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# Public Debt Episodes in Irish Economic History 1950-2015<sup>1</sup>

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JEL Classification: E62, F34, H60, H63, H69, N00

## ABSTRACT

In this paper I study the public debt dynamics of three episodes (the crises of the 1950s, the 1980s and 2010-15) in Ireland's modern economic history. By using traditional debt dynamic decomposition formulae, I measure the components which contributed most to public debt ratio reduction following previous high debt episodes. I also employ the case of Sweden for comparative purposes, in how it emerged from the increase in public debt in the aftermath of its banking crisis 1991-1993. The key findings which emerge are 1) the reduction of the public ratio following the 1980s episode was predominantly driven by cumulative primary surpluses, though a favourable growth and interest rate differential emerged as the key determinant in the late 1990s. Additionally, public debt in the 1980s was considerably more difficult to service in terms of tax revenues and maturity structures than the current event. 2) Public debt continued to increase following the crisis of the 1950s due to higher interest rates and lower inflation, despite a recovery in growth and continuous fiscal contraction. 3) In line with other research isolating the uniqueness of open economy debt reductions, I find that though Sweden (like Ireland) reduced public debt (1995-2001) in an environment of strong international growth, it did so in a macroeconomic environment of higher interest rates and falling inflation, entirely through budget surplus accumulation.

Key words: Public Debt; Ireland; Public Debt Dynamics, Sweden, Crisis

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<sup>1</sup> This paper has benefitted from comments from Klas Fregert, Lars Jonung, Jason Lennard, Jonas Ljungberg, Håkan Lobell, Anders Ögren and Patrick Svensson.

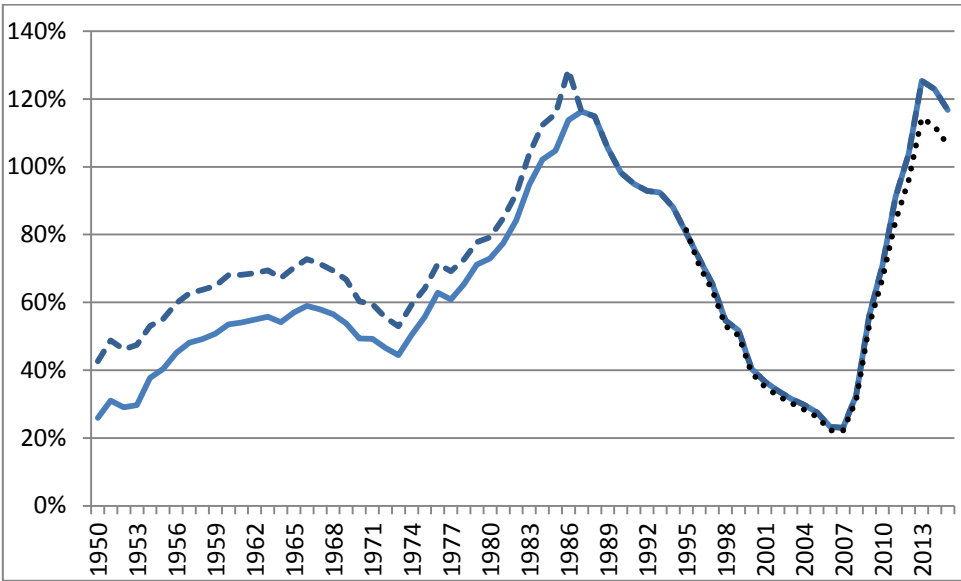
# Public Debt Episodes in Irish Economic History

## 1950-2015

### Introduction

In 2013, Ireland’s public debt to GNI ratio stood at 125%. Though the circumstances leading into it were dissimilar, in 1986 a ratio of 129% was reached (see Figure 1).<sup>2</sup> In other words, there is a precedent in recent economic history from which we can draw conclusions that are relevant to current debates. Ireland also experienced one other crisis in which fiscal policy played a role in the 1950s. To my knowledge, the three episodes have never been studied for comparative purposes, though some recent studies have assessed fiscal policy over the long run<sup>3</sup> and others have suggested why the two most recent events at least should be studied together.<sup>4</sup>

**Figure 1: Irish Public Debt to GNI Ratio (1950-2015)**



*Notes: Dashed line represents the older methodology of accounting for public debt until 1987 and dotted line represents the new national accounting methodology ESA 2010 from 1995 (see data appendix). Source: Central Statistics Office of Ireland (ESA 1995 Methodology for National Accounting) and Finance Accounts of the Government of Ireland.*

<sup>2</sup> Central Statistics Office ‘National Income and Expenditure Tables,’ *Finance Accounts of Ireland*.

<sup>3</sup> Cronin and McQuinn (2014)

<sup>4</sup> McCarthy (2009), ESRI (2009), Bergin et al (2011)

The attention afforded to fiscal policy in light of the great financial crisis of 2008 by contemporaries reinforces the need to understand the past in the context of the present. Namely, how was debt reduction achieved in Ireland at similar levels previously?

Beginning in the post-World War II era, following the official declaration of the Irish republic in 1949, this analysis traces three episodes associated with fiscal policy and public debt. The economic crisis of 1955/1956 provides an example of an event which, though not initially caused by fiscal policy, was aggravated by the restrictive fiscal response given the unfavourable underlying macroeconomic conditions. The debt ratio continued to rise through the period, though it never approached the levels it was to attain in the subsequent episodes. In contrast, the fiscal crisis of the 1980s was largely a result of government policy which combined with international shocks, culminated in the highest debt ratio that the state has experienced to date.<sup>5</sup> The third crisis in public debt occurred in the aftermath of the great financial crisis of 2008 as a combined collapse in output and associated decline in fiscal revenues made the blanket guarantee that the incumbent government had granted creditors of the Irish financial sector unfeasible. Therefore, all three cases are unique in their causes and the aftermaths of the episodes of the 1950s and 1980s at least were notably different. Furthermore, as Ireland had not experienced a major bank failure since 1885 or major banking crisis since 1820, the resulting increase in public debt following the financial crisis had no contextual comparative basis domestically.<sup>6</sup> For this reason, an international comparison is appropriate and Sweden's debt reduction policies are briefly reviewed in the aftermath of its banking crisis 1991-1993.

Using the standard debt dynamics formulae and applying a similar framework to that of Crafts (2016), I contrast each episode individually and draw general conclusions based upon the specific results, taking the macroeconomic context into consideration in each case.

The paper is structured as follows. First, the calculations regarding fiscal sustainability and the determinants of debt ratio reduction are discussed. Secondly, the descriptions of each episode are presented with the results which form the basis for the general comparative analysis and conclusion that follows. Additionally, the data appendix explains the treatment and construction of each data series in turn.

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<sup>5</sup> The methodology for calculating nominal outstanding public debt was changed in 1987 which is reflected in Figure 1. See Data Appendix.

<sup>6</sup> See Ó Gráda (2012) for details of the collapse of the Munster Bank in 1885, see Barrow (1975, pp 17-23) and Hall (1949, pp 127-133) for descriptions of the banking crisis of 1820, in which more than half of the total of Irish banks failed.

## Debt Ratio Dynamics

In measuring the dynamics of Irish public debt, I address both the exchequer balance and the historical driving forces of debt ratio reduction.

Formula 1 shows that the change in the public debt ratio is driven by fiscal policy (the government primary balance), the rate of real interest and real output.

$$1. \Delta d = -b + (r - g)d$$

Where  $d$  = the debt ratio,  $b$  is the primary budget deficit,  $r$  is the real rate of interest and  $g$  is the real rate of economic growth. The real rate of interest can be restated as the nominal rate  $i$  minus inflation  $\pi$ . Debt ratios will increase in consequence of an increase in government deficits and higher real interest rates which may be driven by lower inflation or higher nominal rates. In contrast, the negative sign attached to real economic growth implies a reduction in the debt ratio if economic productivity can be increased. Formula 2 displays the sustainability condition of debt at its current ratio.

Setting  $\Delta d = 0$ , we solve for the *required* primary budget balance  $b^*$  to achieve steady state condition of current  $d$ .

$$2. b^* = (r - g)d$$

Substituting 2 into 1,

$$3. \Delta d = -b + b^*$$

Formula 3 shows that the change in the debt ratio is a result of the *primary gap*, the difference between the actual primary budget deficit  $b$  and the required primary budget balance  $b^*$ . If they are equal, the formula shows that the debt ratio will remain unaltered between two periods. In order to further decompose the required fiscal balance, we develop formula 2 to yield

$$4. b^* = (i - \pi)d - g(d) \rightarrow b^* = id - d(\pi - g) \rightarrow b^* = (i - \pi - g)d$$

As is apparent from formulas 2 and 4, the required primary budget surplus will *increase* in line with both the debt ratio and where the real rate of interest on government debt exceeds real economic growth ( $r-g$ ). It will *decrease* where  $r-g < 0$  or in line with any rate of reduction in  $d$ . Under a balanced budget rule,  $b$  must equal at a minimum  $id$  (debt servicing) implying

that when inflation  $\pi$  and real growth  $g$  are positive, the resulting budget balance  $b$  will exceed the required primary budget surplus  $b^*$  ( $b > b^*$  when  $\pi + g > 0$ ). Crafts (2016) outlines the consequences of the above arithmetic. Where “normal” conditions persist with inflation and growth, the condition will be met. In conditions of price deflation *or* recession, it *may not* be. With both deflation *and* recession it *will not* be met.

In addition to examining the variance between the “required” primary budget surplus and the actual budget position as it transpired in the sub periods addressed in this paper, it is equally enlightening to observe the subsequent mechanism of debt ratio reduction and the key determinants. While there is no formula that allows an exact, clean additive decomposition of changes in the debt ratio<sup>7</sup>, the following comes very close. Abbas et al (2011), Escolano (2010) and Crafts (2016) all use slight variants on the same formula (which is a permutation on the above) to arrive at decomposing changes in public debt ratios, the last of which is adopted identically here as formula 5. The additional variable stock flow adjustments term ( $sfa_t$ ) is a cumulative residual that captures valuation effects such as the impact of exchange rate changes for debt issued in a foreign currency, ‘below-the-line’ fiscal operations such as privatization, and errors in the data. The decomposition can be made for one period or cumulatively by taking sums, the latter being the method adopted here for each sub period.

$$5. \quad d_T - d_0 = \sum_{t=1}^T \left[ \frac{(r-g)_t}{(1+\pi+g)} \right] d_{t-1} + \sum_{t=1}^T -b_t + \sum_{t=1}^T sfa_t$$

What the above formula shows is that the evolution of the debt ratio depends solely on the real interest rate  $r$ , the real growth rate  $g$  (the first term) and cumulative exchequer balances  $b_t$  (the second term) with the residual error item ( $sfa_t$ ) comprising the difference. It is therefore possible to decompose reductions in debt ratios in a manner which ranks and measures the driving determinants of the reduction. Wherever appropriate in the text, the three terms are referred to separately as 1) the “ $r - g$  component” which if negative drives the debt trajectory downwards, 2) the “budget surplus component” which will drive down the ratio implied by the negative sign and 3) the “residual component” which can be positive or negative depending upon the underlying mechanism.

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<sup>7</sup> Escolano (2010)

## Public Finance Episodes in Irish Economic History

### *The Crisis of the 1950s*

Following the signing of the Anglo-Irish Treaty in December 1921, the government of the Irish Free State which emerged did not materially alter the economic institutions and cultures inherited from the United Kingdom.<sup>8</sup> Indeed a member of the new parliament (*Dáil Éireann*) famously stated “we are the most conservative-minded revolutionaries that ever put through a successful revolution,”<sup>9</sup> exemplified by the fact that the parity with sterling was maintained and monetary and budgetary experimentation was “rejected out of hand.”<sup>10</sup> While the conservative governing party of *Cumann na nGaedheal* was subsequently replaced by the more radical *Fianna Fáil* in 1932 which was re-elected every term prior to 1950 (with brief interruption 1948-1951), the Free State’s public debt remained moderately low by international standards, despite an “economic war” in the 1930s with Britain.<sup>11</sup> The Free State was officially declared a republic in 1949 and it is from that juncture that this analysis commences.

Following the “near autarky” of the war years which had run down the capital stock, fiscal policy became comparatively “lax” in the post war recovery period.<sup>12</sup> A state capital expenditure programme which had commenced at the end of the 1940s had attracted much criticism from the infant central bank concerned about potentially jeopardizing the parity link with pound sterling.<sup>13</sup> Beginning with the 1949 Central Bank report, growth in state expenditure was consistently blamed for the increase in purchasing power which was not accompanied by a “proportionate increase in output in useful goods and services.”<sup>14</sup> Throughout the early 1950s, criticism was focused upon the growing size of the government sector, the negative effects of rising wages on export competitiveness and the dominance of the state in the capital market, crowding out much needed funding of the private sector.<sup>15</sup> The Ministry of Finance justified the relatively expansionary fiscal policy in the following terms:

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<sup>8</sup> Ó Gráda and O’Rourke (1993)

<sup>9</sup> Knirck (2014)

<sup>10</sup> Ó Gráda and O’Rourke (1993)

<sup>11</sup> See O’Rourke (1994) for an account

<sup>12</sup> Ó Gráda and O’Rourke (1993)

<sup>13</sup> Honohan (1994)

<sup>14</sup> Moynihan (1975, p. 332) cites the Central Bank Governor Joseph Brennan’s definition of inflation.

<sup>15</sup> The paragraph borrows from Kavanagh (2015)

“The lower level of interest rates thus established is desirable for the stimulus it affords to investment and national progress.”<sup>16</sup>

Relatively little research to date has been conducted on the Irish economic crisis of 1955-56.<sup>17</sup> This has been deemed a “macroeconomic crisis” primarily associated with a growing balance of payments deficit due to unfavourable terms of trade and it did not ultimately result in a financial crisis.<sup>18</sup> Elsewhere it has been described as a “fiscal crisis.”<sup>19</sup> While the debt spike seen in Table 1 undoubtedly shows an expansion in the debt ratio during the period, the percentages pale in comparison to those of current times and it cannot be considered a public debt crisis as such. Instead, this episode was chosen as an example where fiscal contraction aggravated the economic difficulties of the era while the public debt ratio continued to increase in spite of the tighter fiscal policy.

Table 1 confirms the Minister’s statement regarding low interest rates at the beginning of the 1950s and long term nominal interest rates did not fall back to these levels again until 2004. While some authors have criticized as unnecessary a “fiscal contraction” in 1952, the below figures hardly lend support as the primary budget deficit was reduced by just over 1% of GNI from 7.2% in 1951 to 5.8% the following year.<sup>20</sup> The crisis which subsequently occurred in the middle of the decade has been reviewed by Honohan and Ó Gráda (1998).

Controversially, Finance Minister Sweetnam persuaded the member banking system not to raise rates in step with London Bank rate in January 1955. The Irish central bank at that time operated in the manner of a Currency board not lending to bank or government, nor influencing credit through regulation or interest rate actions.<sup>21</sup> This “policy blunder” meant that the interest differential between the islands was not rectified until December and has been attributed to bringing about the balance of payments crisis.<sup>22</sup> The “draconian fiscal response” which resulted has been credited with creating the subsequent recession.<sup>23</sup>

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<sup>16</sup> Moynihan (1975, p. 420) quoting the Minister for Finance, James Sweetnam.

<sup>17</sup> See Honohan and Ó Gráda (1998) for the standard account.

<sup>18</sup> Honohan and Ó Gráda (1998), Ó Gráda and O’Rourke (1993)

<sup>19</sup> Honohan (1994)

<sup>20</sup> Ó Gráda and O’Rourke (1993)

<sup>21</sup> Honohan (1994)

<sup>22</sup> Honohan (1994) and Honohan and Ó Gráda (1998)

<sup>23</sup> Ó Gráda (2011)



**Table 1: Fiscal Sustainability Data, Ireland 1950-1960**

	$d$	$i$	$\pi$	$g$	$b$	$b^*$	$gap$
1950	42.6	3.0	1.0	0.8	-3.9	0.5	-4.4
1951	48.8	3.6	4.0	1.3	-7.2	-0.8	-6.3
1952	46.1	5.0	10.7	2.8	-5.8	-3.9	-1.8
1953	47.5	5.0	6.5	3.1	-5.0	-2.2	-2.8
1954	53.0	4.9	-0.3	1.0	-4.1	2.2	-6.3
1955	55.1	4.9	2.3	2.0	-2.5	0.3	-2.9
1956	59.8	5.8	2.8	-1.3	-2.6	2.6	-5.1
1957	62.6	6.1	3.3	0.6	-2.3	1.4	-3.6
1958	63.7	6.2	-2.2	5.8	-0.6	1.6	-2.3
1959	64.9	5.6	1.3	4.9	-1.2	-0.4	-0.8
1960	68.1	6.0	-2.4	4.5	-2.2	2.7	-4.9

Notes: GNI deflator for inflation. Ratios  $d$ ,  $b$ ,  $g$ ,  $b^*$  and  $gap$  are expressed as a percentage of GNI. Rounding numbers may affect primary gap result. Sources: CSO, Finance Accounts of Ireland, OECD

While the debt ratios ( $d$ ) would not worry analysts in today's environment, one striking feature of Table 1 is that though the required primary balance  $b^*$  was negative through the years 1951-1953 in the early period for debt to remain stable, the primary gap was consistently negative and the total debt ratio grew as a result, combined with increased government borrowing at favourable rates. Considering the low ratio of debt, it is reasonable to suggest that the government was not at that time concerned about debt sustainability, despite the protests of the central bank. Indeed, growth was poor throughout the 1950s in Ireland and it is considered a "lost decade" as it underperformed Western Europe which was experiencing a golden age of growth.<sup>24</sup> This may help explain weak tax revenue streams resulting in larger deficits and a willingness on the part of policy makers to invest in public infrastructure or "national progress" in the words of the Minister for Finance, at lower rates.

Though the crisis that followed is described as occurring between 1955 and 1956, the effect on the real economy is slightly lagged as during the years 1956 and 1957, the Irish economy did not grow. This was accompanied with fiscal tightening and a neutral primary balance in 1958. Ó Gráda's (2011) view was that while not constituting the cause, fiscal policy may have "exacerbated the difficulties of the mid-1950's." As Table 1 displays, despite the fiscal contraction in the latter half of the decade, the debt ratio continued to rise through the

<sup>24</sup> Ó Gráda and O'Rourke (1993)

remainder of the 1950s as interest rates rose and inflation summed to zero between 1957 and 1960, even as strong growth returned in 1958. The exchequer budget did not approach balance again until 1987 at the height of the second fiscal crisis.

The low level of initial public debt entering the crisis and the considerably higher ratio at the end of the period transpired *despite* fiscal contraction. The highest recorded level of emigration since independence occurred in 1958.<sup>25</sup> In August of that year, T.K. Whitaker's book '*Economic Development*' was published which stressed the hitherto neglected importance of education, reviewed long term prospects for development and has been said to represent "a watermark in the modern economic history of the country." It followed a period of sustained criticism from the newly established Capital Investment Advisory Committee (in a series of three reports) of the reliance on subsidies "as a substitute for effort" and the belief in the need for increased private sector investment instead of the "traditional method of stimulating employment by 'public works.'" Public investment was to be achieved by "diverting expenditure" from less productive areas and the rate of investment should depend more than in the past, upon the rate of current savings and economic growth. While some action by the state was to complement the development process in targeted productive areas, the Central Bank concurred that rigid planning, high taxation (due to high public expenditure) had adverse effects on the economy and viewed such policy with apprehension in light of their primary goal of convertibility at par with sterling.<sup>26</sup>

Table 1 summarizes the decade in the following manner: an increase in capital expenditure was initially accompanied by high inflation with low interest rates, relatively low growth and a balance of payments crisis which prompted a fiscal contraction. In the aftermath of the crisis, due to zero inflation and increasing interest rates, even higher debt ratios prevailed than those at the beginning of the sub-period, despite the general policy goal of reducing state intervention.

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<sup>25</sup> Ó Gráda (2011)

<sup>26</sup> Paragraph summarises Moynihan (1975, pp 444-446)

## *The Evolution of Irish Public Debt in the 1980s*

As Honohan and Walsh (2002) outline, optimism regarding the Irish economy's potential for convergence at the beginning of the 1970's was largely derailed by the oil crises and the subsequent fiscal policy responses to them based upon outdated economic models. In other words, while fiscal policy had exacerbated the difficulties of the mid 1950s, it was largely responsible for the crisis which had begun in the late 1970s and was to persist through much of the 1980s.<sup>27</sup>

While it is not the purpose of this paper to discuss public expenditure, suffice it to say that expansionary fiscal policy from 1977 was seen as the principal tool with which to combat the stubbornly high unemployment that prevailed following the first oil crisis. Borrowing seemed particularly attractive given temporarily negative real interest rates as was the case at the beginning of the 1950s.

According to Honohan and Walsh (2002), the unforeseen effect of this approach was to crowd out private investment, drive up tax rates and real wages put Ireland's public debt on an unsustainable path with limited fiscal space, vulnerable to the shock of the second oil crisis of 1979 when rates subsequently rose.<sup>28</sup> A number of short-termist demand management responses kept the economy out of equilibrium, inhibiting sustainable job creation for more than two decades<sup>29</sup> based upon various fiscal programmes such as the *National Development Plan* (1977-80) which envisaged considerably stronger macroeconomic performance than that which actually transpired.<sup>30</sup> As McCarthy (2009) noted in terms of growth, "what happened in 1988 was planned to happen in 1983 or 1984."

When it had become apparent that a debt crisis was inevitable, policy focus switched to fiscal sustainability and "most of the 1980s were wasted undoing the damage of earlier fiscal recklessness."<sup>31</sup> Table 2 reveals the required budget surpluses in order to maintain a stable debt ratio from 1977 through the most acute phase of the crisis (1982-1986) until the first years of stabilization beginning in the 1990s. As noted elsewhere regarding growth, the gap

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<sup>27</sup> Ó Gráda (2011)

<sup>28</sup> Summarised from Honohan and Walsh (2002)

<sup>29</sup> Honohan and Walsh (2002)

<sup>30</sup> McCarthy (2009)

<sup>31</sup> Ó Gráda and O'Rourke (1993)

between projection and outcome was alarming<sup>32</sup> and government fiscal plans such as the latterly less optimistic *Building on Reality* (1985-7) were in danger of losing credibility as private sector planning and investment stalled with consistent deviation between actual and budgeted taxation outcomes.<sup>33</sup> It provoked the cynicism expressed by Ó Gráda & O'Rourke (1993), that “setting and meeting detailed medium-term growth targets in a small open economy is a difficult, if not downright pointless, exercise.”

Table 2 displays that at the inception of the original *National Development Plan* in 1977 the required primary budget balance was negative for debt stability. In sum, the debt ratio could remain unchanged even by running primary budget deficits until 1982. However, it is noteworthy that during the comparatively strong growth of the late 1970s, the debt ratio nonetheless rose through further government borrowing at cheaper rates. The larger budget deficits, which transpired as the shock of the oil crisis and consequent interest rate hikes spread to the real economy, moved firmly in the opposite direction (of the required primary balance) to the steady state condition. Required budget surpluses  $b^*$  in the order of magnitude of 6% of GNI in the mid 1980s were persistently deviant from the norm of actual primary deficits which transpired. The cumulative primary “gap” (variance between required and actual primary budget balance) between 1982 and 1986 was an unprecedented negative balance of 35.6% of GNI. Indeed, it was not until 1988 that a positive variance was first recorded and the trend continued throughout the first half of the 1990s reducing the debt ratio.

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<sup>32</sup> Ó Gráda (2011)

<sup>33</sup> See Honohan (1987) for a detailed review of how contemporary macroeconomic forecasts and “the fiscal objectives were being missed by a fairly wide margin.”

**Table 2: Fiscal Sustainability Data, Ireland 1977-1995**

	<i>d</i>	<i>i</i>	$\pi$	<i>g</i>	<i>b</i>	<i>b*</i>	<i>gap</i>
1977	60.9	12.9	14.5	5.3	-4.3	-4.2	-0.1
1978	65.4	12.8	10.4	5.5	-6.5	-2.0	-4.5
1979	71.2	15.1	13.8	4.0	-6.8	-2.0	-4.9
1980	73.0	15.4	15.5	2.6	-6.6	-2.0	-4.6
1981	77.4	17.3	18.4	1.8	-7.9	-2.3	-5.6
1982	84.2	17.1	17.3	-1.3	-5.9	0.9	-6.8
1983	94.8	13.9	11.2	-1.9	-2.9	4.4	-7.3
1984	102.2	14.6	7.2	1.1	-1.7	6.5	-8.2
1985	104.8	12.8	7.0	0.2	-1.8	5.9	-7.6
1986	113.8	11.2	7.5	0.1	-1.7	4.2	-5.9
1987	116.3	11.3	3.4	3.7	0.5	4.8	-4.3
1988	114.9	9.4	3.4	1.7	6.1	4.9	1.2
1989	105.6	9.2	4.9	4.7	6.2	-0.4	6.6
1990	98.3	10.3	1.9	6.5	6.3	1.8	4.5
1991	95.0	9.4	2.7	2.0	7.2	4.5	2.8
1992	92.9	9.3	3.5	2.5	4.9	3.1	1.8
1993	92.5	7.6	5.1	2.9	5.0	-0.4	5.3
1994	88.1	8.0	1.6	6.5	4.5	-0.1	4.6
1995	80.5	8.2	3.6	8.0	4.1	-2.7	6.8

Notes: GNI deflator for inflation. Ratios *d*, *b*, *g*, *b\** and *gap* are expressed as a percentage of GNI. Rounding numbers may affect primary gap result. Sources: CSO, Finance Accounts of Ireland, OECD

### *Reducing the Debt 1988-2002*

Using the debt decomposition formula (5) as outlined in section 1, I now address the reduction of debt during the following period of sustained economic growth. For illustrative purposes, the period can be split between two seven year periods to obtain a better understanding of the determinants of the reduction of the public debt ratio throughout the period 1988-2001 beginning with the closing debt ratio for the peak year 1987 of 116% of Public Debt to GNI.<sup>34</sup>

One observes that there are two distinctive periods of varying conditions during which the debt ratio was reduced. Up until 1994, it was more politically difficult to decrease the

<sup>34</sup> In the interest of comparability with the post 1986 period, all debt ratios are calculated using the current methodology outlined by The Local Loan Fund (Amendment) Act, 1987. Had the pre Act method been employed, public debt to GNI reached a peak of 129% of GNI in 1986 compared to 114% of GNI using the new method for the same year.

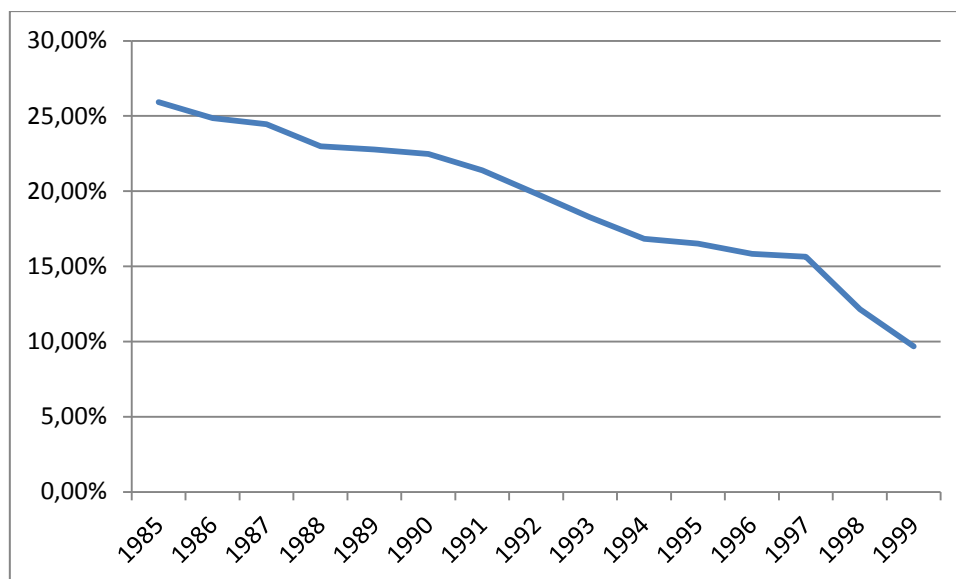
sovereign debt ratio due to an unfavourable  $r-g$  configuration, primarily by initially high nominal interest rates and lower inflation as already seen in Table 2. As growth rates averaging 4% for the initial period were insufficient to overcome the average real interest rates of 6%, the only remaining alternative to achieve debt reduction was through the mechanism of primary budget surpluses which averaged 6% of GNI for the period. The additional underlying dynamic of falling total debt service costs in relation to gross government revenue is suggested by Lane (1999), which I plot in Figure 2 below.

**Table 3: Reduction of Public Debt Decomposed, Ireland 1988-2001**

	<i>Initial Ratio</i>	<i>Terminal Ratio</i>	<i>Decrease</i>	<i>Budget Surplus Component</i>	<i>Growth Interest Differential</i>	<i>Stock Flow Adjustment</i>
1988-1994	116	88	-28	-41	13	0
1995-2001	88	37	-51	-31	-32	12
1988-2001	116	37	-79	-72	-19	12

*Notes: All ratios expressed as a percentage of GNI. Initial ratio is peak of 1987 implying that 1988 is the first year of debt reduction. Sources: Finance Accounts, National Treasury Management Agency, OECD, Central Statistics Office.*

**Figure 2: Irish Public Debt Service as a percentage of gross Government Revenue, 1985-1999**



*Sources: Finance Accounts, Budgetary and Economic Statistics*

The second half of the 1990s saw average real rates of zero on long term government debt while real growth of GNI catapulted to an average of 8% per year between 1995 and 2001. This more favourable  $r-g$  dynamic eased pressure on the exchequer primary balance as a means of lowering the ratio and the burden was shared approximately equally between the two components. It is also apparent from table 3 that when the favourable  $r-g$  condition was met, a significantly larger overall debt reduction was achieved of 51 percentage points compared to 28, compared across the two periods. This division supports the observation made by Lane (1999) that the bulk of the reduction in the non-interest expenditure and in the total tax burden took place in the late 1980s with only a marginal decline in the 1990s. This occurred despite the steeper fall in the debt ratio during the 1990s.

### **An International Comparison-The Case of Sweden**

While the national debt ratios in Ireland at time of writing are similar to those resulting from the Irish fiscal crisis of the 1980s, the latter had its origins in the fiscal policy pursued by Irish governments through the late 1970s and the first half of the 1980s. In the years preceding the most recent crisis, Ireland had successively reported fiscal surpluses meeting the requirements of the Stability and Growth Pact every year for the period 2001-2007. The official European

methodology regarding general government debt however, hid the true state of the structural (through-the-cycle) budget balance which was considerably worse.<sup>35</sup> The financial crisis of 2008-2010 was the result of private sector borrowing and resulted from the bursting of a classic credit fueled property bubble beginning as a banking crisis, the most severe of its kind in Ireland since 1820.<sup>36</sup> The increase in public debt post 2009 was the result of the blanket guarantee on the liabilities of all Irish financial institutions, declining tax revenues and the fall in national income.<sup>37</sup>

As the future direction of the current debt trajectory is unknown, it is useful to compare the Irish sovereign debt case with the situation which was faced by the Swedish government in the aftermath of the latter's financial crisis 1991-3 which shared very similar characteristics with the later Irish episode.<sup>38</sup> Like Ireland, Sweden is a small open economy in Northern Europe. Though Sweden is not a member of the Eurozone, it submits a convergence programme which presents an update of the medium-term fiscal strategy as is required by the Stability and Growth Pact. Similarly to Ireland, Fiscal policy is assessed by the Swedish Fiscal Council established in 2007 which Ireland emulated in 2011, employing the original chairperson of the Swedish Fiscal Council, Lars Jonung, to chair the first independent evaluation of the Irish Fiscal Advisory Council in 2015.<sup>39</sup>

Indeed, many parallels were drawn with the economic history of the Swedish case as the Irish crisis unfolded. A Commission of Enquiry specifically mentioned that the Swedish crisis should have acted as a deterrent to Irish authorities considering lax regulation.<sup>40</sup> Ireland adopted a version of "the Swedish model" to reconstruct the financial system using a version of the "good" and "bad" bank model. Bo Lundgren, Minister for Fiscal and Financial affairs during Sweden's crisis who received much media attention in Ireland, was invited to answer detailed questions from an Irish parliamentary committee on Sweden's methods of crisis resolution.<sup>41</sup> The Swedish chief economist of the Central Bank of Ireland, Lars Frisell, lamented that it was "unfortunate" that Ireland may "have been inspired by the successful guarantees enacted in Sweden" when it erroneously included the liabilities of banks such as Anglo Irish and Irish Nationwide Building Society in its blanket guarantee, due to factors

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<sup>35</sup> Bénétrix & Lane (2012)

<sup>36</sup> In terms of damage to the financial system, 16 out of 31 registered private banks failed (Hall, 1949, p 127 and Hickson and Turner, 2005).

<sup>37</sup> See Whelan (2014) for a summary of the crisis, Bénétrix & Lane (2012) for the implications for Fiscal Policy

<sup>38</sup> For a detailed discussion see Jonung et al (2009)

<sup>39</sup> Jonung, Begg and Tutty (2015)

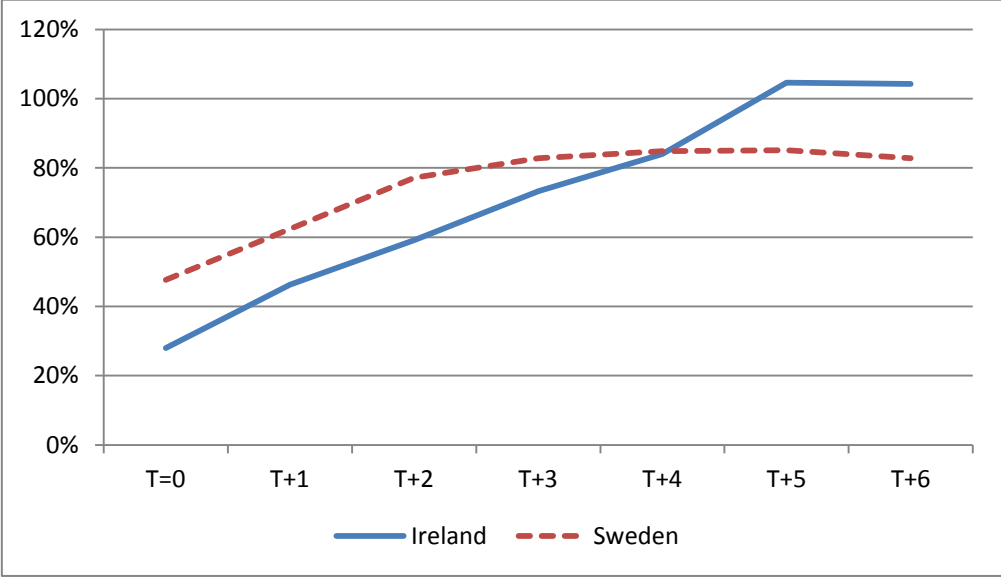
<sup>40</sup> 'Misjudging Risk' (2011)

<sup>41</sup> 'Ireland hopes Swedish Mr Fix-It has the answer to banking crisis', *The Irish Independent*, 9/07/2009



such as the speed at which events unfolded and pressure at a European level.<sup>42</sup> This contrasted with the Swedish case where “the policy makers of yesterday designed their bank resolution policies in a more stable macroeconomic and financial global setting.”<sup>43</sup> The debt trajectory of both countries post crisis is shown in Figure 3.

**Figure 3: Public Debt to GDP Ratios of Ireland and Sweden from Crisis Event.**



*Notes: Public Debt as Percentage of GDP. T=0 is 1991 for Sweden and 2008 for Ireland. Swedish debt data has been adjusted to calendar year end as outlined in data appendix. Author’s Calculations*  
*Sources: Ireland- Central Statistics Office, Finance Accounts of Ireland and National Treasury Management Agency. Sweden- Fregert & Gustavsson (2008) and Krantz & Schön (2015).*

While increases in both ratios are observed post crisis, Ireland’s growth in public debt is the more acute with an increase of 77 percentage points when compared with Sweden’s 35 percentage point increase.<sup>44</sup> As the comparative details of the bailouts are beyond the scope of this paper and are covered elsewhere,<sup>45</sup> I now review the public debt reduction process the Swedish state pursued in the aftermath of its banking crisis.

As table 4 displays, Sweden’s debt had fallen to 56% of GDP in 2002 from a peak of 85% of GDP in 1996. Recent studies have shown that during “high debt episodes” of “over 80%” the

<sup>42</sup> Frisell (10/05/2015). For a summary of the similarities and differences regarding the Irish and Swedish crisis episodes see *Riksbank Financial Stability Report 1/2011* and Woods & O’Connell (2012).

<sup>43</sup> Jonung (2009)

<sup>44</sup> Both are expressed in terms of GDP

<sup>45</sup> See Woods and O’Connell (2012), Bergin et al (2011) and *Riksbank Financial Stability Report 1, 2011*

$r-g$  component was the most prominent factor in reducing the public debt ratios of countries.<sup>46</sup> Sweden's debt reduction also occurred following the flotation of the depreciated krona in an era when international demand could be relied upon to sustain Swedish exports.<sup>47</sup>

**Table 4: Reduction of the Public Debt Ratio, Sweden 1996-2002**

	$d$	$i$	$\pi$	$g$	$b$	$b^*$	$gap$
1995	84.8	10.2	3.5	4.8	0.9	1.7	-0.8
1996	85.1	8.0	1.4	1.4	3.7	4.4	-0.7
1997	82.8	6.6	1.9	1.9	5.5	2.3	3.2
1998	81.8	5.0	0.9	2.9	7.1	1.0	6.1
1999	74.4	5.0	0.8	3.7	9.5	0.4	9.1
2000	65.6	5.3	1.5	4.5	10.0	-0.5	10.5
2001	58.2	5.1	2.2	1.3	6.0	1.0	5.0
2002	56.1	5.3	1.9	2.2	3.3	0.7	2.6

	<i>Initial Ratio</i>	<i>Terminal Ratio</i>	<i>Decrease</i>	<i>Budget Surplus Component</i>	<i>Growth Interest Differential</i>	<i>Stock Flow Adjustment</i>
1995-2002	85	56	-29	-46	9	8

Notes: Ratios expressed as a percentage of GDP. Rounding numbers may affect primary gap result. Sources: Fregert & Gustavsson (2008) and Krantz & Schön (2015), OECD, Swedish debt data has been adjusted to calendar year end (see data appendix).

From Table 4 however, it is clear from the annual figures that the  $r-g$  configuration was stacked against Sweden for the majority of the adjustment period. Real interest rates were consistently higher than corresponding growth rates implying that the budget surplus component had to become the driver of debt reduction. At the end of the twentieth century, markedly high surpluses were maintained in an environment of stronger growth. In fact, using the decomposition formula, it is apparent from Table 4 that the cumulative effect of budget surpluses would have driven the debt ratio downward by 46%, if the unfavourable configuration of the  $r-g$  component and stock flow adjustments had not placed upward pressure of a combined 17% on the debt ratio. These opposing forces resulted in a total decline of 29% in the public debt ratio.

<sup>46</sup> Crafts (2016), Abbas et al (2011)

<sup>47</sup> Jonung (2009)

When taken together, the above results may be summarized as follows. Sweden's debt reduction 1996-2002 was achieved through fiscal surpluses. Having initially deployed currency depreciation during the crisis which helped to achieve a temporarily strong recovery (with growth rates of 3.7% and 4.5% in 1994 and 1995 respectively), the only remaining routes to debt reduction in the event of the slowdown which followed were lower real interest rates or primary budget surpluses. The higher interest rates and lower growth rates which transpired in Sweden following 1995 made the budget surplus path the only viable option. The most pronounced reductions in the debt ratio were achieved by two consecutive budget surpluses of 9.5% and 10% of GDP, occurring in a period of relatively higher growth in 1999 and 2000 respectively. Notably, it occurred at a time when the required primary balance for debt sustainability was approximately zero.

## Analysis

### *Comparing Debt Service characteristics*

While Figure 1 shows that Ireland had experienced similar debt levels in relatively recent economic history, the temptation to generalize for current policy makers should be tempered with a detailed review of the context in each period. Likewise, though the public debt of Sweden which resulted from its banking crisis has a number of useful insights for Ireland, there are caveats which are detailed below. What follows in the remainder of this section is a comparative review of the circumstances facing debt reduction “then” and “now” using the results of the previous section.

A recent historical study by Eichengreen & Panizza (2014) addressing a “surplus of ambition” among Eurozone policy makers in their attempts to run primary surpluses of approximately 5% of GDP for the coming decade, draws attention to Ireland's previously successful experience. The authors claim that Ireland enjoyed “exceptional circumstances” such as strong global growth and the ability to devalue which “crowded in” exports. Indeed, between 1995 and 2001, exports rose from 75% to almost 100% of GDP.<sup>48</sup> At time of writing, the post crisis global economy stands in stark contrast to the conditions of the 1990s. Indeed, as a member of the Eurozone Ireland might be expected to suffer from the asymmetric price trends that have developed within it,<sup>49</sup> potentially harming the demand for its exports. Due to the open nature of the Irish economy it is particularly dependent upon and thereby vulnerable to

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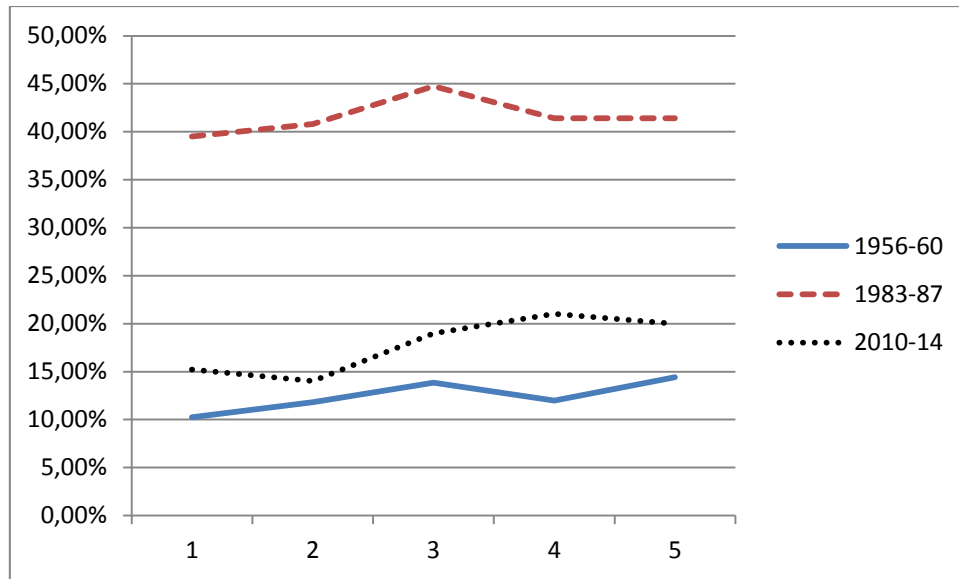
<sup>48</sup> Keane (2015)

<sup>49</sup> See Johansson & Ljungberg (2013) and de Grauwe (2013)

external demand. Whereas Lane (1998, 2010) stressed the importance of countercyclical fiscal policy in mitigating the effects of both recessionary and boom conditions for Ireland within the Eurozone, Kearney (2012) has pointed out that fiscal policy had been pro-cyclical every year during the period 1977-2012 with the exception of the years 1987-1989, when the government was only in a position to consolidate its fiscal position thanks to the re-emergence of strong growth in external demand.

Declining debt service bills in the former period were driven by the realised *fall* of real interest rates, an option not currently available without a period of surprise inflation. However the relative effort required to effectively service the outstanding public debt is something that would benefit from a comparative analysis. The gross revenue used in Figure 2 includes a number of capital items (including EU grants) that might not present as comparative a measure across periods as tax revenue. Using tax revenues, the public debt of the 1980s is significantly more costly to service than the other two episodes. Indeed, it was not until 1994 that service payments fell below 30% of tax revenue and only in 1998 was the figure for the first time comparable to the same servicing proportions of the recent sovereign debt crisis. In other words, in the aftermath of the 1980s fiscal crisis, more than a decade passed of higher proportions of tax revenues being used to service debt than the most extreme year to date (2013) of the current episode.

**Figure 4: Irish Public Debt Service as a percentage of Tax Revenue (5 year distress periods).**



*Notes: The components of debt service are outlined in the Data Appendix. Sources: Finance Accounts. Author's Calculations.*

The 1950s episode in the most acute phase more resembles the current servicing demand from the tax revenue stream. Indeed, the two most distant events share a similarity in the relative size of their liquid assets against which gross government debt can be netted.<sup>50</sup> These off-settable assets (as a percentage of total debt) averaged 10% for the five year period 1956-1960, compared with 2% for 1983-1987 and 12% between 2010 and 2014.<sup>51</sup>

Much of the service pressure came from the front loaded maturity profile of domestic public debt in the mid-1980s which Figure 5 displays. As the 1985 accounts displayed, 14% of the total outstanding domestic currency debt was falling due within 1 year, the same year that the Irish pound was devalued by 8% in August.<sup>52</sup> The 1986 devaluation which has been described as “timely” in terms of boosting exports<sup>53</sup> was a partial default on domestic holders who were repaid in less valuable currency.

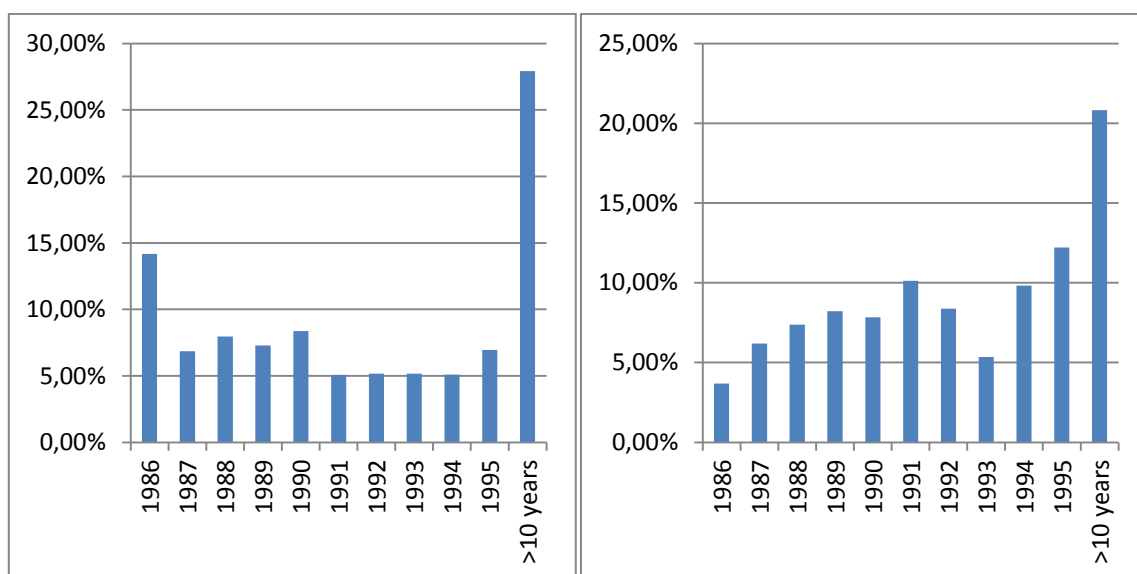
<sup>50</sup> Under this heading were National Loans Sinking Funds, Savings Certificates Account, Exchequer Account, National Development Fund and Proceeds of Dollar Borrowings under United States Loan Agreements (in the earlier sample period). The Finance Accounts from 1992 removed National Loan Sinking Funds from this category and deducted it instead directly at source from the National Debt.

<sup>51</sup> Author's calculations. Source: Finance Accounts

<sup>52</sup> See Honohan and Conroy (1994)

<sup>53</sup> Honohan and Walsh (2002)

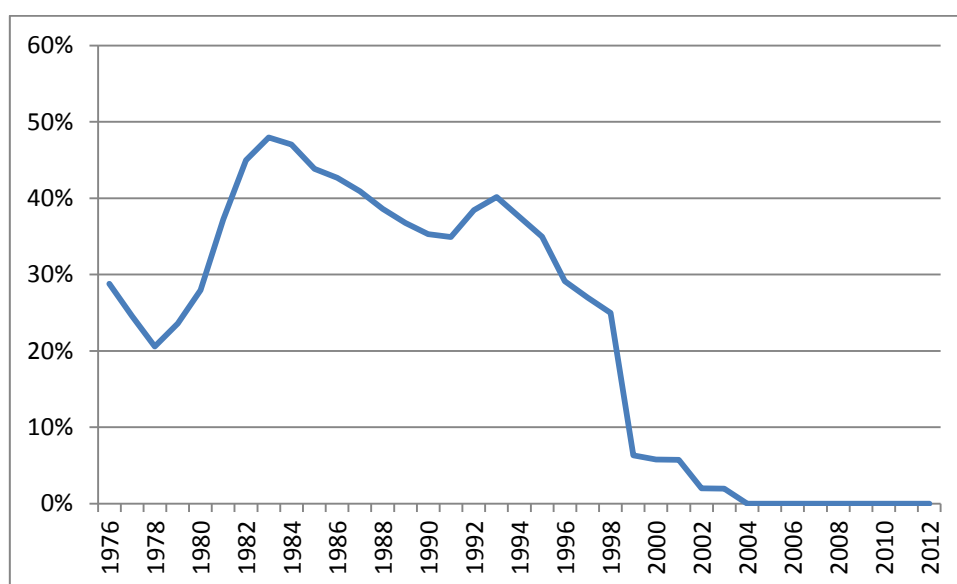
**Figure 5: Maturity Profile of Government Debt outstanding (Fiscal Year Ending 1985)**



Notes: Debt falling due each year as a percentage of outstanding type of Government Debt. Domestic Currency Debt (LHS) and Foreign Currency Debt (RHS). Sources: Finance Accounts. Author's Calculations.

As Figure 6 displays, the foreign currency element of government debt had virtually disappeared before adopting the Euro. By 2004, it was no longer a component of Irish public debt.

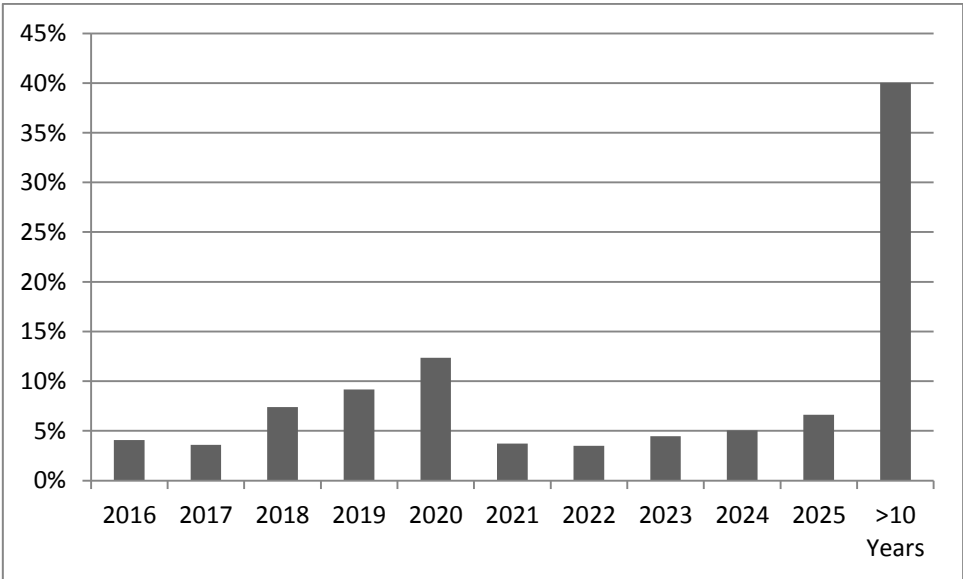
**Figure 6: Foreign Currency Debt as a Percentage of Total Public Debt (1977-2011)**



Source: Budgetary and Economic Statistics (2013), Department of Finance

In contrast to the outlook in the 1980s, the maturity profile for the current government debt plotted in Figure 6 looks comparatively less challenging at first glance and is entirely denominated in the “domestic” currency of the euro. Almost 40% of it will fall due in the period following 2026. The only year which is comparable to 1986 (in terms of repayments of domestic currency debt as a percentage of the total) is 2020, when a temporary spike of 12.35% is due. The relative effort of debt servicing will be a function of output at that time.

**Figure 7: Maturity Profile of Public Debt at March 2016**



*Figure 6: Maturity Profile of Government Debt by number of years as a percentage of outstanding Government Debt at end of March 2016. Source NTMA. Author’s Calculations.*

**The Political Economy of Debt Reduction-Then and Now**

Using the debt decomposition results outlined above, I now address the macroeconomic environments of each relevant case and attempt to draw tentative conclusions on what we can learn from the historical episodes.

Starting with a comparison of the holders of domestic currency debt between the two most recent crises reveals a new pressure that evolved firstly due to euro membership and secondly due to the external nature of the troika agreements. The higher levels of foreign ownership on the eve of the 2008 crisis introduced a large amount of political economy to the events that played out in the following years which are beyond the scope of this work. A high proportion of foreign ownership persisted until February 2013, when the Irish central bank converted the promissory notes associated with the Irish Bank Resolution Corporation into standard

government bonds.<sup>54</sup> This move largely explains the shift from non- resident into central bank in the last period.

**Table 5: Holders of Domestic Currency Debt**

	<i>Non Bank Domestic</i>	<i>Domestic Commercial Banks</i>	<i>Central Bank and MFIs</i>	<i>Non Resident</i>
1987	40.6%	43.4%	2.0%	14.1%
1997	53.1%	22.4%	0.0%	24.5%
2007	4.5%	0.0%	2.6%	92.9%
2014	4.2%	0.0%	39.4%	56.3%

Source: Central Bank of Ireland Securities Holding Statistics- 'Holdings of Irish Government Long Term Bonds.' Figures relate only to Government Bonds.<sup>55</sup>

In support of the general skepticism of Eichengreen and Panizza (2014), the Irish authorities of the early 1990s were in the politically comfortable position of being able to grant lower income tax rates which were financed by the reduction of debt servicing costs (Figure 2).<sup>56</sup> This assisted the political authorities in maintaining budget surpluses. We have seen however, that the relative debt service bill was twice as much as a proportion of tax revenue during the most acute period of the 1980s crisis. The shift towards a favourable  $r-g$  configuration in the second half of the 1990s made it politically possible to maintain surpluses which may otherwise have come under political pressure. This is something Eichengreen and Panizza (2014) do not discuss, though it may have supported their argument in terms of the questionable sustainability of budget surpluses in unexceptional or “normal” circumstances.

However, such “political auctioning” in the form of generous tax cuts ultimately proved misguided. The extremely open nature of the Irish economy makes the cyclical position “chronically difficult to ascertain,” making erring on the side of caution in fiscal policy paramount as evidenced by the insufficient surpluses to allow a discretionary countercyclical

<sup>54</sup> See Whelan (2012) for a description in the mechanism through which the promissory notes were operating.

<sup>55</sup> The source was cross checked with the Finance Accounts. For 1987 the central bank register has used only that total regarding “National Loans” of £12,509 million and omitted other “Medium and Long Term Indebtedness” amounting to £175 million. For 1997, the register records “Irish Government Bonds” of £17,009 million under the heading “Irish Pound Debt” omitting the £240.2 million other debt called “Medium and Long Term Indebtedness,” though this is included in the total national debt. In 2007 and 2016, the figures of €30,946 million and €116,339 million related to “Irish Government Bonds listed on the Irish Stock Exchange.”

<sup>56</sup> Lane (1999)



fiscal policy response to the 2008-2010 crisis.<sup>57</sup> The reduction of the debt ratio from the 1980s combined with persistent budget surpluses led to ever further calls for tax reductions throughout the 1990s<sup>58</sup> - “the larger the surplus, the deeper and more tempting is the pool.”<sup>59</sup> In this election year of 2016, debt reduction has been cited as a constant success of recent years. This may place downward pressure on tax rates from an austerity-fatigued electorate which could be exacerbated due to the recent alterations in the National Accounts ESA 2010 and their associated impact upon debt ratio “reductions” (see data appendix).<sup>60</sup>

Nonetheless, Eichengreen and Panizza (2014) overlook a number of important domestic and international factors when emphasizing the “exceptional” circumstances which aided Ireland during the late 1980s and throughout the 1990s. The first which should be mentioned was the magnitude of the initial fiscal adjustment in both cases. We have already seen that the relative servicing costs and the maturity structure was considerably less favourable during the 1980s event. It has been shown that though the fiscal adjustment in the form of nominal cuts was more contractionary following the recent crisis in the deflationary environment in 2008 and 2009, the initial contraction of the 1980s was the more severe in terms of real reduction due to the higher levels of inflation which prevailed.<sup>61</sup> More specifically, the austerity budgets of 1983, 1988 and 1989 taken together comprise a tightening by 10% of GDP against 7.5% between 2008 and 2011.<sup>62</sup>

In a similar vein, the interest rate hikes in the US of the early 1980s which were designed to combat high levels of inflation placed considerable international pressure upon state borrowing and debt ratios and it was unlikely that Irish GNI growth could overcome the rise in interest rates until conditions normalized in the later 1990s. Such higher interest rates are not a feature of today’s macroeconomic landscape which by this metric alone should facilitate a comparatively “easier” debt reduction process.

Also overlooked was the fact that during the 1980’s episode, foreign currency debt at its peak in 1983 comprised 48% of the total (Figure 6) making the position of the state finances particularly vulnerable. Due to appreciation of foreign currency debt during the period of

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<sup>57</sup> Bénétrix & Lane (2012)

<sup>58</sup> Lane (1999)

<sup>59</sup> Eichengreen & Panizza (2014)

<sup>60</sup> For instance, the last year for which both ESA 1995 and ESA 2010 National Income Figures are reported was 2012. The change in accounting for GNI leads to a “reduction” in the debt ratio of almost 8 percentage points in that year.

<sup>61</sup> E.S.R.I. Quarterly Economic Commentary, Winter 2009

<sup>62</sup> Bergin et al (2011)

higher interest rates, it averaged 44% of all public debt during the most acute years 1981-1986. Though international assistance was not officially requested in the 1980s in contrast with the current sovereign debt crisis, all outstanding national debt is now denominated in the “domestic” currency of the Euro making currency risk a largely absent feature and leaving the central bank less exposed to a liquidity run.<sup>63</sup> During the episode of the 1950s, though foreign currency debt was initiated in the Marshall Plan, the level peaked in 1950 at 21% and by the 1955 had already fallen to only 13% of the total.<sup>64</sup>

While Eichengreen and Panizza (2014) point to the fact that Ireland does not enjoy the ability to devalue its currency as a member of the Eurozone, over 60% of Irish exports are typically sold to non-euro areas<sup>65</sup> mitigating some of the effects of asymmetric Eurozone price movements whilst simultaneously benefiting from the downward effect on the Euro exchange rate induced by quantitative easing at ECB level. Ireland’s relatively more painful internal devaluation via the fiscal policy channel has been given a temporarily softer edge due to Euro depreciation as it is not as dependent upon intra-Euro trade.<sup>66</sup> While internal devaluation has been both politically unpopular and economically difficult, not even half of the weight of debt servicing costs of the 1980s and 1990s at their peak has been reached in the present as a proportion of current tax revenue.

Nonetheless, the associated moral hazard of low real interest rates in the early 1950s and mid 1970s enticed governments to borrow more by promising national development via capital investment, while in current times the low rates may enable authorities to proceed with slower fiscal adjustment. Though it is unlikely that the state will engage in excessive borrowing in the near term considering the ongoing political drive at European level towards debt reduction, a rise in interest rates now (as it did in the late 1950s and early 1980s) could prove especially problematic for debt ratios if according to Benetrix & Lane (2012) significant debt reduction is not pursued with currently available savings on interest rates.

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<sup>63</sup> Lane (2010)

<sup>64</sup> Authors calculations based upon \$ exchange rates at fiscal year-end on the stated American debt.

<sup>65</sup> Central Statistics Office, Goods Exports and Imports Table GEI2015. The proportion of total exports for January to September 2014 and 2015 going to the Eurozone were 37% and 35% respectively.

<sup>66</sup> The real exchange rate can be depreciated within the Eurozone via fiscal policy. Lane (2010) describes a number of the following mechanisms. Lower levels of government spending reduces the amount spent on non-tradable goods, increases the supply of labour to the tradable sector (putting downward pressure on wages) making the latter more competitive, improving the current account balance. The conditions for which improvements in net exports is required are also associated with a slump in domestic demand, where policy makers face the tradeoff between the pursuit of external competitiveness and the maintenance of domestic demand through fiscal expansion.

Linked to this is the Swedish experience. During the year 2016 (at time of writing), Ireland is forecast grow by 4.5% by the European Commission.<sup>67</sup> Sweden took advantage of its higher growth rates to book higher budget surpluses, though political temptations must have presented a challenge. Furthermore, though international demand was crucial to the Swedish recovery,<sup>68</sup> it was not accompanied by a favourable *r-g* configuration in terms of debt reduction as Swedish interest rates averaged 9.09% (compared to Ireland's corresponding figure of 5.3%) for the six years following its crisis.<sup>69</sup> Though Ireland's debt ratio is considerably higher than Sweden's post crisis level, in contrast to latter's historical experience, the *r-g* configuration for Ireland is currently favourable. According to the Swedish experience, potential rate rises need not spell doom for Irish public finances if fiscal authorities have pursued caution during better times and appropriate debt reduction. Lane (1999) had already advised on larger surpluses than were realized during the boom years, as well as the associated "uncertainty about the appropriate cycle-trend decomposition" which must reinforce the importance of adopting a prudent fiscal stance.<sup>70</sup> Furthermore, Sweden booked the highest surpluses during the years in which the required primary balance averaged zero.

While these generalizations may shed light on alternative scenarios for Ireland which like Sweden is a small and open economy, key differences remain between the two cases, not least the fact that Ireland does not have a central bank responsible for a national currency which would depreciate in time of crisis as Sweden's did helping the latter's exporters. Sweden's exports grew from a share of 28% to 45% of GDP between 1992 and 2002.<sup>71</sup> Exchange rate depreciations against Eurozone partners are impossible for Ireland, conducted instead through more painful internal devaluation including the fiscal channel. Nonetheless, a weaker Euro has had a markedly positive impact on the Irish economy as discussed above.

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<sup>67</sup> European Commission, Economic and Financial Affairs (2016)

<sup>68</sup> Jonung et al (2009), Jonung (2009)

<sup>69</sup> Authors calculations, Source OECD

<sup>70</sup> Bénétrix & Lane (2012)

<sup>71</sup> Jonung et al (2009, p49)

## Conclusion

In this paper, I have set out to identify the public debt dynamics surrounding three fiscal episodes in post war Irish economic history.

The first two events which are considered occurred in an era when the country experienced the worst post war growth recorded in Western Europe 1946-1988.<sup>72</sup> The fiscal response to the crisis of the 1950s serves to highlight the futility of tightening fiscal policy in an environment of rising interest rates, falling inflation and domestic recession. As Crafts (2016) states, with both deflation *and* recession the stabilizing required primary balance *will not* be met. Indeed, even when growth picked up at the end of that decade, the deflationary drag meant that the public debt ratio continued to rise.

During the years before the 1955-56 and 1983-87 crises, primary deficits could have kept the debt ratios stable due to higher inflation and low interest rates. However, the primary gap in each case was negative i.e. the required budget balance was never achieved and the debt trajectory increased.

The recovery from the episode of the 1980s has traditionally been attributed to the buoyant conditions of the 1990s (as was Sweden's) through export driven economic growth. It has generally been lamented that such a mechanism of debt reduction is not available in today's global economic climate. However, while international conditions certainly were favourable in the previous decades, we have seen that in terms of debt servicing costs, the Irish fiscal crisis of the 1980s at its peak required more than double the proportion of tax revenues than experienced in the current crisis or that of the 1950s.

The  $r-g$  configuration was generally unfavourable to Irish debt reduction until the late 1990s. In other words, the strong economic growth of the 1990s helped in terms of tax revenues for budget surpluses but it was not until after 1995 that lower interest rates, higher inflation and strong economic growth ( $r-g$ ) halved the burden of reducing public debt by 51% of GNI with cumulative budget surpluses.

Looking abroad for comparative purposes, it was seen that Sweden's public debt also increased significantly in the aftermath of its financial crisis. Like Ireland, growth helped it to book the increased tax revenues as budget surpluses to reduce its debt ratio. However in Sweden's case, the unfavourable growth interest rate differential actually put upward pressure

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<sup>72</sup> Ó Gráda and O'Rourke (1993)

on the debt trajectory leaving it with the sole option of budget surplus accumulation, though the debt reduction it achieved in percentage points was only one third of Ireland's in the 1990s. Both northern European economies are very open in nature which is a "striking" feature of all of the success stories of debt reductions in recent economic history according to Eichengreen and Panizza (2014). In support of their deduction, this paper shows the importance of individual cases treated in isolation. While Abbas et al (2013) can generalize that most historic high debt episodes were escaped from through favourable  $r-g$  configurations, it has been shown here that for at least two northern European countries, this was largely not the case, though relatively strong economic growth supported both incidences.

Nonetheless, the current outlook for Irish sovereign debt remains uncertain though recent years have produced favourable  $r-g$  configurations which may help alleviate the consequences of subdued global demand of the present. The maturity structure is comparatively more favourable than the frontloaded debt of the 1980s and no foreign currency debt has been issued compared to previous events. However, the fact that the majority of its holders are now non-national official sector will have implications for political economy which was not a prominent feature of previous debt episodes in Irish economic history. Eichengreen and Panizza (2014) in particular question whether it is realistic to expect consistent cyclically adjusted primary budget balances over the period 2020-30 of 5.6% of GDP to achieve the 2030 debt target. In addition, domestic political temptations exist in an environment of low rates on debt that is held predominantly by foreign actors. It remains to be seen which course the debt trajectory will take. It is hoped that this paper will provide current analysts with a helpful view from economic history.

## Bibliography

S.M.A. Abbas, N. Belhocine, A. El-Ganainy & M. Horton (2011), 'Historical patterns and dynamics of public debt-evidence from a new database,' *IMF Economic Review*, vol. 59, pp. 717-42

G.L. Barrow (1975), *The Emergence of the Irish Banking System 1820-1845*, Gill and MacMillan, Dublin.

A.S. Bénétrix & P.R. Lane (2013), 'Fiscal Cyclicalities and EMU,' *Journal of International Money and Finance*, Vol 34 (c) 164-176

A.S. Bénétrix & P.R. Lane (2012), 'The Cyclical Conduct of Irish Fiscal Policy,' *The World Economy*, vol. 35 (10), pp 1277-1290, October

A. Bergin, J. Fitzgerald, I. Kearney and C. O'Sullivan (2011), 'The Irish Fiscal Crisis,' *National Institute Economic Review No. 217*, July 2011

*Budgetary and Economic Statistics*, Irish Department of Finance, various years 2003-2013.

Central Bank of Ireland Securities Holding Statistics- 'Holdings of Irish Government Long Term Bonds.'

Central Statistics Office of Ireland, *National Income and Expenditure Tables* .

Central Statistics Office of Ireland, *Government Finance Statistics- Annual* (April 2016 Release), Table 9.

N. Crafts (2016), 'Reducing High Public Debt Ratios: Lessons from UK Experience,' *Fiscal Studies*, doi: 10.1111/j. 1475-5890.2015.12064 (forthcoming)

D. Cronin and K. McQuinn (2014), 'Irish Fiscal Policy in Good Times and in Bad: Its Impact During Different Stages of the Economic Cycle.' ESRI Quarterly Economic Commentary, Autumn 2014

B. Eichengreen & U. Panizza (2014), 'A Surplus of Ambition: Can Europe Rely on Large Primary Surpluses to Solve its Debt Problem?,' NBER Working Paper Series, WP 201316

J. Escolano (2010), 'A practical guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment of Budgetary Aggregates,' IMF Fiscal Affairs Department.

ESRI Quarterly Economic Commentary, winter 2009. Edited by A. Barrett, I. Kearney, J. Goggin and T. Conefrey.

Eurostat News Release 157/2014 'ESA 2010 shifts level of EU and Euro area GDP upward, growth rates almost unaffected'

Finance Accounts of the Government of Ireland 1948/49- 2014.

'Final Exchequer Statement' (2015), Irish Department of Finance

K. Fregert & R. Gustavsson, 'Fiscal Statistics for Sweden 1719-2003' in Field A.J. (ed) 'Research in Economic History,' Elsevier 2008, pp. 169-224

L. Frisell (2015), 'Resolution of the Irish Banking Crisis: Hard Earned Lessons for Europe,' Address by Advisor to the Governor, to the Financial Safety Net Conference in Stockholm, 19 May 2015

P. d. Grauwe (2013), 'Design Failures in the Eurozone. Can they be Fixed?,' LSE 'Europe in Question' Discussion Paper Series, LEQS Paper No. 57/2013

F. G. Hall, (1949) , *The Bank of Ireland, 1783-1946*, Hodges Figgis, Dublin

C.R. Hickson, C. R. and J. D Turner (2005),, 'The Genesis of Corporate Governance: Nineteenth-Century Irish Joint-Stock Banks', *Business History* 47(2), no. 2 pp. 174-189.

P. Honohan (1994), 'Currency Board or Central Bank? Lessons from the Irish Pound's Link with Sterling, 1928-79,' CEPR Discussion Papers 1040

P. Honohan (1987), 'Macroeconomic and Fiscal Deviations from Plan 1985-87,' UCD Economic Policy Research Paper Series; No 24

P. Honohan & C. Conroy (1994), 'Sterling Movements and Irish Pound Interest Rates,' *The Economic and Social Research Institute*, Vol. 25, No. 3, April 1994 pp. 201-220

P. Honohan & C. Ó Gráda (1998), 'The Irish Macroeconomic Crisis of 1955-56: How much was due to Monetary Policy,' *Irish Economic and Social History*, 24: pp. 52-80

P. Honohan & B. Walsh (2002), 'Catching up with the Leaders: The Irish Hare,' *Brookings Papers on Economic Activity, Part 1*, pp 1-57

*The Irish Independent*, 9/07/2009 'Ireland hopes Swedish Mr. Fix-It has the answer to banking crisis'

T. Johansson & J. Ljungberg (2013), 'Asymmetric Trends and European Monetary Policy in the post-Bretton Woods Era,' *Lund Papers in Economic History*, No 128.

L. Jonung, I. Begg and M.G. Tutty (2015), 'How is the Irish Fiscal Advisory Council Performing? An Independent Evaluation of the First Years of IFAC'

L. Jonung, J. Kiander and P. Vartia (2009) *The Great Financial Crisis in Finland and Sweden-The Nordic Experience of Financial Liberalization*. Cheltenham, UK. Edward Elgar Publishing Ltd

L. Jonung (2009) 'The Swedish Model for Resolving the Banking Crisis of 1991-93. Seven Reasons why it was Successful', *European Commission, Economic Papers 360*, February 2009

E. Kavanagh (2015), 'Monetary Analysis, Monetary Policy and the Irish Central Bank, 1946-68,' School of Economics UCC, presented at the Irish Central Bank Economic History Workshop June 5<sup>th</sup>, 2015.

C. Keane (2015) 'Irish Public Finances through the Financial Crisis,' *Fiscal Studies*, vol. 36, no. 4, PP. 475-497

I. Kearney (2012), 'Measuring Fiscal Stance 2009-2012,' ESRI Quarterly Economic Commentary, Autumn 2012

J. Knirck (2014), *Afterimage of the Revolution: Cumann na nGaedheal and Irish Politics, 1922-1932*, University of Wisconsin Press, USA.

O. Krantz & L. Schön (2016), 'Swedish Historical National Accounts 1560-2015,' *Lund Papers in Economic History* 140.

P. Lane (2010), 'External Imbalances and Fiscal Policy,' IIS Discussion Paper No. 14



- P. Lane (1999), 'Budgetary Policy in Times of Plenty,' (Dublin: Economic and Social Research Institute, LTIG)
- C. McCarthy (2009), 'Ireland's Second Fiscal Consolidation- Lessons from the Last Time,' UCD Centre for Economic Research WP 09/17
- C. McCarthy (2002), 'Generally Unacceptable Accounting Principles: The Irish Public Finance Accounts,' ESRI Quarterly Economic Commentary, Summer 2002, pp 57-67
- C. McCarthy & J. Lawlor (2003), 'Browsing onwards: Irish Public Spending in Perspective,' *Irish Banking Review*, Autumn 2003: 2-17
- 'Misjudging Risk: Causes of the Systemic Banking Crisis in Ireland.' Report of the Commission of Investigation into the Banking Sector in Ireland, March 2011
- M. Moynihan (1975), *Currency and Central Banking in Ireland 1922-60*. Gill and MacMillan, Dublin
- OECD (2006) *Understanding National Accounts*, Policy Text.
- OECD Financial Data, 'Long Term Interest Rates'
- C. Ó Gráda (2012), 'The Last Major Irish Bank Failure before 2008', *Financial History Review* 19, no. 02, pp. 199-217.
- C. Ó Gráda (2011), 'Five Crises,' Central Bank of Ireland, T.K. Whitaker Lecture, 29 June 2011
- C. Ó Gráda & O'Rourke, K. (1993), 'Irish Economic Growth 1945-1988,' UCD Centre for Economic Research Working Paper Series; WP93/27
- P.W. Rhode & G. Toniolo (2006), *The Global Economy in the 1990s: A Long Run Perspective*, Cambridge University Press, UK
- Riksbank Financial Stability Report (2011), 'The Crisis in Ireland-similarities and differences compared to the Swedish bank crisis,' *Sveriges Riksbank, Financial Stability Report 1/2011*
- K. Whelan (2014), 'Ireland's Economic Crisis: The Good, The Bad and the Ugly,' *Journal of Macroeconomics*, March 2014

K. Whelan (2012), 'ELA, Promissory Notes and All that: The Fiscal Costs of Anglo Irish Bank.' UCD School of Economics.

M. Woods & S. O'Connell (2012), 'Ireland's Financial Crisis: A Comparative Context,' *Central Bank of Ireland Quarterly Bulletin 04/* October 12

## Data Appendix

### *The Finance Accounts 1949/50-2014*

The nominal debt figures which comprise the ratios of this work were taken from the Irish Finance Accounts (1949/50-2014).

Due to issues regarding changes in reporting, at present no consistent long run series exists using the current methodology prior to 1983 which is the earliest year that the Department of Finance have adjusted for in their ‘Budgetary and Economic Statistics’ series. Additionally, inconsistency occurs with the data regarding the national accounts which required adjustments to make the whole period comparable. Both affect the long run series of deficits and debt expressed as percentages of national income. Minor breaks in reporting methods occur in 1967 and two major changes occur in 1954 and 1987.

The first and common issue across countries is a revision of the fiscal year end. Until March 1974, every annual set of Finance Accounts was produced to year ending March 31<sup>st</sup>. In 1974, a nine month set of accounts was prepared ending December 31<sup>st</sup>. The accounts for 1974 were adjusted to equal 12 months by taking the nine month set and adding them to (three/twelve months multiplied by the set ending March 1974. As is standard accounting practice, each calendar year  $y$  prior to 1974 was calculated by

$$\frac{3}{12}(y_t) + \frac{9}{12}(y_{t+1})$$

where  $y_t$  equals the appropriate year which ends in March and  $y_{t+1}$  is the subsequent year ending March of which 9 months fall within calendar year  $y_t$ .

The ***nominal debt figure*** is the statistic reported in the Finance Accounts every year from 1949/50 until 2014 with some exceptions outlined below. In the Finance Accounts, “Supply Service” expenditure relates mainly to the current expenditure of the state and the “Central Fund” refers to the central government’s treasury account and the principal division from which debt service (and capital expenditure) are made.

In the accounts spanning 1950-1967, while “Public Debt” is recorded separately, the post 1967 period included all capitalised liabilities as National debt from that period and this is why the larger figure was chosen in the entire pre-1987 series as displayed in Figure 1. This amount now replaced the “Public Debt” for all years prior to 1967 to ensure consistency.

However, there is double counting which is specifically mentioned as a footnote to the national debt statement each year until 1967. The relevant items<sup>73</sup> as well as being included in under debt were also recorded as assets in the accounts and the aggregated figure was officially reduced by this amount in a ‘netting’ process thereafter. I have deducted the same amounts for every year prior to the break in 1967 to ensure consistency with both the pre and post 1987 era.

Liabilities associated with the Housing Act 1932 were not included in the Capital Liabilities for the five years 1950-54 in the official accounts. I have included them in these years as the policy changed from 1955 when they appeared under that heading until 1987.

A significant break in accounting occurred via The Local Loan Fund (Amendment) Act (1987). The Act made adjustments in an attempt to eliminate circular transfers and credited “Liquid Assets” against the outstanding debt figure. Under this heading were National Loans Sinking Funds, Savings Certificates Account, Exchequer Account, National Development Fund and Proceeds of Dollar Borrowings under United States Loan Agreements. These were listed as “Liquid Assets” from the accounts in 1957/58. For the years preceding that, the component parts were added to achieve the aggregate.

The 1987 Act additionally deducted, from the capitalised liabilities section of Total National Debt, monies raised under the Housing Acts 1932-66 and State Contributions towards loan charges of sanitary and miscellaneous services which had also been capitalized up until then. Taking all changes together, the retrospective effect on the 1986 figure was a reduction of 11% of nominal debt seen in the 1987 Accounts which gave a revised figure for the 1986 year end.

The Department of Finance’s ‘Budgetary and Economic Statistics’ series have made some ex post adjustments using the 1987 changes and cast back until 1983. I cross checked these with my own figures and using the same process extended back towards 1950. It is therefore to my knowledge, the first consistent long run series of nominal debt. The pre and post 1987 changes are shown in Figure 1. It is the pre 1987 Act ratios which are used in the debt dynamics calculations in the sub section regarding the 1950s crisis, as these are the levels of debt that policy makers at that time faced. In order to review the debt reduction process

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<sup>73</sup> Items of double counting in assets included part of the American Loan Counterpart Fund, The National Loans Sinking Fund, The National Development Fund and the Principal Reserve of Savings Certificates Fund.

following the 1980s, it was necessary to use the post 1987 methodology to achieve consistency throughout the period 1977-2001.

The **Government (Exchequer) surplus/deficit**  $b_e$  is calculated using the current method adopted by the Department of Finance, by adding the current  $b_c$  and capital  $b_k$  exchequer balances.

$$b_e = b_c + b_k$$

The Current Account Balance is calculated by deducting Current Expenditure from total revenue derived from tax and non-tax sources.

The capital balance is calculated by deducting “Capital payments” (previously referred to as “Issues”) from “Capital Receipts” and “Sinking Fund” payments. These transfers from the current account to the capital account are allocated to pay principal and interest due on the national debt. They are included in “current payments” but are added back in arriving at the exchequer balance having a zero net effect. This practice was adopted in the Finance Accounts from 1998 and had the ex-post effect of producing a more favourable exchequer balance than previously. Prior to that year, the amount appeared only under Current Payments (under the broader aggregated heading of ‘Service of National Debt.’ In *Budgetary and Economic Statistics*, the Department of Finance have cast back the methodology as far as 1984. I have cross checked these with my calculations and extended back until 1950.

The **primary budget balance**  $b$  is calculated by adding interest on government debt  $i$  back to the exchequer surplus/deficit. This will always have a positive effect on the exchequer surplus and deficit as it will have the effect of increasing the former and reducing the latter.

$$b = b_e + i$$

**Interest on Debt**  $i$  is that which is charged directly to the Central Fund Services as is the practice by the Department of Finance. However, the Department of Finance’s *Budgetary and Economic Statistics* from 1990 began including interest payments included in the Issues for Supply Services. I have omitted these to ensure consistency with the other periods. The effect on the series for the years 1990, 1991 and 1992 is an understatement of interest compared with the Department of Finance of 0.04%, 0.03% and 0.02 % respectively.

In 1991, for the first time “deposit interest received” was deducted from interest in calculating the national debt. While all other interest items refer the reader to a note in the supplementary accounts providing details of the composition of each entry, this was not done until 1997 regarding received interest. As the interest received up until this point averaged only 3.5% of total interest and it never surpassed 0.3% of total debt, it is not deemed an economically significant amount. It has been omitted to ensure consistency across the entire series.

As the National Treasury Management Agency (NTMA) began reporting on the National Debt from 1992, their interest figure was that which the Department of Finance attached to its accounts from that date and listed these figures in their *Budgetary and Economic Statistics* publication. Though it continued the practice (adopted since 1991) of netting “Deposit Interest Received” against the total sum of interest on the debt, it also began taking account of “Net interest movements on foreign accounts not taken to CSRA at year end” from 1992. Later, another umbrella item called “Other Movements” incorporated these and more to arrive at “interest.” These were all positive numbers, which had the effect of improving the primary balance via larger interest payments. Such accounting policy changes have consistently occurred to mask and “massage” the true level of debt and exchequer balances according to some.<sup>74</sup> I have maintained the strict definition of “interest paid” through the entire sub period and removed all other temporary items.

Due to the questionable economic significance of interest received and the lack of comparability with data before the break in 1991, my stricter time consistent version is the following

$$i = (id + is)$$

Where appropriate in the text, total debt service  $ds$  is made up of debt interest  $i$ , the sinking fund  $sf$  and expenses of issuance which are included under the Sinking Fund heading as they are trivial in size. These were available in footnote format back until 1950.

$$ds = (i + sf)$$

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<sup>74</sup> See McCarthy (2002)

### *The National Accounts 1948-2015*

The Central Statistics Office (CSO) national income data for the period 1950-2015 was used in this study.<sup>75</sup> However, as with the Finance Accounts, a consistent approach throughout the period is not available.

The accounts 1948-1995 were calculated upon an European System of Accounts (ESA 1995) basis. This methodology was continued until 2012 from which date compliance with the updated ESA 2010 accounts was adopted. Therefore a discontinuity exists in the data which the CSO is currently updating. The CSO recently replaced all of the estimates post 1995 with the new ESA 2010 version leaving the pre 1995 data incomparable. I therefore use the original ESA 1995 series up until 2012 in order to maintain consistency with the historical series, specifically employing the nominal GNI and GDP levels and real growth rates of the old methodology.

It is crucial to highlight that the growth rates are unaffected as a result of the newly adopted ESA 2010.<sup>76</sup> Instead it is the *level* of GNI which is materially altered in current prices. Therefore, in the few cases where the post 2012 debt is mentioned, I have use the realized growth rates of 2013-15 in the new nominal income aggregates (ESA 2010) and extend these forward on the old national accounting basis (ESA 1995) to arrive at new levels of nominal GNI (ESA 1995). Additionally, this treatment allows for a consistent comparison with the debt crisis of the 1980s and the economic crisis of the 1950s, the existing national income figures for which are not yet available in ESA 2010 format.

It is worth mentioning here that when applying the ESA 2010, average levels of nominal GNI and GDP in the pre-crisis years 1995-2007 are respectively 4% and 3% higher than the 1995 ESA methodology yielded. In the aftermath of the crisis the differences were even more pronounced having a significant downward impact on Debt Ratios (see table 1). For instance in 2012 alone, the ESA 2010 methodology had the effect of reducing the debt to GNI ratio by almost 8% compared with the same ratio calculated under the ESA 1995 methodology. It is tempting to suspect that given the favourable impact this will have on struggling Eurozone members (bound to the ratios of the Stability and Growth Pact), the timing of ESA 2010 may be politically motivated at a European level. However, testing that hypothesis is beyond the scope of this paper as the idea here is to display its quantitative impact upon Irish debt.

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<sup>75</sup> National Income and Expenditure Tables, Central Statistics Office of Ireland

<sup>76</sup> Eurostat News Release 157/2014

**Table 6: Impact of Accounting Changes on Public Debt Ratios**

Year	Implied “Reduction” of Debt/GNI Ratio	Implied “Reduction” of Debt/GDP Ratio
2009	-2.79%	-1.95%
2010	-4.02%	-2.87%
2011	-7.17%	-4.77%
2012	-7.73%	-5.24%

*Table 6: The Impact (expressed in percentage points of National Income) on public debt ratios of adopting the ESA 2010 methodology compared with ratios arising from the ESA 1995 methodology. Author’s Calculations.*

The measure of National Income chosen was Gross National Income (GNI) rather than Gross Domestic Product (GDP). The choice was made based upon a number of factors. Since the 1960s, Ireland’s economy has been comparatively open relying heavily upon foreign investment and multinational companies which reside there. For most other European countries, the difference between GDP and GNI will be non-material but multinational transfer pricing creates a considerable difference in the Irish case. Net factor flows (which are deducted from GDP to arrive at GNI), which include that portion of the value of output that flows abroad due to foreign ownership of inputs, are considerable in the Irish case.<sup>77</sup> As mentioned elsewhere, GNI not only reflects living standards more appropriately in Ireland,<sup>78</sup> but the fact that taxes are levied on domestic aggregates such as personal income and consumer spending (the primary base) makes income (GNI) rather than output (GDP) the choice denominator for Irish fiscal ratios.<sup>79</sup> In this paper, I therefore follow McCarthy and Lawlor (2003), McCarthy (2009), Lane (1999) and Bergin et al (2011) in using GNI rather than GDP for the Irish case. Below I plot the relative GDP/GNI ratio for Ireland which shows the divergence which becomes prominent from the 1980’s.

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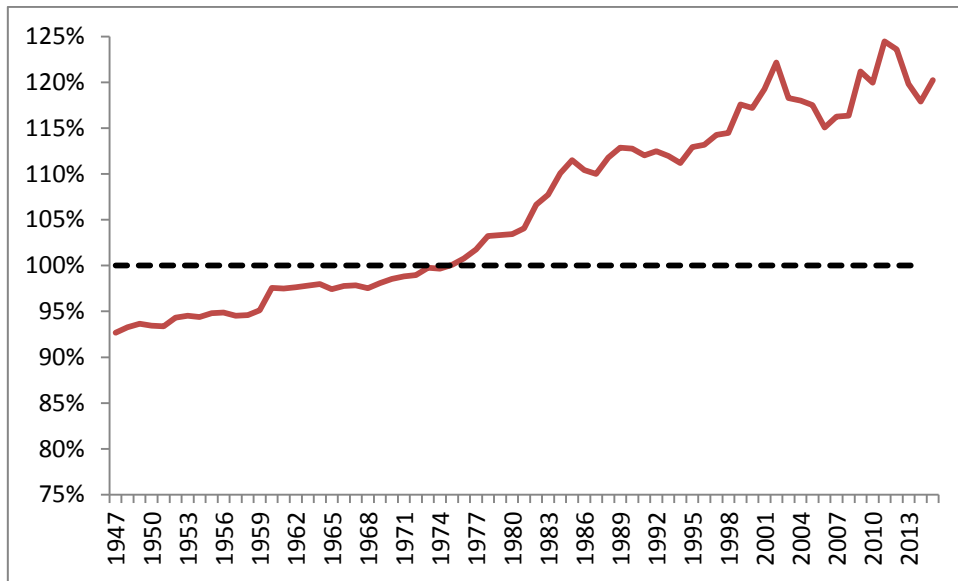
<sup>77</sup> OECD 2006 provides an example of how more appropriate GNP/GNI is as a measure of domestic Irish activity

<sup>78</sup> Ó Gráda & O’Rourke (1993)

<sup>79</sup> McCarthy & Lawlor (2003).



**Figure 8: GDP/GNI Ratio for Ireland 1947-2015**



*Source: Central Statistics Office 1947-2014. ESA 1995 Methodology. Author's Calculations*