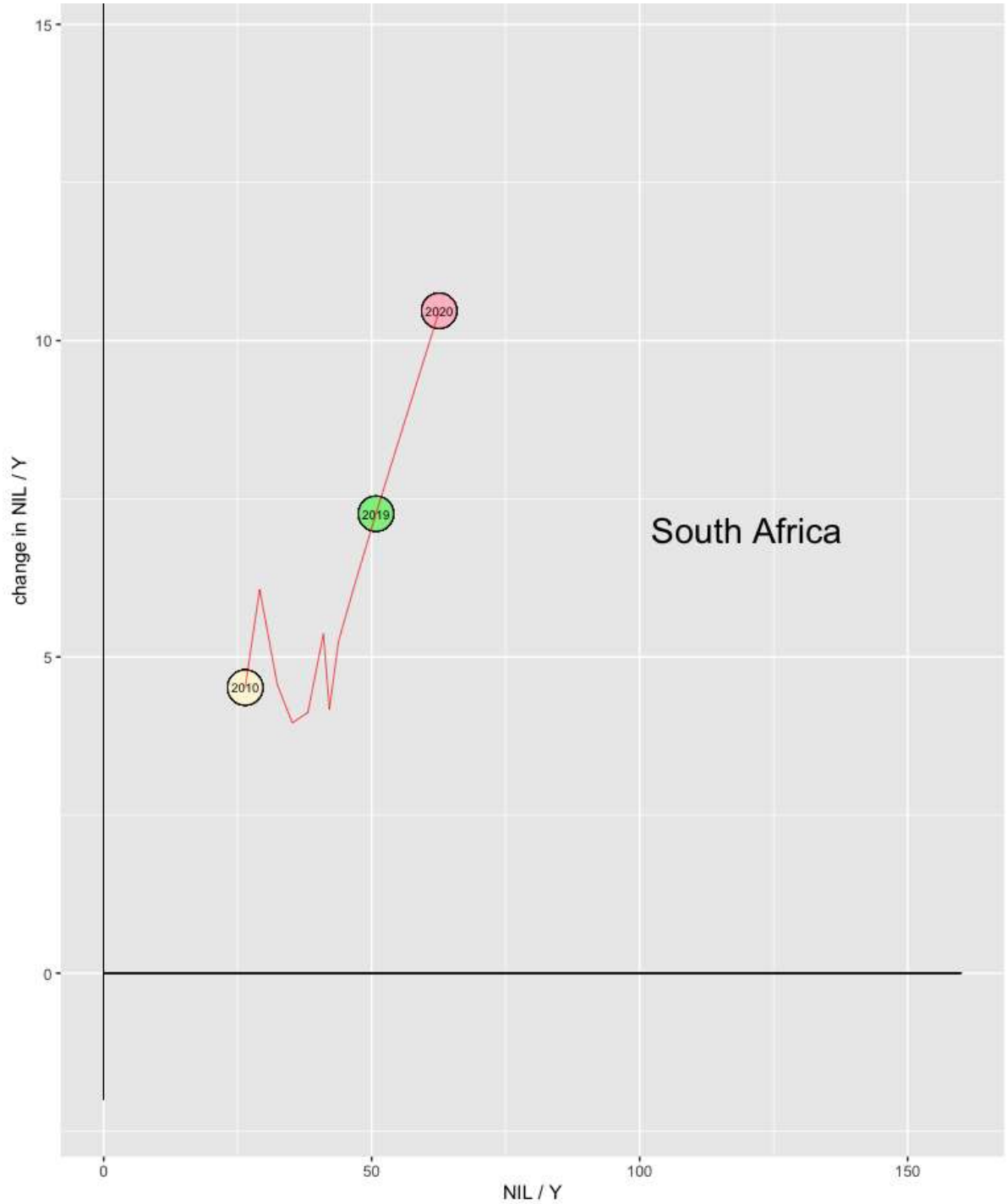


*Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b) *Also referred to as Public Debt.*

Sri Lanka's starting-off point for the government deficit percentage is larger than 5 per cent. This does not increase by very much as far as 2019 is concerned, but the Covid effect is seen to be huge. Between 2010 and 2020, the debt ratio increases from close to 75 per cent to just over 100 per cent. (See Lockwood's Sri Lanka report, page 20.) These represent gross debt positions - as indicated, the IMF does not provide net figures for Sri Lanka's debt situation.

As in the case of Indonesia, the general trend of Sri Lanka's position from 2010 to 2020 is to the right and upwards, increasing both ratios. The 2010 points for Sri Lanka are around (6%, 70%), whereas for Indonesia they are around (1%, 20%). Sri Lanka ends off the period under review with a worse situation than the starting-off point for Indonesia. We must nevertheless bear in mind that GIL appears on the horizontal axis of Sri Lanka, whereas it is NIL in the case of Indonesia.

Figure 7. Pasinetti points and Net Internal Liabilities (NIL), South Africa, 2010-2020*



*Source: Pasinetti (1998a, 1998b), Lockwood (2022a, 2022b). *Also referred to as PSNL (Public Sector Net Liabilities)*

For South Africa (Figure 7), the original levels vary, but the general form of the movement between 2010 and 2020 is similar to that of Indonesia and Sri Lanka - to the right and upwards. The unemployment rate, already staggeringly high ten years ago, is now in the mid-thirties.

The above overview has been presented in order to facilitate the reading of the main report. It should be noted that hardly a word has been said here how to analyse the sets of Pasinetti points in terms of the sustainability issue. Such a topic will, of course, be discussed in the main report. In this Appendix, however, we merely wanted to illustrate how the Pasinetti points are to be calculated. In the main report we turn to the issue of how the points can be used to establish whether a particular combination of points represents a sustainable position or not.