

The Construction of an Insoluble Insolvency Index (III)

If **Insoluble Insolvency** is to become a recognized analytical framework, it should have a transparent and reproducible methodology. Rather than relying on a single statistic such as debt-to-GDP, it should examine whether a sovereign can realistically restore long-term fiscal solvency using conventional policy tools.

One possible methodology is to construct an **Insoluble Insolvency Index (III)** based on several measurable variables.

Factor	Measure	Typical Warning Threshold
Gross Public Debt	Debt/GDP	>100–120%
Net Present Value of Unfunded Obligations	% of GDP	Very large multiple of GDP
Primary Budget Balance	% of GDP	Persistent deficits
Interest Cost	Interest payments/Federal revenue	>20–25%
Debt Growth	Growth of debt vs. GDP	Debt growing faster than GDP
Demographics	Workers per retiree	Persistent deterioration
Political Capacity	Ability to enact reforms	Little realistic capacity
Monetary Financing	Central bank financing of debt	Increasing dependence

The calculation should then move beyond current debt and estimate **the government's long-term fiscal gap**.

One commonly used concept in public finance is:

Fiscal Gap = Present Value of Future Expenditures – Present Value of Future Revenues – Current Government Assets

If the fiscal gap remains extremely large even after assuming politically plausible tax increases and spending reductions, then conventional fiscal policy may be insufficient.

A second calculation examines the government's ability to stabilize debt.

Let:

- **D** = debt
- **GDP** = Gross Domestic Product
- **r** = average interest rate
- **g** = long-term GDP growth
- **PB** = primary budget balance

Debt is sustainable only if

$$\Delta(D/GDP) \leq 0$$

which approximately requires

$$PB \geq (r - g) \times (D/GDP)$$

If the required primary surplus is far beyond anything historically or politically achievable for a sustained period, this is evidence that the sovereign cannot restore solvency through conventional means.

A third test is a **feasibility test**.

Estimate the fiscal adjustment actually required.

For example:

- Required permanent tax increase = 15% of GDP
- Largest historically achieved = 4% of GDP

or

- Required permanent spending reduction = 18% of GDP
- Largest politically achievable = 3% of GDP

If the required adjustment is several times larger than any historically sustained adjustment, conventional restoration becomes increasingly implausible.

You could then define an **Insoluble Insolvency Score**.

For example:

- Fiscal Gap (0–25 points)
- Debt Dynamics (0–20)
- Demographic Burden (0–15)
- Interest Burden (0–15)
- Political Feasibility (0–15)
- Monetary Dependence (0–10)

Total = 100 points

Possible interpretation:

- **0–30:** Solvent
- **31–50:** Fiscal Stress
- **51–70:** Structural Insolvency
- **71–100:** Insoluble Insolvency

Under this framework, a nation would be classified as being in a state of Insoluble Insolvency only if all of the following conditions are met:

1. The long-term fiscal gap remains extremely large under reasonable assumptions.
2. Debt cannot be stabilized through historically achievable primary surpluses.
3. Demographic and entitlement obligations continue to worsen the imbalance.
4. No politically realistic combination of taxes, spending cuts, growth, or monetary policy restores long-term solvency.
5. The remaining policy choices primarily involve restructuring obligations, inflationary finance, or fundamental institutional reform rather than conventional fiscal adjustment.

This approach has two advantages. First, it is **transparent and reproducible**, allowing different analysts to apply the same methodology. Second, it distinguishes your concept from existing measures such as debt-to-GDP or annual deficits by making the classification depend on **whether conventional policy tools remain capable of restoring long-term solvency**, rather than simply measuring the current level of indebtedness.

Next Step

We recommend developing this into a formal **Insoluble Insolvency Test (IIT)**—analogous to the stress tests used for banks. The test would specify the required inputs, formulas, assumptions, and decision rules so that any analyst could independently determine whether a sovereign has crossed the threshold into Insoluble Insolvency. A standardized methodology of this kind will make the concept more suitable for scholarly evaluation and empirical testing.