

Finding Gold in “Leprechaun Economics”

*An analysis of Ireland’s recent macroeconomic growth and
subsequent market responses*

Independent Study Project
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Executive Summary

- On July 12, 2016, the Irish Central Statistics Office (“CSO”) announced that Ireland’s GDP grew by 26.3% in 2015
- That same day, Nobel Laureate and MIT alumnus Paul Krugman bemoaned the report as “leprechaun economics”
- This project concludes that:
 - 2015 GDP growth was likely caused by the transfer of €300bn of capital assets to Ireland,
 - those assets seemingly responsible included intellectual property and patents owned by the pharmaceutical company, Allergan, and the computer manufacturer, Apple, and
 - investors appeared to ignore the GDP news in 2015—just as they had in prior years



Photo Credit: Irishcentral.com



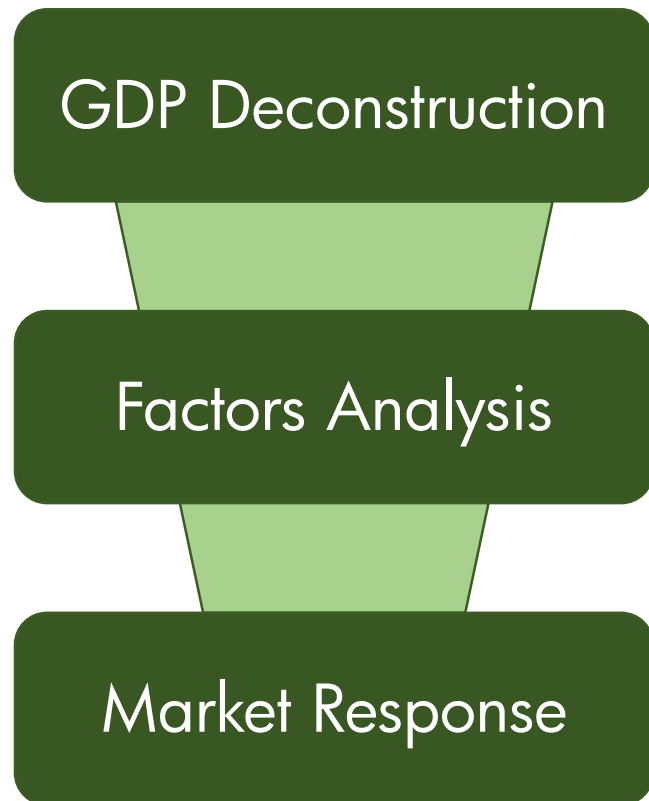
Paul Krugman ✓
@paulkrugman

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Leprechaun economics: Ireland reports 26 percent growth! But it doesn't make sense. Why are these in GDP?

Source: Twitter.com

Project Design



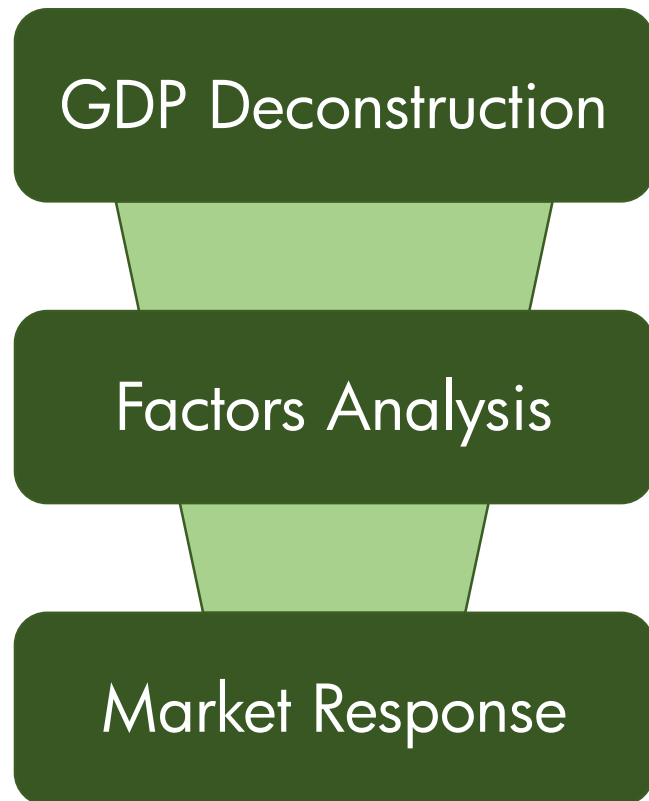
Research Questions

- What caused Ireland's GDP to grow 26.3% in 2015?
 - Is this figure accurate?
 - Could the CSO have issued a 'pro forma' GDP?
-
- What particular industries or entities (if known) were responsible for this growth?
 - Was this growth due to one-time or recurring events?
-
- How should market response be measured?
 - Historically and in 2015, how did markets react to expected and announced GDP figures?

Primary Data Sources

- CSO, Eurostat, Organisation for Economic Cooperation and Development ("OECD"), The World Bank
-
- CSO, corporate filings (10-Ks, annual returns, etc.), Eurostat
-
- Bloomberg (specifically Irish, English, and German government bonds; the Irish Stock Exchange; the London Stock Exchange; and MSCI Inc.), research papers

Project Findings



Research Answers

- Ireland must produce data according to European System Accounts (“ESA”) 2010, creating opportunities for GDP to be influenced by foreign firms
 - Irish 2015 GDP growth was due to asset transfers by multinational entities (“MNEs”), increasing profits, depreciation, investment, exports, and imports
 - An in-depth analysis is impaired, as much of the data is redacted
-
- The one-time on-shoring of intellectual patent product (“IPP”) by technology and pharmaceutical firms, such as Apple and Allergan, likely caused Ireland’s 2015 GDP growth
 - While corporate inversions and airline leasing firms were credited for increasing Irish GDP, their impact may have been exaggerated
-
- 2015 GDP growth will be assessed via the paradigm that bond yields respond to ‘surprises’ and quarterly data stimulates equity return volatility
 - Not only did investors disregard the 2015 GDP growth, but they seemed to ignore national accounts news from the CSO over the past 15 years

Project Prologue: GNI*

- In February 2017, an expert panel convened by the CSO, the Economic Statistics Review Group ("ESRG"), suggested the use of Gross National Income* ("GNI*") to "provide a better understanding of the domestic components of highly globalised Irish economy"
- Using the markets' seemingly entrenched disregard of GDP 'surprise' as a baseline, it would be useful for policy makers to examine investors' reactions to the upcoming release of GNI*
- If investors believe this new metric is meaningful, they will respond accordingly



Level Indicator

- Gross National Income* (GNI*)
 - GNI adjusted for retained earnings of re-domiciled firms and depreciation on foreign-owned domestic capital assets
- Modified measure of the size or level of economy
- Additional and useful input to economic modelling and analysis, including use "under the line" for ratio analysis
- Top-down approach to developing GNI*
 - Annual series initially in mid-2017, with focus on re-domiciled firms and depreciation related to intellectual property products
 - Longer-term: quarterly series at current and constant prices

Source: Ireland CSO ESGR response presentation

Ireland: 1840 to 2015

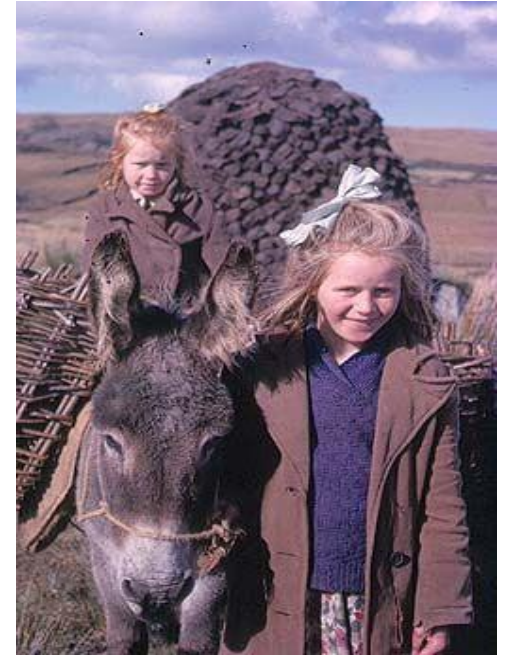
Ireland's Great Famine led to crippling population loss and a century of rural poverty



- Pictured top left: The Rock County, Wisconsin farm home of Nicholas and Mamie Tierney in the early 20th century (Source: D. Tierney)



- Pictured right: Irish girls gathering turf in 1963 (Source: National Library of Ireland)
- Pictured bottom left: Famine walls still trace the landscape of modern Ireland (Source: D. Tierney)



1845-1852:
Great Famine

1922: Irish
Free State

1937: Republic
of Ireland

1969-1998:
The Troubles

1995-2005:
Celtic Tiger

2008-2013:
Great Recession

1840

1860

1880

1900

1920

1940

1960

1980

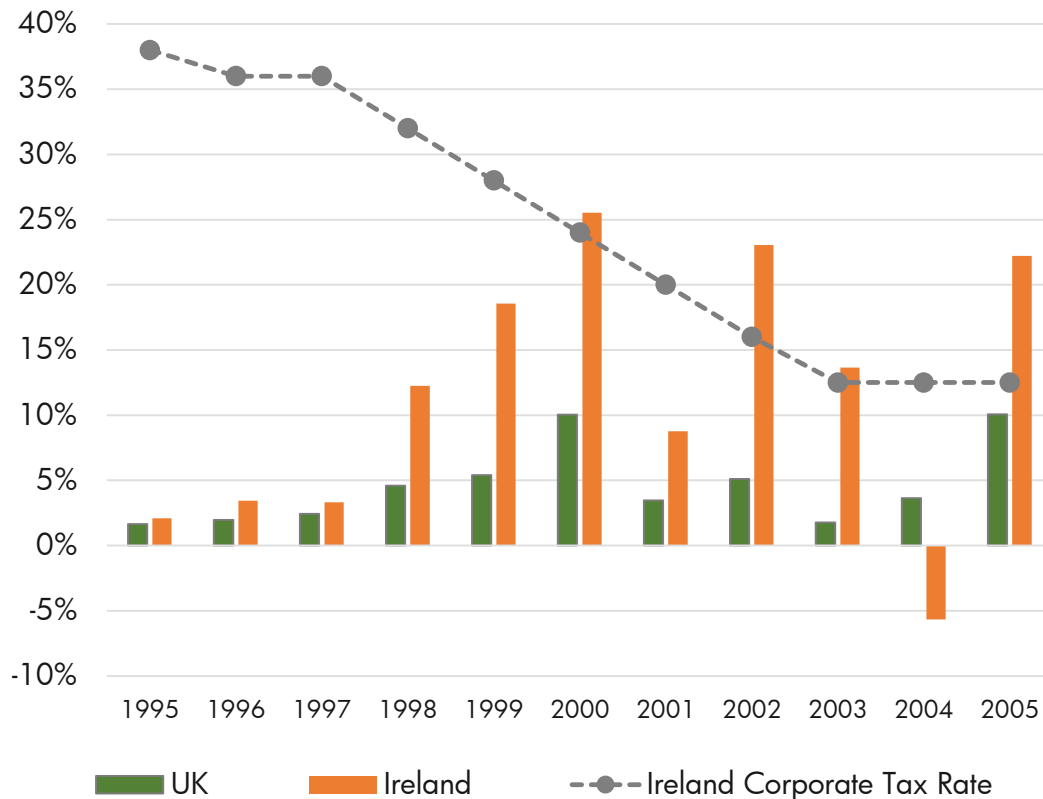
2000

2020

The 'Celtic Tiger' years coincided with increased FDI and a departure from an agrarian economy

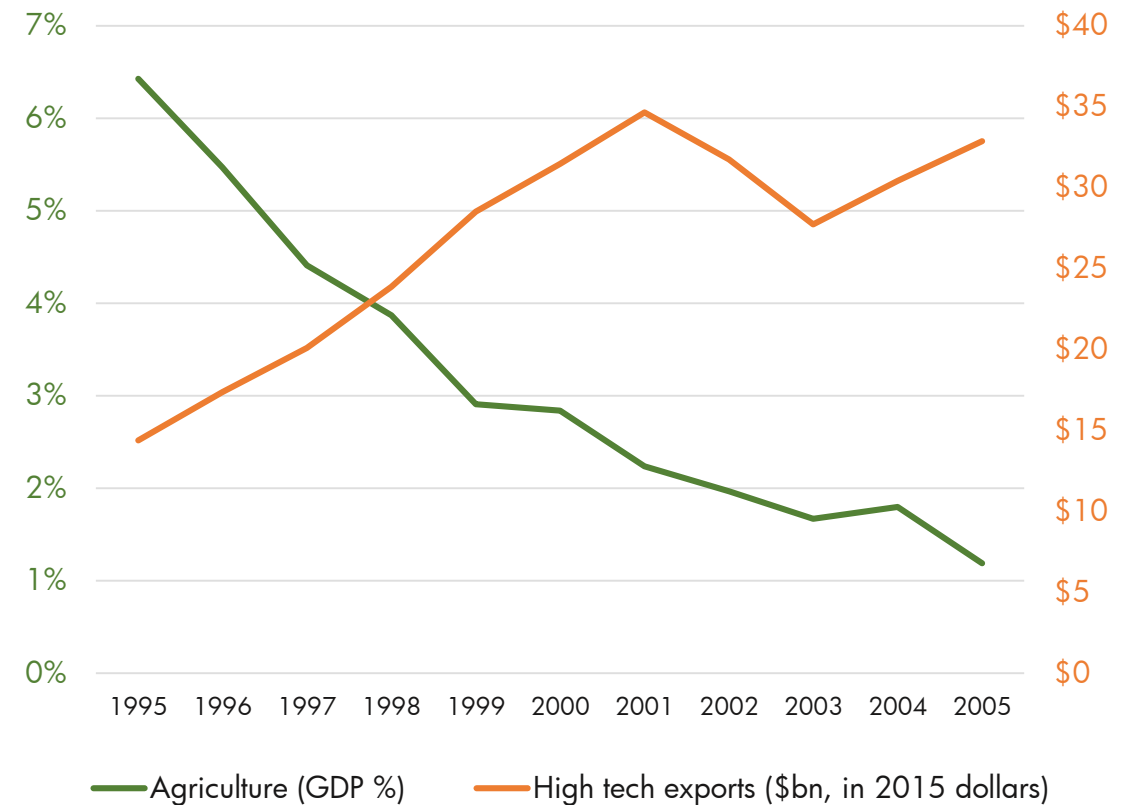
Foreign Direct Investment (% of GDP)

Data Sources: OECD, World Bank



Agriculture (% of GDP) vs. High tech exports (\$bn)

Data Sources: United Nations, World Bank



The global financial crisis led to over three-fold increases in Ireland's debt and unemployment

Debt & Surplus or Deficit

2005 to 2008

- Ireland's gross national debt averaged ~€45bn from 2005 to 2007, before nearly doubling to €80bn in 2007

2009 to 2015

- By 2015, Irish household debt had returned to 2006 levels; still, as of 2015, it was among the EU's highest

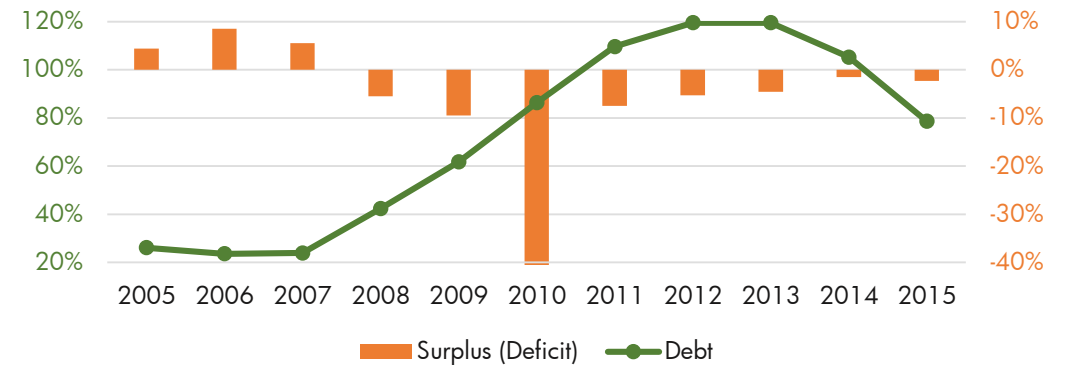
Unemployment

- Jobs were plentiful, with foreign firms seeking to employ Ireland's educated, English-speaking workforce

- Unemployment among Irish youth rose even higher than that among older citizens, growing to 33% in 2012

Debt & Surplus or Deficit % of GDP at Q4

Data Source: Ireland CSO



Unemployment

Data Source: Ireland CSO



Furthermore, collapsing residential property values preceded bank bailouts and austerity measures

Residential Property Price Values

2005 to 2008

- By 2007, the housing bubble had begun to burst, as Dublin real estate lost value before other, more rural properties

Home Loans

- To meet home loan demand, banks' foreign borrowing hit €110bn in 2008, a ~633% increase over the prior four years

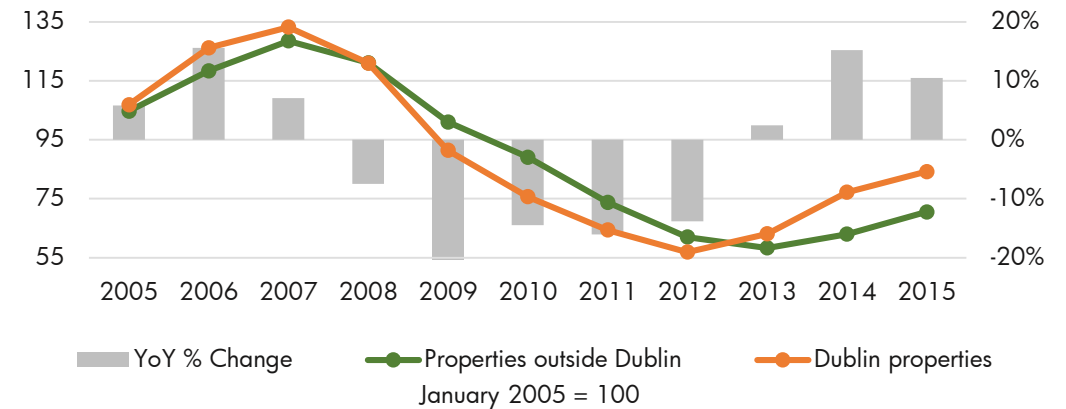
2009 to 2015

- Though prices were rebounding by 2014, new investment in Dublin's south side reignited pre-recession concerns

- The Irish government's guarantee of the six largest banks' debts ultimately prompted a Troika-backed bailout

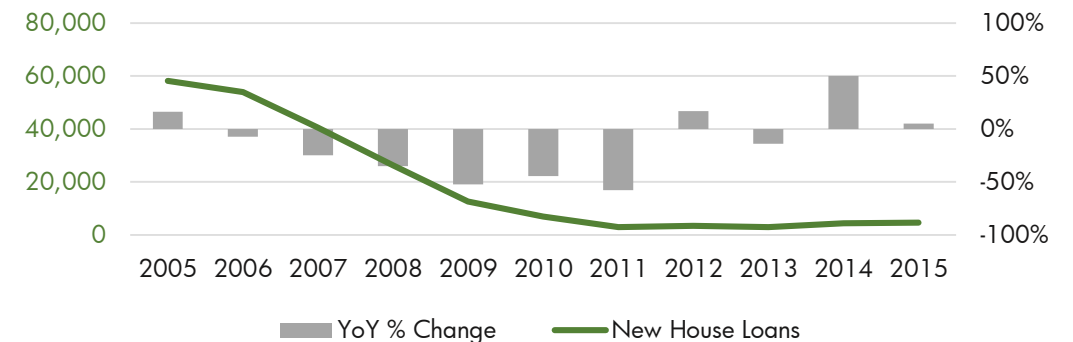
Residential Property Price Index

Data Source: Ireland CSO

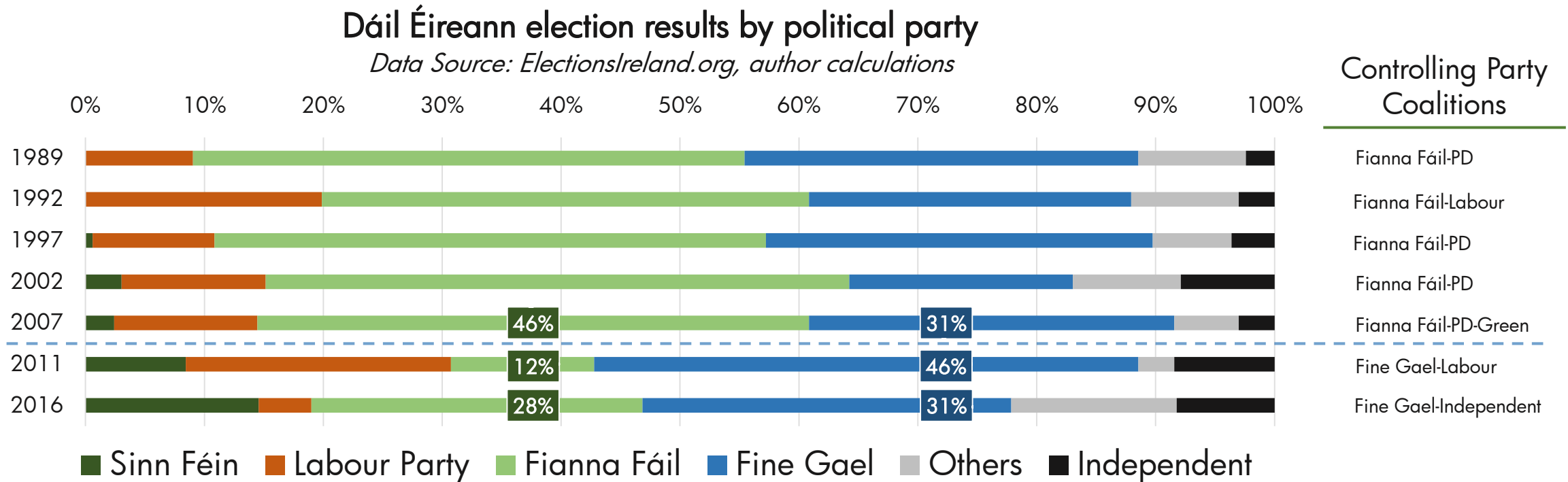


Number of Approved New House Loans

Data Source: Ireland Dept. of the Env., Community & Local Gov't



Outrage was directed at public officials; ousted Fianna Fáil had dominated Irish politics since 1932



With recession effects lingering, Ireland had achieved moderate political stability and economic growth by 2015

The Mechanics of National Accounting

The Eurostat publication, ESA 2010, provides the framework used for EU members' national accounts

Definition

Income Approach

Section 8.89(c): "GDP is the sum of uses in the total economy generation of income account (compensation of employees, taxes on production and imports less subsidies, gross operating surplus and mixed income of the total economy)."



Production (Output) Approach

Section 8.89(a): "GDP is the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products (which are not allocated to sectors and industries)."



Expenditure Approach

Section 8.89(b): "GDP is the sum of final uses of goods and services by resident institutional units (final consumption and gross capital formation), plus exports and minus imports of goods and services."



Ireland computes GDP by Income and Expenditure, with a Production estimate available for 2011

Key Concepts

Chain Linking

- The real growth rate of each component's output and expenditure volume is calculated separately
- The component is then weighted by its current year volume share, creating an average growth rate
- Finally, this average growth rate is applied to the prior year's real GDP to determine real GDP in the current year

Value Added

- In presenting the Income Approach, the CSO groups the agricultural/non-agricultural factor payments by value added (i.e., the value created above product costs)
- The Production Approach, in turn, is the difference of output and intermediate consumption
- Ireland has begun the process of retroactively calculating GDP via the Production Approach; an estimate for 2015 will likely be available at the end of the present decade

Income Approach

- + Company and self-employed profits
- + Employee remuneration
- + Rent of dwellings
- + Stock appreciation
- + (-) Statistical discrepancy
- Net value added at factor cost**
- + Depreciation
- Gross value added at factor cost**
- + (-) Non product taxes (subsidies)
- Gross value added at basic prices**
- + (-) Product taxes (subsidies)
- Gross domestic product at current market prices**

Expenditure Approach

- + Personal expenditure on consumers' goods and services
- + Expenditure by central and local government on current goods and services
- + Gross Domestic Fixed Capital Formation ("GDFCF")
- + Value of physical changes in stocks
- + (-) Statistical discrepancy
- + (-) Exports (Imports)
- Gross domestic product at current market prices**

The statistical discrepancy is the difference between the Income and Expenditure estimates; GDP is therefore an average of each Approach in the **National Income and Expenditure ("NIE") Annual Results**

The adoption of ESA 2010 modified the accounting treatment of intangibles and global supply chains

Category*	ESA 95 treatment	ESA 2010 treatment
Research & development	"R&D expenditure . . . [was t]reated as an ancillary cost to the main production of an enterprise"	→ "R&D expenditure is recognized as capital investment," increasing GDFC and depreciation
Goods sent abroad for processing	Goods sent abroad <i>without a change in ownership</i> "were shown as exports on being sent abroad, and then recorded as imports on return from abroad"	→ Such activities "do not impute a change of ownership, but rather show only one entry – an import of the processing service"
Merchanting	If goods are sold by a non-resident owner to a resident owner, who then resells to another non-resident, and the goods do not physically move, the difference between the sale and acquisition price was recorded as a service transaction	→ <i>Because there is a transfer in economic ownership</i> , these transactions are recorded as imports and exports of goods for the temporary resident and non-resident owners

*The *Manual on the changes between ESA 95 and ESA 2010* reports 25 significant differences between the methodologies; of these, 12 were said to have a potentially positive effect on GDP

- Taking effect in 2014 in place of ESA 95, ESA 2010 introduced two major changes to GDP calculations: (i) the capitalization of R&D (growing investments, e.g., GDFCF) and (ii) the principle of economic ownership of goods (increasing both exports and imports)
- While the CSO states that "the impact of ESA 2010 implementation on Ireland's GDP level is almost fully accounted for by the treatment of . . . [R&D] expenditures," a recent publication by the OECD did not similarly fault the transition in methodology for creating irregularities in national account reporting

The changes in ESA, though necessary and well-informed, created opportunities for Ireland's GDP to be influenced by foreign firms

2015 Gross Domestic Product

The CSO acknowledged the 2015 GDP growth was unprecedented in both Irish and EU history

- 2015 NIE: GDP was announced at 11am on July 12, 2016
 - The 26.3% real increase revised the 7.8% March estimate
 - Real GNP also rose by 18.7%
- **Redactions:** The CSO suppressed certain industry details that may have identified specific firms, given the “overall scale of [the] additions” and its legal obligations
- **CSO followed regulations:** While acknowledging that GDP did not provide “sufficient understanding of the domestic economy,” the CSO initially declared it could not deviate from the ESA 2010’s rubric
- **‘Step shift’:** By September 2016, the CSO began referring to the 2015 increase as a ‘step shift’ to emphasize a belief that growth would not retreat from this level and that future shifts may reoccur
- **ESRG:** In early 2017, the expert group convened by the CSO presented GNI* to account for retained earnings of re-domiciled firms and depreciation on foreign-owned, domestic assets

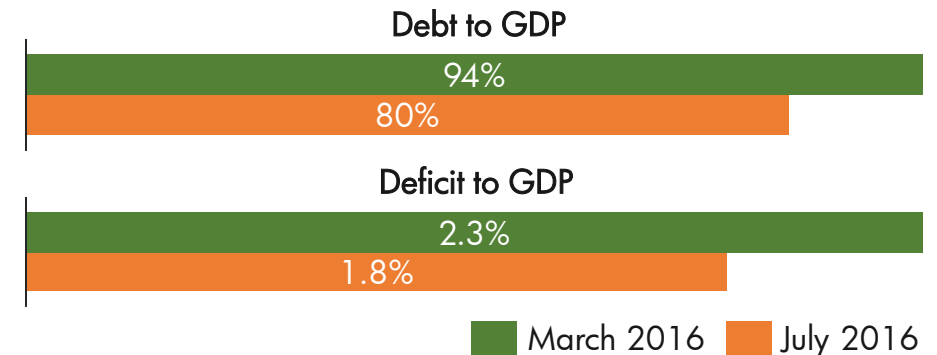
Flowchart Explaining GDP Increase

Graphic Source: 2015 NIE Explanatory Note



Original and Revised Debt/Deficit Ratios

Data Sources: The Irish Times, Ireland CSO

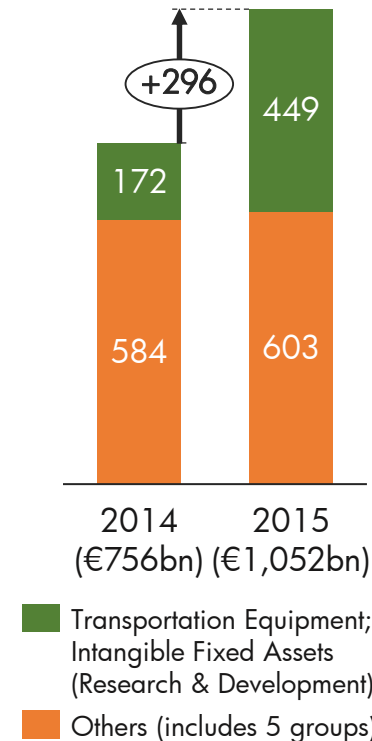


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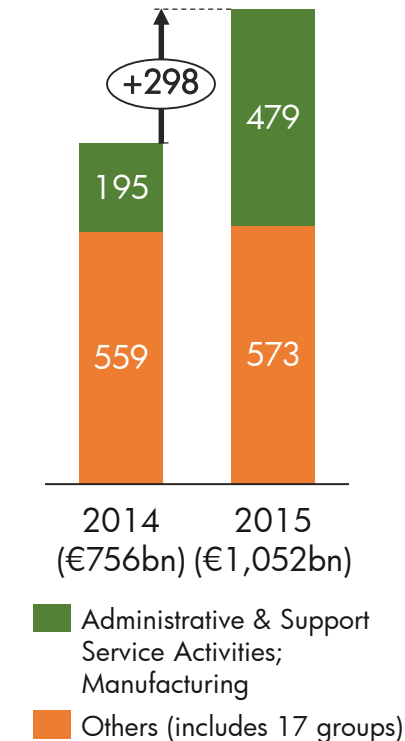
The movement of ~€300bn in capital assets to Ireland was responsible for the surge in GDP

- According to the ESRG report, “the level shift in GDP of 26[%] in 2015 was largely a consequence of the relocations of entire balance sheets to Ireland from outside of the EU and the activity related to these relocations,” with these balance sheets “dominated by intellectual property”
- Industry and asset specific details regarding the accumulation of that capital stock were suppressed
- However, because only 12% of the 2015 GDP’s 28.3% total Gross Value Added (“GVA”) growth was domestic, growth in the Industry sector was dominated by the activities of foreign-owned MNEs

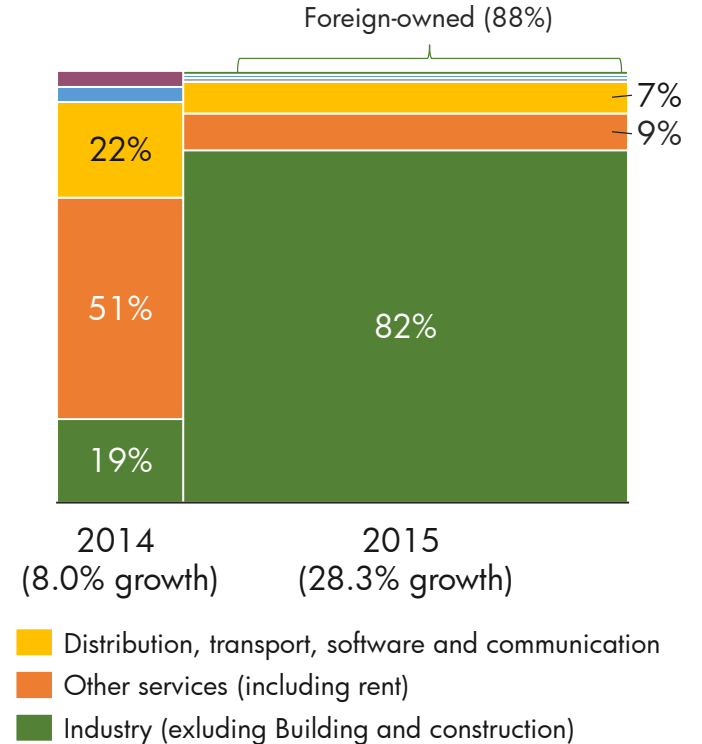
Total Real Gross Capital Stock by Asset Type (€bn)
Data Sources: Ireland CSO, author calculations



Total Real Gross Capital Stock by Industry (€bn)
Data Sources: Ireland CSO, author calculations



Real Gross Value Added Growth, at Factor Cost, by Sector of Origin (%)
Data Sources: Ireland CSO (2015 NIE Tables 4, 4.1), author calculations

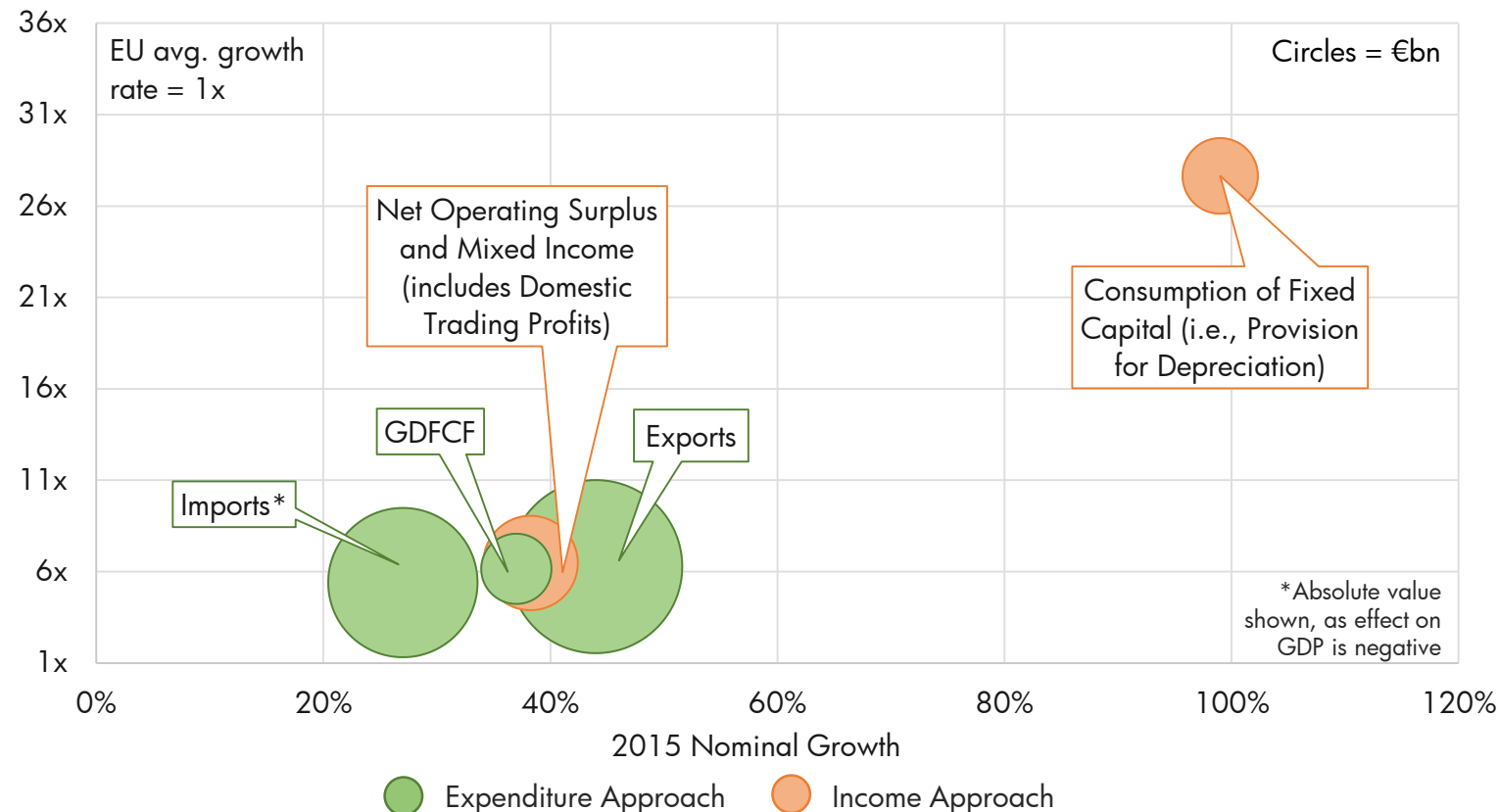


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Those assets, in turn, grew five elements across the Expenditure and Income approaches to Irish GDP

Key drivers of 2015 GDP growth via Income and Expenditure Approaches, relative to EU average rates

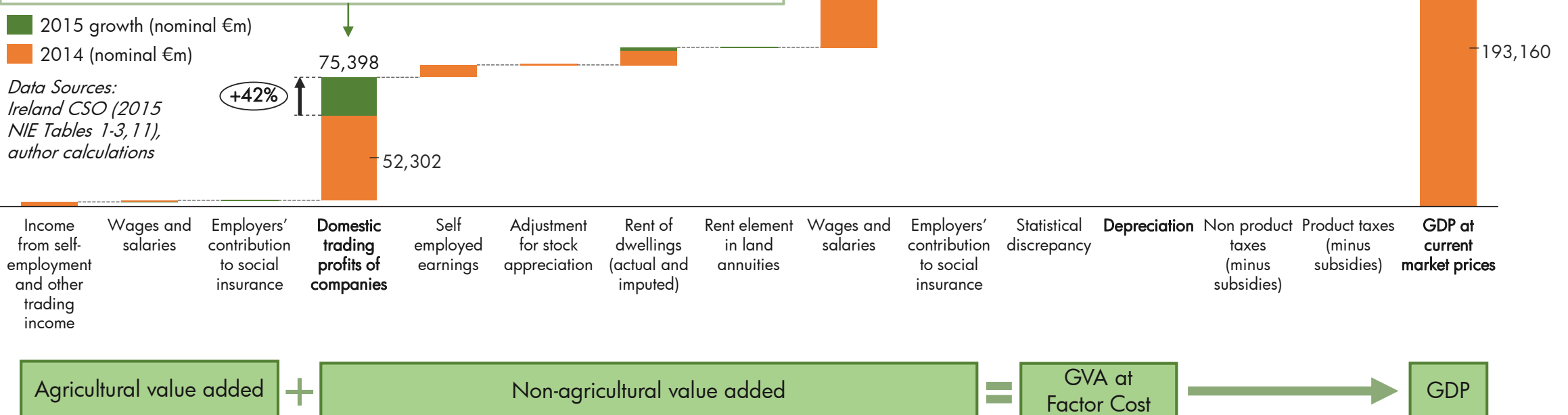
Data sources: Eurostat, Ireland CSO, author calculations



- The primary categories that caused the increase in Ireland's 2015 GDP were:
 - (1) domestic profits,
 - (2) depreciation,
 - (3) GDFCF,
 - (4) exports, and
 - (5) imports.
- The jump in the consumption of fixed capital was an outlier domestically and abroad; its growth was 27 times larger than the average rate of increase for depreciation expense across the European Union's member states

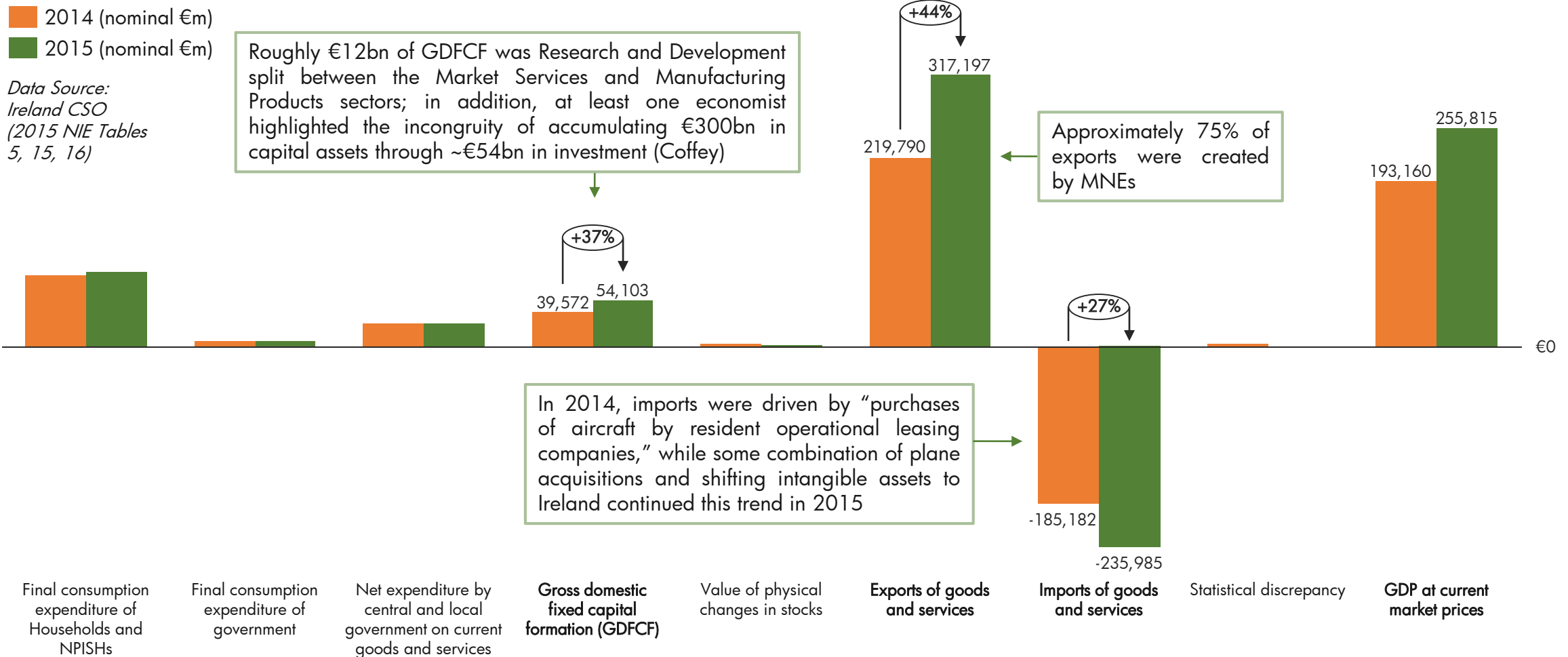
Via the Income Approach, the assets caused more profits and depreciation to be recognized in Ireland

The CSO historically provided *Net Value Added at Factor Cost by Sector of Origin* (e.g., sector-specific remuneration of employees, adjustments for stock appreciation, and 'other'). The July 2016 release, however, "suppressed [these results] for confidentiality." Other data show gross Industry sector income (i.e., including depreciation) increased nominally from 41 billion euros in 2014 to 92 billion euros in 2015. Therefore, the redaction notwithstanding, most of this growth—the depreciation expense of relocated capital assets—was 'other' within Industry.



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The Expenditure Approach showed increasing imports were offset by greater exports and GDFCF



Observers bemoaned Ireland's national accounts figures as the casualties of globalization

- Many economists and analysts used other CSO-produced metrics, such as personal consumption growth at 4.5%, to conclude that the “actual” Irish economy expanded between 4% and 5% in 2015

Experts Respond

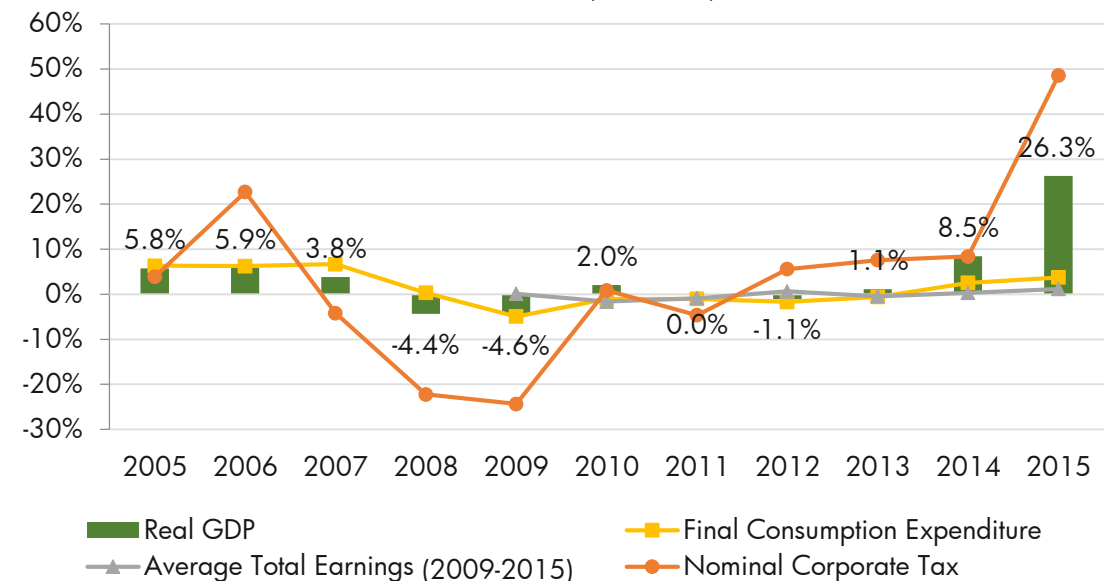
“Leprechaun economics.”
– Paul Krugman,
Nobel Prize laureate

“Gross domestic blarney.”
– *The Economist*
“It’s meaningless—we would be laughing [if this were China’s GDP growth].”
– Jim Power, economist

“It’s complete bullshit.”
– Colm McCarthy,
economics professor

Annual Growth Rates of Real GDP, Nominal Corporate Tax Receipts, Consumption, and Earnings

Data Sources: World Bank, Eurostat, Ireland CSO



Ireland's ESA 2010-compliant 2015 GDP growth was the result of asset transfers by MNEs; however, data redactions impair analyses

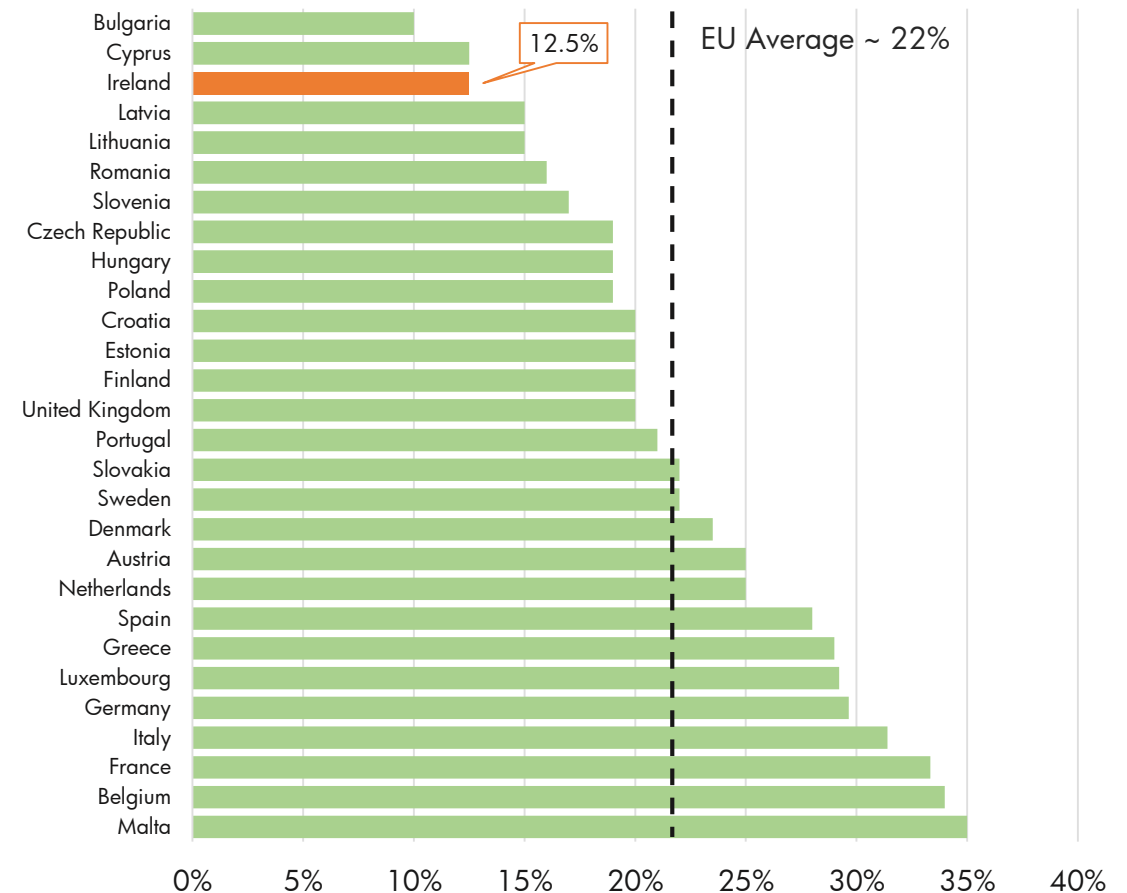
Factors Analysis

Ireland's fiscal and pro-business policies have been called into question by the international community

- Given the potential scrutiny from initiatives like OECD's "BEPS" (Base Erosion and Profit Shifting) Project, Ireland has recently taken steps to make its public/private commercial arrangements more transparent and align its low-rate tax regime with the rest of the world
- For example, in 2015, lawmakers closed the "Double Irish" structure, a strategy wherein one Irish firm funneled profits through a second Irish firm that itself was a foreign tax resident; affected entities have until 2020 to comply
- Nevertheless, in August, 2016, after a two-year investigation, the European Commission ("EC") determined that Ireland had given State aid in the form of favorable tax agreements to subsidiaries of the tech company, Apple
- Apple would be responsible for ~€14bn in taxes, though the company and Ireland will appeal the decision

2015 Headline Corporate Tax Rates of EU Members

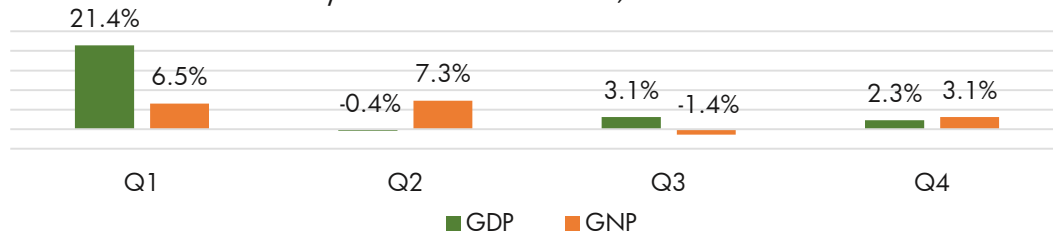
Data Source: KPMG



As revealed by the EC investigation, tax law changes may have caused Apple to 'onshore' IPP

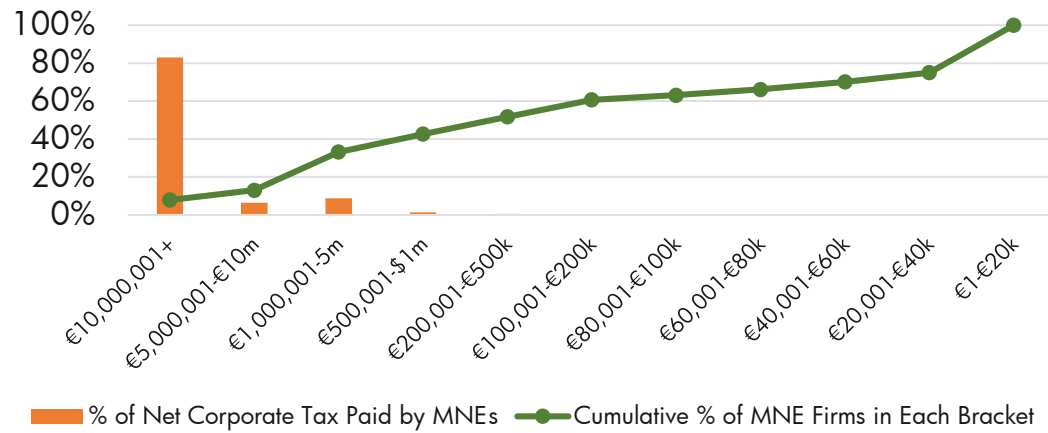
2015 GDP/GNP Revised Growth per Quarter

Graph Sources: Irish Times, Ireland CSO



2015 MNE* Corporate Tax Payments

Data Source: Ireland Dept. of Rev.



*~80% of all corporate tax receipts came from MNEs

- The August 2016 EC ruling states: "In a meeting on 9 January 2015, Apple presented its new corporate structure in Ireland . . . [that] was put into place as a consequence of the modification of [a law that facilitated the creation of "stateless" firms similar to, but distinct from, produced by the "Double Irish" tactic], as from 1 January 2015, as a result of which an Irish incorporated company could no longer declare its tax, residence to be outside of Ireland, while not having any place of tax residency anywhere else, as was the case for [the two Apple subsidiaries being investigated]." (emphasis added)

- With this new structure, Apple likely moved its assets–IPP, per the EC decision–to Ireland while offsetting its newly Irish profits (and taxes**) with depreciation

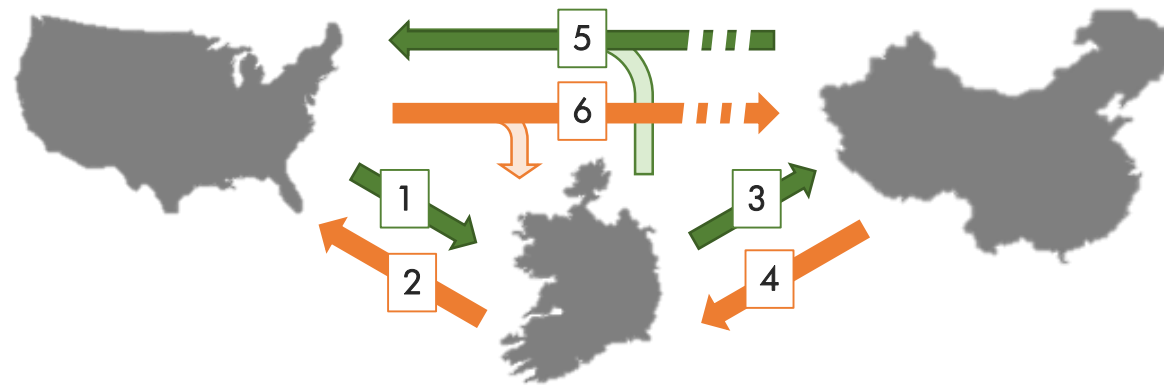
- Critically, the timing of this activity coincided with the increase in Ireland's 2015 GDP, most of which occurred in Q1, as well as rising profits, depreciation, and intangible capital assets

- The CSO has not commented on the possible link between tax receipts, GDP, and Apple (*Irish Examiner*, referencing Whelan)

**Though note growing fixed capital consumption would reduce tax liability (Casey & Hannon (2016))

Assets also shifted after an acquisition by Allergan who, like Apple, employs contract manufacturing

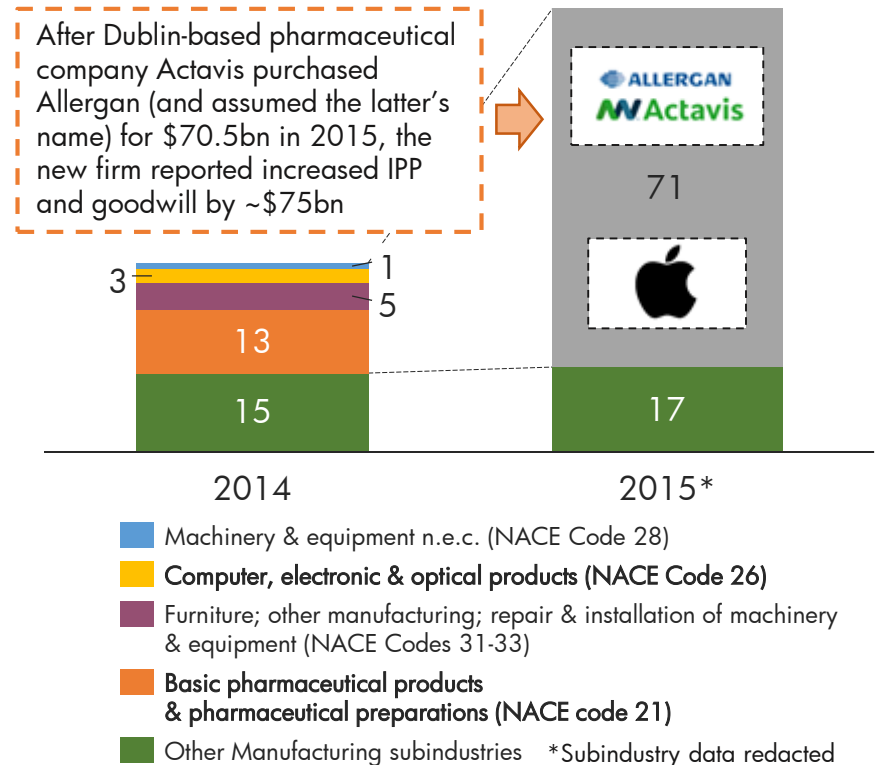
How foreign manufacturing uses IPP to add value in Ireland



1. A U.S. entity transfers economic ownership of patents or product designs to subsidiaries in Ireland, adding to the Irish capital asset stock
2. Irish subsidiaries pay a transfer fee in exchange for this intellectual property
3. The IPP is used by a subcontracted foreign (e.g., China) firm for assembly
4. Imports, including royalties or manufacturing services, accrue in Ireland
5. The product is sold to an international consumer (e.g., in the U.S.); because economic ownership never left Ireland, the sale is considered an Irish export
6. Profits are counted in Ireland until repatriated in the U.S.

Nominal Gross Value Added within Manufacturing Subindustries (€bn)

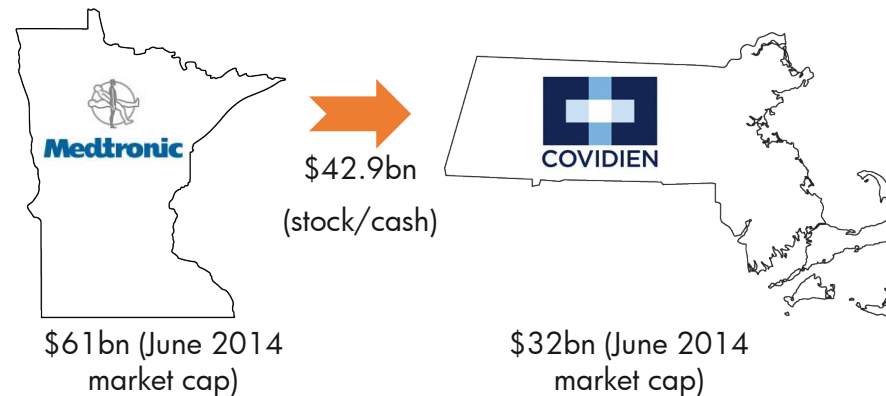
Data Sources: Ireland CSO (2015 NIE Table 22), author calculations, Honohan draft note



One popular justification for GDP growth, corporate inversions, may have been overstated

- According to the CSO, capital assets rose in 2015 due, in part, to “[c]orporate restructuring both through imports of individual assets and also reclassifications of entire balance sheets”
- The impact of inversions and differing accounting standards for portfolio vs. directly owned firms has been the subject of recent scholarly debate (FitzGerald (2013); (2016))
- For example, if an inverted firm is owned by foreign shareholders and its retained earnings are not distributed to international shareholders, its revenue is not “immediately visible in the current account” and GNP is consequently pushed upward (Lane (2016))
- But while inversions in 2015 drove a portion of the ~€23bn growth in domestic profits, there was a similar rise in outflow of net factor income (Coffey), increasing the GDP/GNP gap

Ireland's only major corporate inversion in 2015*

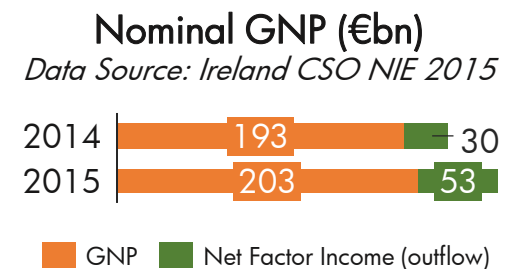


*The Actavis-Allergan deal was not, technically, an inversion

- In January 2015, Medtronic, the second-largest medical devices maker acquired the assets and ‘Irish address’ of Massachusetts-based hospital supplier, Covidien
- Each firm’s key personnel worked in the U.S., and Medtronic still operates out of Minneapolis

The effect of corporate inversions

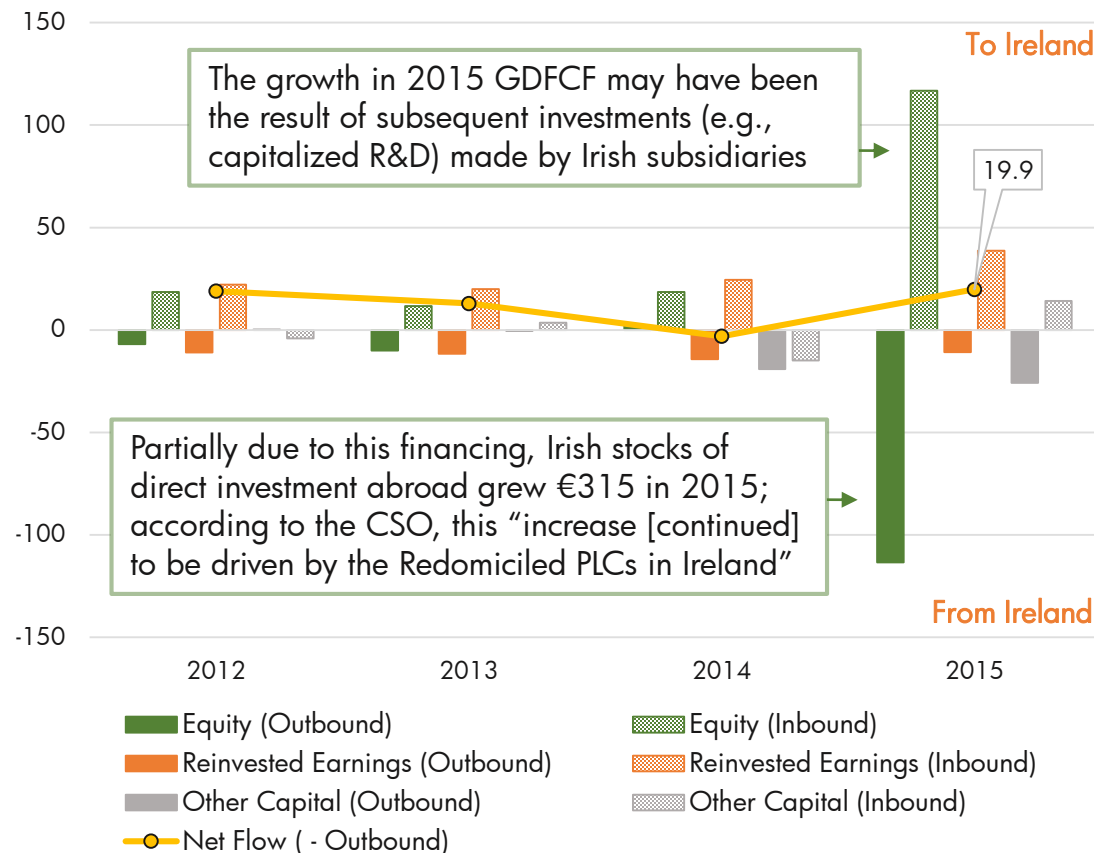
“Under a typical inversion deal, a United States company takes over a foreign counterpart and, in the process, shifts its headquarters overseas. The takeover targets for such deals are typically based in countries with low corporate taxes . . . [t]he combined company’s global profits are then reported in its new home base, regardless of where they are earned.” – *The New York Times*



Increased FDI, rather than corporate inversions, explained rising net factor outflows in 2015

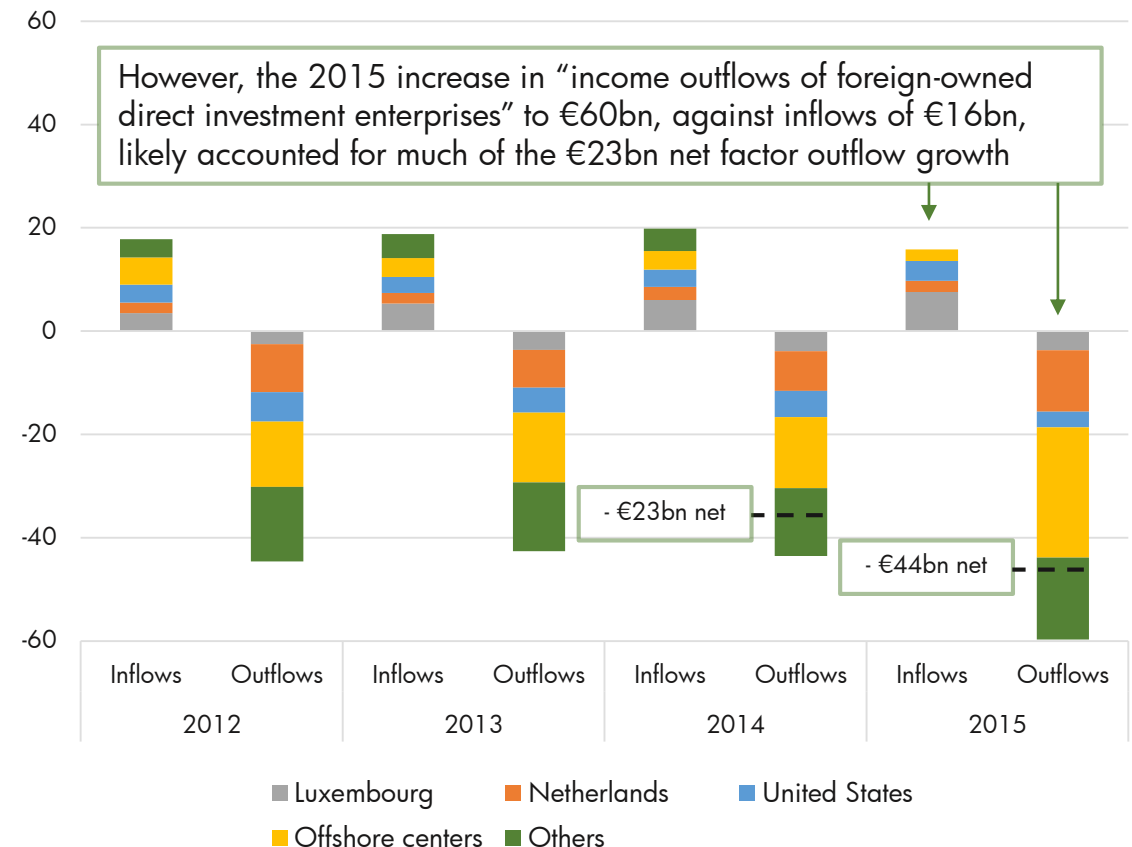
FDI Inbound and Outbound Flows (€bn)

Data Source: Ireland CSO



Direct Investment Income Flows (€bn)

Data Sources: Ireland CSO, author calculations



There is also conflicting evidence regarding the impact of airline leasing firms on 2015 Irish GDP

Substantial

A CSO press release accompanying NIE 2015 data cited "an increase in the number of new aircraft imports into Ireland for international leasing activities" to explain changes in GDP

"Official GDP growth of 26% in 2015 was largely the result of lessors buying so many new planes." – *The Economist*

Insubstantial

A CSO PowerPoint accompanying NIE 2015 data noted "[a]ircraft [were] down approximately [€]1,830m [from 2014]" while capital formation of 'Transport equipment,' which includes aircraft, fell 8%

". . . [T]he aircraft leasing sector was not the predominant contributor to recent revisions in Irish macroeconomic statistics . . ." – The Central Bank of Ireland

- Per ESA 2010, Irish airline leasing firm purchases count as imports and add to the capital stock, while lease income (and depreciation) flow as exports
- Airline leasing activity is normally evident in the type ('Transportation Equipment') or industry category ('Administrative & Support Services Activities') of new capital assets; however, as described previously, this information was redacted for the €300bn assets added in 2015
- While *The Irish Times* reported that AerCap "redomiciled the bulk of its €39 billion in assets," an expert noted that 'Other services,' which includes airline leasing, "[accounted] for only ten [%] of the increase in gross value added" in 2015 (Coffey)

The one-time on-shoring of IPP by tech and pharma firms such as Apple and Allergan likely caused Ireland's 2015 GDP growth

Market Response: Variable Selection & Hypotheses

Macroeconomic 'surprises' are created by differences between actual and expected GDP

- The days in which the CSO announces estimated or final national accounts statistics will be referred to as "Release Dates"
- Specifically, on Release Dates between Sept. 2001 and July 2016, market reactions will be judged against the real* differences between expected/actual *annual* GDP (a " GDP Surprise_T " at day T); while the CSO often adjusts prior *quarterly* forecasts, for simplicity, these backward-looking revisions will not be considered
- The statistical significance of this particular analysis is impaired by the small number (i.e., 15) of values of the yearly GDP Surprise_T

2015 GDP/GNP Release Date Schedule

Source: Ireland CSO

T = Dec. 10, 2015:
CSO releases 2015
Q3 results

T = Mar. 10, 2016: CSO
releases 2015 Q4 results
and 2015 annual estimates

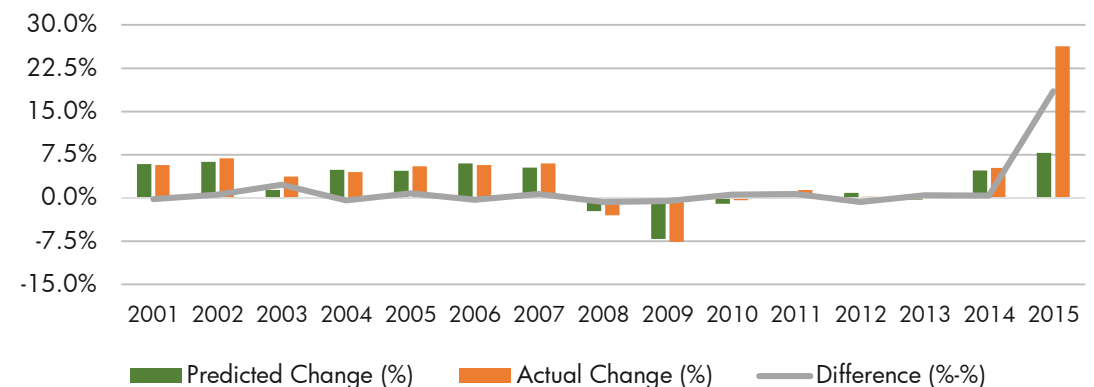
T = July 12, 2016: CSO
releases 2016 Q1 results and
final 2015 annual results



*Much of the news-making CSO data—e.g., the 26.3% 2015 GDP growth—are presented in real terms, with prices typically linked to those of the prior two years (though up until 2005, prices were linked to 1995); compare this with the analysis of Tease (1993), which relied on nominal GDP

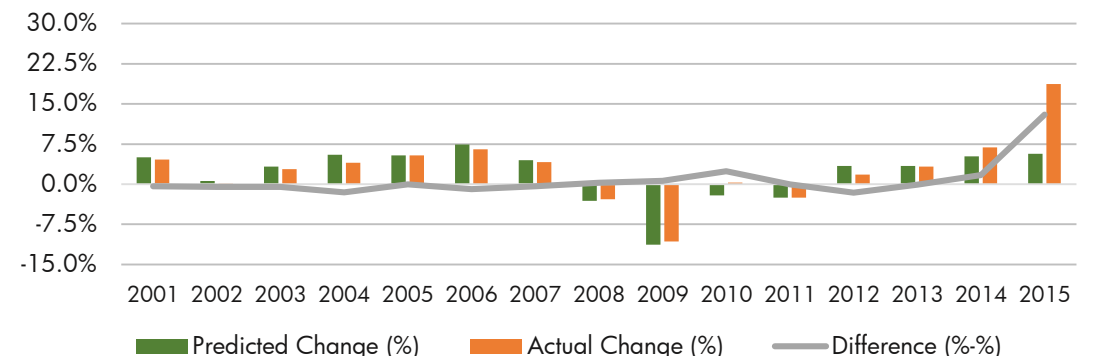
Real GDP Surprises (for years 2001-2015)

Data Source: Ireland CSO



Real GNP Surprises (for years 2001-2015)

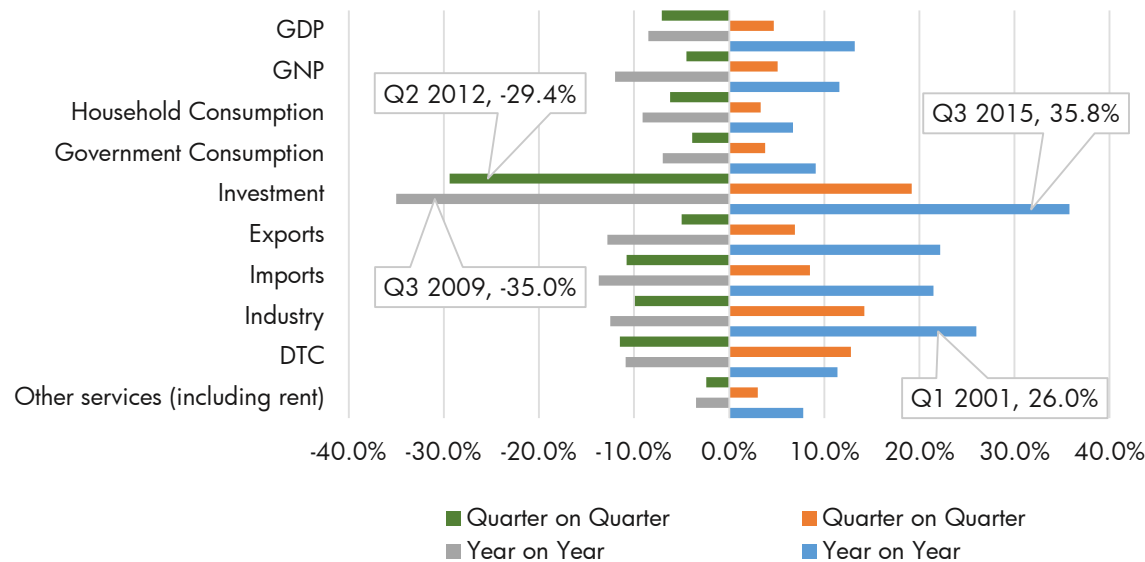
Data Source: Ireland CSO



Though quarterly GDP lack projections that create 'surprises,' their magnitude may affect stock trading

Largest Yearly (Q1 2001-Q4 2015) and Seasonally-Adjusted Quarterly (Q2 2003-Q4 2015) Changes*

Data Sources: Ireland CSO



- The absolute value of GDP change from the corresponding period of the prior year is noted as " $GDP_{PriorYear_t}$ "
- In Q2 2003, the CSO began seasonally-adjusting quarterly growth (this absolute value is " $GDP_{PriorQuarter_t}$ ")
- As noted previously, while the CSO does not create forward projections of quarterly fluctuations, equity volatility may still correlate with the size (i.e., absolute value) of GDP movement
- Further, following the disaggregation approach of Anderton, et al. (2014) used to measure Okun's Law, quarterly changes in GNP and certain key components** could also provide significant insights
- Finally, given Britain's influence, data concerning 10-year gilts (" $GiltDelta_t$ ") and the FTSE (" $FTSEDelta_t$ ") may be relevant

*This data was collected from Ireland CSO press releases and reflects the changes at those times. To reiterate: subsequent revisions may significantly and retroactively alter the same statistics in later releases.

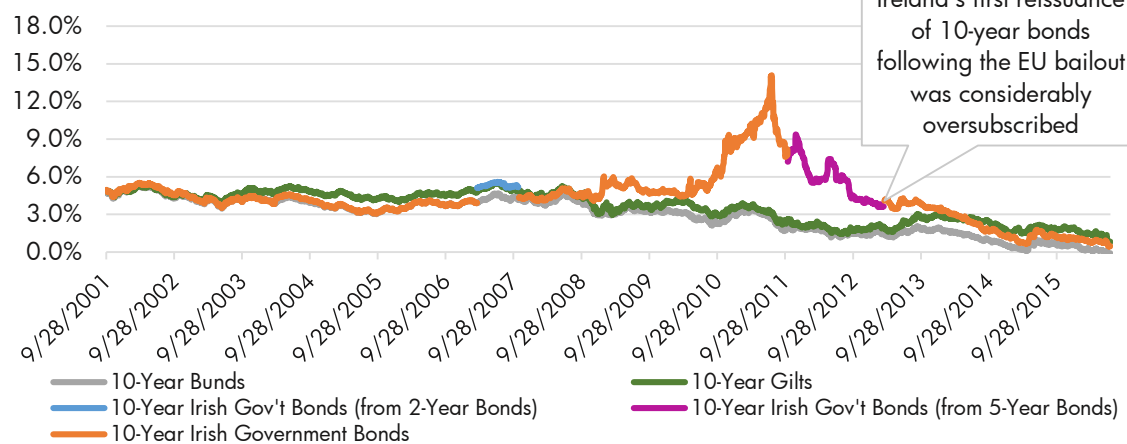
**On the annual Release Date for NIE 2011, the CSO noted that "[i]n compliance with EU regulations the Nace Rev. 2 classification system is used . . . [replacing the previously used] national classification system." Accordingly, "[t]he 'Software' industry was also included in 'Other Services' in the old National Classification but is now part of the new category 'Distribution transport, software and communications' in the NACE rev 2 classification. The overall effect on the tables has been that the 'Distribution, transport, software and Communications' sector accounts now for a much larger share of the total GVA of the economy than heretofore while the sectors classified as 'Industry' and 'Other Services' account for a lower share."

Market responses to GDP releases can be found in Irish gov't bond spreads and ISEQ return volatility

- “BondDelta_T” will be the difference of the daily change of spreads of Irish 10-year gov't bonds over 10-year Bunds (i.e., the risk free rate) and average changes of the prior three days (i.e., trends)
- This variable will then be regressed on GDP Surprise_T
- Because sales of 10-year Irish bonds were suspended on annual Release Dates in 2007 and 2012, Irish 2- and 5-year gov't bonds will approximate those missing BondDelta_T values
- “ISEQDelta_T” will be the difference of the absolute value of daily Irish Stock Exchange Overall Index volatility (i.e., high/low prices versus closing prices), the similar volatility of the MSCI World Index (representing macroeconomic shifts), and average changes of the prior three days (i.e., trends); this variable will be regressed, separately, on both GDP Prior Quarter_T and GDP Prior Year_T
- Critically, this assumes large (either positive *or* negative) quarterly changes positively correlate with increased equity return volatility

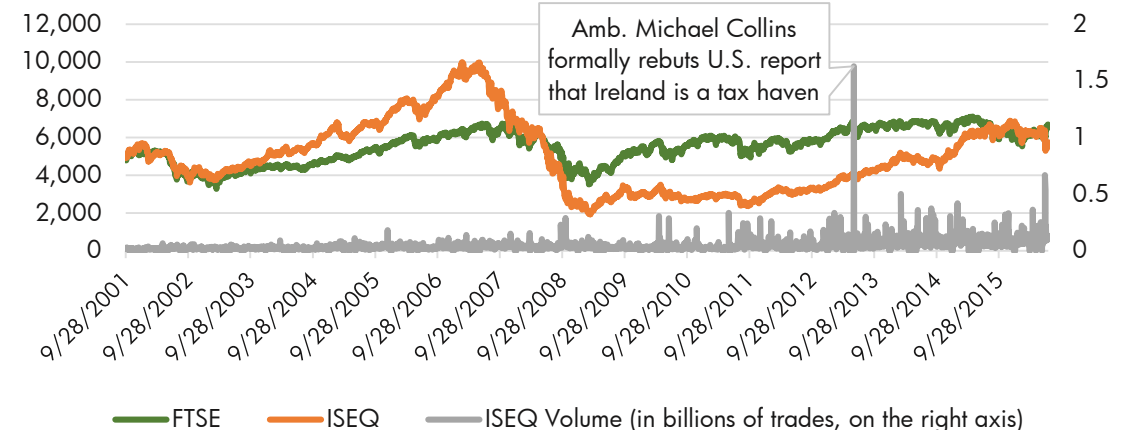
Irish, English, and German Gov't Bond Yields

Data Source: Bloomberg



Irish and English Stock Indices

Data Source: Bloomberg



"Finding Gold in 'Leprechaun Economics'"
Daniel Tierney, 2017 M.B.A. Candidate

Assumptions regarding determinants and reflections of market sentiment inform the following hypotheses

- | | |
|--|--|
| <div style="background-color: #90EE90; padding: 10px; border: 1px solid black; text-align: center;">Null Hypothesis H_0^1</div> <div style="background-color: #FFDAB9; height: 10px; margin: 5px 0;"></div> <div style="background-color: #90EE90; padding: 10px; border: 1px solid black; text-align: center;">Null Hypothesis H_0^2</div> <div style="background-color: #FFDAB9; height: 10px; margin: 5px 0;"></div> <div style="background-color: #90EE90; padding: 10px; border: 1px solid black; text-align: center;">Null Hypothesis H_0^3</div> <div style="background-color: #FFDAB9; height: 20px; margin-top: 10px; text-align: center;">↓</div> | <ul style="list-style-type: none"> Using least squares regression ($\alpha \sim p\text{-value} = .05$), on quarterly Release Dates from Sept. 2001 to July 2016, greater $GDPPriorYear_T$ did not lead to greater $ISEQDelta_T$ Using least squares regression ($\alpha \sim p\text{-value} = .05$), on quarterly Release Dates from Sept. 2001 to July 2016, greater $GDPPriorQuarter_T$ did not lead to greater $ISEQDelta_T$ Using least squares regression ($\alpha \sim p\text{-value} = .05$), on annual Release Dates from Sept. 2001 to July 2016, greater $GDPSurprise_T$ did not lead to greater $BondDelta_T$ |
|--|--|

In light of H_0^3 , the key issue here is whether the surprise concerning the extraordinary 2015 GDP growth changed 10-year Irish gov't bond yields; in other words, **did quantitative reactions mirror qualitative skepticism?**

Independent Variables	
GDPPriorYear _T (%) GDPPriorQuarter _T (%)	GDPSurprise _T (%)
Dependent Variables	
ISEQDelta _T (bps)	BondDelta _T (bps)
Other Explanatory Variables	
FTSEDelta _T (bps) PriorYear _T and PriorQuarter _T (%) of: <ul style="list-style-type: none"> • GNP • Household Consumption • Government Consumption • Investment • Exports • Imports • Industry • DTC • Other Services 	BondDelta _T (bps) Surprise _T (%) for: <ul style="list-style-type: none"> • GNP • Household Consumption • Government Consumption • Investment • Exports • Imports • Industry • DTC • Other Services

2015 GDP growth will be assessed via the paradigm that bond yields respond to 'surprises' and quarterly data move equities

Market Response: Results

Discounting outliers, ISEQ volatility is not correlated with changing GDP or Irish household consumption

- The p-values for the regressions on $GDP_{PriorYearT}$ (Figure 1) and $GDP_{PriorQuarterT}$ (Figure 2) indicate H_0^1 and H_0^2 cannot be rejected
- Though H_0^1 seemingly would be rejected at p-value = .1, removing one outlier, occurring in Q1 2001, causes this p-value to rise from .0504 to .8615
- Similarly, though $ISEQDeltaT$ regressed on $HouseholdConsumptionPriorQuarterT$ appears significant at $\alpha \sim$ p-value = .05 (Figure 3), when accounting for outliers in Q2 2008 and Q1 2009, the p-value of the regression increases to .1463 (Figure 4)
- This is unsurprising, given the lack of fit reflected by the regressions' low r-squared values of .1273 and .0434 (which include and exclude the outliers, respectively)
- These results bolster the conclusion that while market participants may have considered swings in domestic consumption marginally more important than changes in GDP, neither independent variable, on its own, was a prominent contributor to equity volatility

Figure 1

Summary of Fit				
RSquare	0.063353			
RSquare Adj	0.047478			
Root Mean Square Error	95.88875			
Mean of Response	12.11483			
Observations (or Sum Wgts)	61			
Analysis of Variance				
Parameter Estimates				
Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-19.82587	20.15888	-0.98	0.3294
GDPPriorYearT (%)	8.2071736	4.10838	2.00	0.0504

Figure 2

Summary of Fit				
RSquare	0.007119			
RSquare Adj	-0.01274			
Root Mean Square Error	78.59325			
Mean of Response	8.602212			
Observations (or Sum Wgts)	52			
Analysis of Variance				
Parameter Estimates				
Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	1.47409	16.14079	0.09	0.9276
GDPPriorQuarterT (%)	5.1913491	8.670596	0.60	0.5521

Figure 3

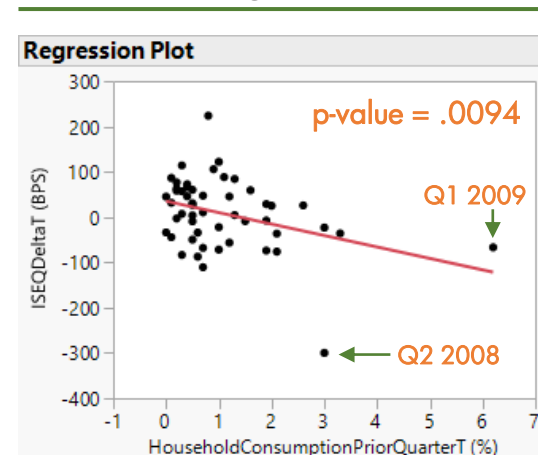
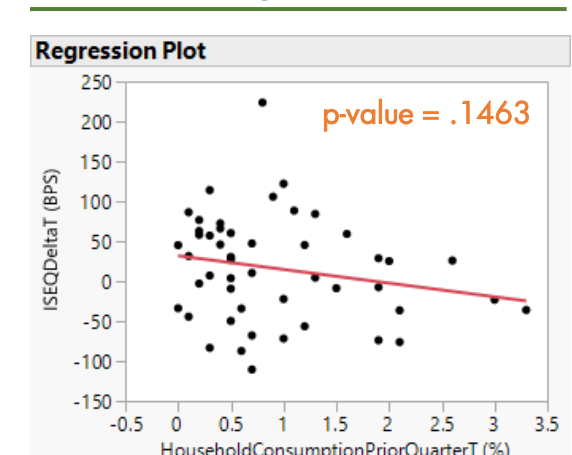


Figure 4



Bond yields did not respond to the 2015 'surprise,' nor did they react to GDP news in prior years

Figure 5

Summary of Fit				
RSquare	0.029144			
RSquare Adj	-0.04554			
Root Mean Square Error	4.127487			
Mean of Response	-0.94513			
Observations (or Sum Wgts)	15			
Analysis of Variance				
Parameter Estimates				
Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-0.730393	1.119779	-0.65	0.5256
GDP SurpriseT (%)	-0.144441	0.231219	-0.62	0.5430

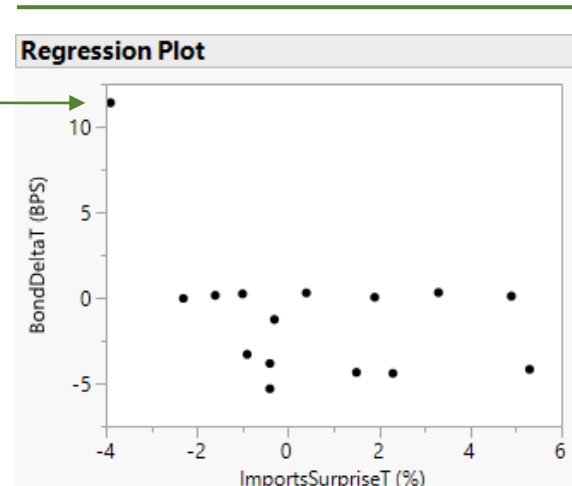
Figure 6

Summary of Fit				
RSquare	0.206225			
RSquare Adj	0.145165			
Root Mean Square Error	3.732132			
Mean of Response	-0.94513			
Observations (or Sum Wgts)	15			
Analysis of Variance				
Parameter Estimates				
Term	Estimate	Std Error	t Ratio	Prob>|t|
Intercept	-0.531019	0.989627	-0.54	0.6006
Imports SurpriseT (%)	-0.70587	0.384088	-1.84	0.0891

Figure 7



Figure 8



- There is little correlation between GDP Surprise_T and Bond Delta_T (-.17); furthermore, the p-value of the regression (Figure 5) shows H_0^3 cannot be rejected
- Though none of the simple linear regressions are significant at $\alpha \sim \text{p-value} = .05$, $\text{Imports Surprise}_T$ had the highest (negative) correlation (-.45) to Bond Delta_T , while the former regressed on the latter *would* be significant at $\alpha \sim \text{p-value} = .1$ (Figure 6)
- While this result may be noise, given the prominence and importance of Ireland's trade surplus, the direction of the $\text{Imports Surprise}_T$ coefficient supports the premise that "yields will rise on signs of stronger economic conditions or faster than-anticipated inflation" (Goldberg (2003))
- When data for the year 2010 were announced on annual Release Dates in 2011, Bond Delta_T was being driven up by Ireland's political and fiscal strife, and not by CSO statistics (Figure 7 and Figure 8)
- Just like data from prior years, the GDP Surprise_T associated with 2015 GDP growth did not affect bond yields (Figure 7)

Analysts should consider additional steps when evaluating the pending market reaction to GNI*

- Assessments made by Dr. Krugman and others in the summer of 2016 may have been beside the point: whether Ireland's 2015 GDP growth was an accurate portrayal of national fiscal health or merely "leprechaun economics," the foregoing suggests that investors simply did not care
- These preliminary findings support other work which concluded that markets are less sensitive to GDP news than they are to unemployment, inflation, or interest rate information (Ahmed (2012); Agudelo, et al. (2014); Chun (2010))
- More importantly, these results are not an indictment of the CSO's credibility; instead, they are evidence that international policies (e.g., Brexit, U.S. tax laws), not economic indicators which are dominated by foreign-owned MNEs, move Ireland's equity and debt benchmarks
- As of April 2017, the CSO was scheduled to release GNI* this upcoming summer; time will tell whether investors will respond similarly to that announcement

Potential Research Improvements

- **Alternative projections:** Quarterly or semiannual estimates from other public (e.g., Central Bank of Ireland) or private sources would create more data
- **Conflicting news controls:** The potential countervailing effects of good and bad surprises, or revised forecasts, should be isolated (e.g., when strong annual numbers are offset by weaker quarterly numbers provided on the same day)
- **CDS:** Future studies should consider movement in Irish credit default swaps, particularly given how low interest rates have fallen
- **Intraday data:** Spikes in volatility or prices may occur within the hours (or minutes) immediately after the information is made public at 11am GMT+1

Though neither debt nor equity investors reacted to GDP growth surprises in 2015 or prior years, more research is required

Sources

Sources

- *Ireland: 1840 to 2015*

- "Agriculture, value added (% of GDP)." Agriculture, value added (% of GDP) | Data. 2016. Accessed December 30, 2016. <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?end=2005&%3Blocations=IE&%3Bstart=1995>.
- "CSO Quicktables: Consumer Price Index Base December 2001 = 100." CSO Quicktables: Consumer Price Index Base December 2001 = 100. 2016. Accessed December 30, 2016. http://www.cso.ie/multiquicktables/quickTables.aspx?id=cpm02_cpa04_6.
- "Foreign direct investment, net inflows (% of GDP)." Foreign direct investment, net inflows (% of GDP) | Data. December 28, 2016. Accessed December 29, 2016. <http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS?contextual=region&%3Blocations=IE>.
- "High-technology exports (current US\$)." High-technology exports (current US\$) | Data. 2016. Accessed December 30, 2016. <http://data.worldbank.org/indicator/TX.VAL.TECH.CD?end=2005&%3Blocations=IE&%3Bstart=1995>.
- "Historical Debt." Historical Debt | National Treasury Management Agency (NTMA). 2017. Accessed January 14, 2017. <http://www.ntma.ie/business-areas/funding-and-debt-management/debt-profile/historical-debt/>.
- "House Loans Approved and Paid by House Type New or Second hand, Year and Statistic - StatBank - data and statistics." House Loans Approved and Paid by House Type New or Second hand, Year and Statistic - StatBank - data and statistics. May 10, 2016. Accessed January 14, 2017. <http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?Maintable=HSA08&Planguage=0>.
- "Irish household debt at lowest level since 2006." Irish household debt at lowest level since 2006. November 5, 2015. Accessed January 14, 2017. <http://www.rte.ie/news/business/2015/1105/739821-household-debt/>.
- "Irish Political system." Irish EU Presidency, Irish Politics and Government: Irish Political system. Accessed December 31, 2016. <http://eu2013.ie/ireland-and-the-presidency/about-ireland/irishpoliticsandgovernment/irishpoliticalsystem/>.
- "Measuring Ireland's Progress, 2005 - CSO - Central Statistics Office." Measuring Ireland's Progress, 2005 - CSO - Central Statistics Office. June 27, 2006. Accessed January 14, 2017. <http://www.cso.ie/en/newsandevents/pressreleases/2006pressreleases/measuringirelandsprogress2005/>.

Sources

- *Ireland: 1840 to 2015 (cont'd)*
 - "Monthly Unemployment November 2016 - CSO - Central Statistics Office." Monthly Unemployment November 2016 - CSO - Central Statistics Office. November 29, 2016. Accessed December 30, 2016. <http://www.cso.ie/en/releasesandpublications/er/mue/monthlyunemploymentnovember2016/>.
 - "Statistical Product - House Prices." Statbank Database - House Prices Listing Generated at 11:15 on 16DEC16. Accessed December 31, 2016. http://www.cso.ie/px/pxeirestat/Database/Eirestat/House%20Prices/House%20Prices_statbank.asp?SP=HousePrices&%3BPlanguage=0.
 - "Tax policy analysis." OECD Tax Database - OECD. April 2016. Accessed December 29, 2016. http://www.oecd.org/tax/tax-policy/tax-database.htm#C_CorporateCapital.
 - "What did Ireland net export between 1995 and 2005? @Atlas_facts." What did Ireland net export between 1995 and 2005? | The Atlas Of Economic Complexity. Accessed December 30, 2016. http://atlas.cid.harvard.edu/explore/stacked/net_export/irl/all/show/1995.2005.2/?prod_class=sitc4&%3Bdetails_treemap=2&%3Bdisable_widgets=false&%3Bdisable_search=false&%3Bnode_size=none&%3BqueryActivated=true&%3Bhighlight=&%3Byaxis=notpc_constant.
 - Ahearne, Alan. "Dr Alan Ahearne: Debt still a huge challenge despite our foreign assets." Independent.ie. December 3, 2012. Accessed January 14, 2017. <http://www.independent.ie/opinion/analysis/dr-alan-ahearne-debt-still-a-huge-challenge-despite-our-foreign-assets-26830196.html>.
 - Barry, Aoife. "The Great Recession had a HUGE impact on Ireland's young people." TheJournal.ie. February 5, 2015. Accessed January 14, 2017. <http://www.thejournal.ie/esri-report-great-recession-1919516-Feb2015/>.
 - Burke-Kennedy, Eoin. "US investment in Ireland totals \$310bn, report finds." The Irish Times. March 3, 2016. Accessed February 10, 2017. <https://www.irishtimes.com/business/economy/us-investment-in-ireland-totals-310bn-report-finds-1.2558447>.
 - ElectionsIreland.org: Home Page. Accessed December 31, 2016. <http://electionsireland.org/>.

Sources

- *Ireland: 1840 to 2015 (cont'd)*
 - Guy, Terri. "Gathering Turf, Ireland, 1963." Pinterest. 2014. Accessed December 30, 2016. <https://www.pinterest.com/pin/21110691978259620/>.
 - Hannon, Paul. "Ireland Reflects on Government Debt Targets." The Wall Street Journal. September 5, 2016. Accessed December 30, 2016. <http://www.wsj.com/articles/ireland-reflects-on-government-debt-targets-1473078480>.
 - Khan, Mehreen. "Ireland's blistering property market threatens new bubble." The Telegraph. September 15, 2015. Accessed January 14, 2017. <http://www.telegraph.co.uk/finance/economics/11865721/Irelands-blistering-property-market-threatens-new-bubble.html>.
 - Lewis, Michael. "When Irish Eyes Are Crying." The Hive. March 2011. Accessed January 14, 2017. <http://www.vanityfair.com/news/2011/03/michael-lewis-ireland-201103>.
 - Newenham, Pamela. "Irish household debt decreases by €1.1bn in first quarter." The Irish Times. August 18, 2016. Accessed January 14, 2017. <http://www.irishtimes.com/business/economy/irish-household-debt-decreases-by-1-1bn-in-first-quarter-1.2760511>.
 - Pollak, Sorcha. "New housing bubble may crash economy, warns Boyd Barrett." The Irish Times. January 3, 2016. Accessed January 14, 2017. <http://www.irishtimes.com/news/politics/new-housing-bubble-may-crash-economy-warns-boyd-barrett-1.2483423>.

Sources

- *The Mechanics of National Accounting*
 - "How are GDP and GNP measured - CSO - Central Statistics Office." How are GDP and GNP measured - CSO - Central Statistics Office. 2014. Accessed January 11, 2017. <http://www.cso.ie/en/interactivezone/statisticsexplained/nationalaccounts/howaregdpandgnpmeasured/>.
 - "How countries calculate their GDP." The Economist. March 26, 2014. Accessed January 12, 2017. <http://www.economist.com/blogs/economist-explains/2014/03/economist-explains-26>.
 - "National Accounts Output and Value Added by Activity 2011 - CSO - Central Statistics Office." National Accounts Output and Value Added by Activity 2011 - CSO - Central Statistics Office. September 20, 2014. Accessed January 11, 2017. <http://www.cso.ie/en/releasesandpublications/er/nava/nationalaccountsoutputandvalueaddedbyactivity2011/>.
 - "The trouble with GDP." The Economist. April 30, 2016. Accessed January 12, 2017. <http://www.economist.com/news/briefing/21697845-gross-domestic-product-gdp-increasingly-poor-measure-prosperity-it-not-even>.
 - "National Income and Expenditure Methodology 2015 – CSO – Central Statistics Office." National Income and Expenditure 2015. 2016. Accessed January 11, 2017. <http://www.cso.ie/en/media/csoie/surveysandmethodologies/documents/pdfdocs/NIE2015methodology.pdf>.
 - European system of accounts: ESA 2010. Luxembourg: Publications Office, 2013.
 - Manual on the changes between ESA 95 and ESA 2010. Luxembourg: Publications Office, 2014.
 - Picardo, CFA Elvis. "The GDP and its Importance." Investopedia. August 02, 2016. Accessed January 12, 2017. <http://www.investopedia.com/articles/investing/121213/gdp-and-its-importance.asp?lgl=bt1tn-above-textnote>.

Sources

- *2015 Gross Domestic Product*
 - "2016 Press Releases - CSO - Central Statistics Office." 2016 Press Releases - CSO - Central Statistics Office. Accessed January 13, 2017. <http://www.cso.ie/en/newsandevents/pressreleases/2016pressreleases/>.
 - "Earnings and Labour Costs Annual Data 2015 - CSO - Central Statistics Office." Earnings and Labour Costs Annual Data 2015 - CSO - Central Statistics Office. June 28, 2016. Accessed January 12, 2017. <http://www.cso.ie/en/releasesandpublications/er/elca/earningsandlabourcostsannualdata2015/>.
 - "Estimates of the Capital Stock of Fixed Assets 2015 - CSO - Central Statistics Office." Estimates of the Capital Stock of Fixed Assets 2015 - CSO - Central Statistics Office. October 21, 2016. Accessed January 13, 2017. <http://www.cso.ie/en/releasesandpublications/er/csfa/estimatesofthecapitalstockoffixedassets2015/>.
 - "Final consumption expenditure (constant 2010 US\$)." Final consumption expenditure (constant 2010 US\$)| Data. 2016. Accessed January 12, 2017. <http://data.worldbank.org/indicator/NE.CON.TOTL.KD?end=2015&locations=IE&start=2005>.
 - "Government Finance Statistics April 2015 - CSO - Central Statistics Office." Government Finance Statistics April 2015 - CSO - Central Statistics Office. April 20, 2015. Accessed January 2, 2017. <http://www.cso.ie/en/releasesandpublications/er/gfsa/governmentfinancestatisticsapril2015/>.
 - "Government Finance Statistics April 2016 - CSO - Central Statistics Office." Government Finance Statistics April 2016 - CSO - Central Statistics Office. April 20, 2016. Accessed January 12, 2017. <http://www.cso.ie/en/releasesandpublications/er/gfsa/governmentfinancestatisticsapril2016/>.
 - "Government Income and Expenditure July 2016 - CSO - Central Statistics Office." Government Income and Expenditure July 2016 - CSO - Central Statistics Office. July 13, 2016. Accessed January 02, 2017. <http://www.cso.ie/en/releasesandpublications/er/giea/governmentincomeandexpenditurejuly2016/>.

Sources

- *2015 Gross Domestic Product (cont'd)*
 - "Gross Value Added for Foreign - owned Multinational Enterprises and Other Sectors Annual Results for 2015 - CSO - Central Statistics Office." Gross Value Added for Foreign - owned Multinational Enterprises and Other Sectors Annual Results for 2015 - CSO - Central Statistics Office. October 6, 2016. Accessed January 11, 2017. <http://www.cso.ie/en/releasesandpublications/er/gvafm/grossvalueaddedforforeign-ownedmultinationalenterprisesandothersectorsannualresultsfor2015/>.
 - "National Income and Expenditure Annual Results 2015 - CSO - Central Statistics Office." National Income and Expenditure Annual Results 2015 - CSO - Central Statistics Office. July 12, 2016. Accessed January 11, 2017. <http://www.cso.ie/en/releasesandpublications/er/nie/nationalincomeandexpenditureannualresults2015/>.
 - "National Income and Expenditure Methodology 2015 – CSO – Central Statistics Office. " National Income and Expenditure 2015. 2016. Accessed January 11, 2017. <http://www.cso.ie/en/media/csoie/surveysandmethodologies/documents/pdfdocs/NIE2015methodology.pdf>.
 - "Not the full shilling." The Economist. July 16, 2016. Accessed December 30, 2016. <http://www.economist.com/news/europe/21702232-why-gdp-growth-26-year-mad-not-full-shilling>.
 - "Report of the Economic Statistics Review Group - CSO - Central Statistics Office." Report of the Economic Statistics Review Group - CSO - Central Statistics Office. December 2016. Accessed February 13, 2017. <http://www.cso.ie/en/newsandevents/eventsconferencesseminars/resrg/>.
 - "Revised figures show Irish GDP growing sharply in 2015, activity contracts in Q1 2016." Revised figures show Irish GDP growing sharply in 2015, activity contracts in Q1 2016. July 7, 2016. Accessed January 14, 2017. <https://www.ihs.com/country-industry-forecasting.html?ID=10659116534>.
 - "Tax revenue statistics." Tax revenue statistics - Statistics Explained. November 24, 2016. Accessed January 13, 2017. http://ec.europa.eu/eurostat/statistics-explained/index.php/Tax_revenue_statistics.

Sources

- *2015 Gross Domestic Product (cont'd)*

- Burke-Kennedy, Eoin. "New GDP data sees 'leprechaun economics' morph into 'step shift'." The Irish Times. September 14, 2016. Accessed January 12, 2017. <http://www.irishtimes.com/business/economy/new-gdp-data-sees-leprechaun-economics-morph-into-step-shift-1.2791123>.
- Coffey, Seamus. "How did the capital stock increase by €300 billion when investment was just over €50 billion?" How did the capital stock increase by €300 billion when investment was just over €50 billion? July 25, 2016. Accessed January 14, 2017. <http://economic-incentives.blogspot.com/2016/07/how-did-capital-stock-increase-by-300.html>.
- Doyle, Dara. "Ireland's Economists Left Speechless by 26% Growth Figure." Bloomberg.com. July 12, 2016. Accessed December 30, 2016. <https://www.bloomberg.com/news/articles/2016-07-12/ireland-s-economy-grows-26-as-u-s-companies-chase-lower-taxes>.
- European system of accounts: ESA 2010. Luxembourg: Publications Office, 2013.
- FitzGerald, John. "John FitzGerald: Greater accuracy on national accounts vital for budgeting." The Irish Times. August 5, 2016. Accessed January 13, 2017. <http://www.irishtimes.com/business/economy/john-fitzgerald-greater-accuracy-on-national-accounts-vital-for-budgeting-1.2744962>.
- FitzGerald, John. "John FitzGerald: Revised CSO figures are a dose of reality on deficit." The Irish Times. August 25, 2015. Accessed January 13, 2017. <http://www.irishtimes.com/business/economy/john-fitzgerald-revised-cso-figures-are-a-dose-of-reality-on-deficit-1.2327121>.
- Foxe, Ken. "Statistics agency to suppress key data on multinationals." Ireland | The Times & The Sunday Times. September 11, 2016. Accessed February 19, 2017. <http://www.thetimes.co.uk/article/statistics-agency-to-suppress-key-data-on-multinationals-tf9hsld7z>.
- Hancock, Ciarán. "Do not be fooled by bizarre fiction of CSO growth figures." The Irish Times. July 12, 2016. Accessed January 13, 2017. <http://www.irishtimes.com/business/economy/do-not-be-fooled-by-bizarre-fiction-of-cso-growth-figures-1.2719555>.

Sources

- *2015 Gross Domestic Product (cont'd)*
 - Hannon, Paul. "Ireland Pins Growth Plan on U.S. Companies." The Wall Street Journal. July 17, 2016. Accessed January 12, 2017. <http://www.wsj.com/articles/ireland-pins-growth-plan-on-u-s-companies-1468789437>.
 - Kelpie, Colm. "Multinationals could skew GDP figures again, CSO chief warns." Independent.ie. October 13, 2016. Accessed February 17, 2017. <http://www.independent.ie/business/irish/multinationals-could-skew-gdp-figures-again-cso-chief-warns-35128891.html>.
 - Krugman, Paul. "Leprechaun economics: Ireland reports 26 percent growth! But it doesn't make sense. Why are these in GDP? pic.twitter.com/h6M0LhQkSd." Twitter. July 12, 2016. Accessed December 30, 2016. <https://twitter.com/paulkrugman/status/752841032870551552?lang=en>.
 - McCabe, Sarah. "CSO won't change how it makes up economic growth." Independent.ie. July 16, 2016. Accessed January 12, 2017. <http://www.independent.ie/business/irish/cso-wont-change-how-it-makes-up-economic-growth-34888919.html>.
 - McCarthy, Colm. "CSO made look silly for sticking to the rules." Independent.ie. July 16, 2016. Accessed January 12, 2017. <http://www.independent.ie/opinion/columnists/colm-mccarthy/cso-made-look-silly-for-sticking-to-the-rules-34889720.html>.
 - Moriarty, Gerry. "CSO seeking means to provide more accurate economic data." The Irish Times. July 19, 2016. Accessed January 13, 2017. <http://www.irishtimes.com/news/ireland/irish-news/cso-seeking-means-to-provide-more-accurate-economic-data-1.2727250>.
 - Murphy, David. "The real story behind Ireland's 'Leprechaun' economics fiasco." ANALYSIS > BUSINESS, EUROPE, NEWS. July 25, 2016. Accessed January 12, 2017. <https://analysis.rte.ie/european/2016/07/23/blog-the-real-story-behind-irelands-leprechaun-economics-fiasco/>.
 - Newenham, Pamela. "EU contribution hike for Ireland unlikely, says Brian Hayes." The Irish Times. September 23, 2016. Accessed January 12, 2017. <http://www.irishtimes.com/business/economy/eu-contribution-hike-for-ireland-unlikely-says-brian-hayes-1.2803011>.

Sources

- *2015 Gross Domestic Product (cont'd)*
 - Spain, John. "The serious side to Paul Krugman's leprechaun economics." IrishCentral.com. July 21, 2016. Accessed January 13, 2017. <http://www.irishcentral.com/news/irishvoice/the-serious-side-to-paul-krugmans-leprechaun-economics>.
 - Taylor, Cliff. "Ireland's GDP figures: Why 26% economic growth is a problem." The Irish Times. July 15, 2016. Accessed January 12, 2017. <http://www.irishtimes.com/business/economy/ireland-s-gdp-figures-why-26-economic-growth-is-a-problem-1.2722170>.

Sources

- *Factors Analysis*

- "Actavis agrees to acquire Allergan in \$66bn mega deal." *Financier Worldwide*. January 2015. Accessed February 17, 2017. <https://www.financierworldwide.com/actavis-agrees-to-acquire-allergan-in-66bn-mega-deal/#.WKcZXzsrLIU>.
- "Actavis Completes Allergan Acquisition." *Allergan*. March 17, 2015. Accessed February 17, 2017. <https://www.allergan.com/NEWS/News/Thomson-Reuters/Actavis-Completes-Allergan-Acquisition>.
- "Apple fights back with appeal against EU Irish tax ruling." *BBC News*. December 19, 2016. Accessed February 16, 2017. <http://www.bbc.com/news/business-38362434>.
- "Balance of International Payments Q3 2016 - CSO - Central Statistics Office." *Balance of International Payments Q3 2016 - CSO - Central Statistics Office*. July 12, 2016. Accessed February 19, 2017. <http://www.cso.ie/en/releasesandpublications/er/bop/balanceofinternationalpaymentsq32016/>.
- "Biggest changes to tax rules in almost 100 years." *RTE.ie*. October 5, 2015. Accessed February 9, 2017. <http://www.rte.ie/news/business/2015/1005/732439-beps-project/>.
- "Brexit poses a threat to Ireland's aircraft-leasing business." *The Economist*. January 28, 2017. Accessed February 19, 2017. <http://www.economist.com/news/finance-and-economics/21715655-potential-benefits-brexit-dublin-come-dangers-brexit-poses-threat>.
- "Cantillon: Is Apple at core of Ireland's tax windfall?" *The Irish Times*. November 4, 2015. Accessed February 16, 2017. <http://www.irishtimes.com/business/economy/cantillon-is-apple-at-core-of-ireland-s-tax-windfall-1.2417516>.
- "Contract Manufacturing – CSO – Central Statistics Office." *Contract Manufacturing Information Notice*. March 2015. February 17, 2017. <http://www.cso.ie/en/media/csoie/newmethods/balanceofinternationalpayments/ContractManufacturingInformationNotice.pdf>.
- "Corporate Tax Rates Table." *KPMG*. Accessed February 8, 2017. <https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html>.

Sources

- *Factors Analysis (cont'd)*
 - "Foreign direct investment (FDI) - FDI stocks - OECD Data." FDI. Accessed February 18, 2017. <https://data.oecd.org/fdi/fdi-stocks.htm#indicator-chart>.
 - "Foreign Direct Investment Annual 2015 - CSO - Central Statistics Office." Foreign Direct Investment Annual 2015 - CSO - Central Statistics Office. November 11, 2016. Accessed February 18, 2017. <http://www.cso.ie/en/releasesandpublications/er/fdi/foreigndirectinvestmentannual2015/>.
 - "Glossary: Foreign direct investment (FDI)." Glossary: Foreign direct investment (FDI) - Statistics Explained. Accessed February 18, 2017. [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Foreign_direct_investment_\(FDI\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Foreign_direct_investment_(FDI)).
 - "Index of NACE Rev 2 Code Pages." Index of NACE Rev 2 Code Pages. Accessed February 11, 2017. <http://www.cso.ie/px/u/nacecoder/index.asp>.
 - "International Trade in Services 2015 - CSO - Central Statistics Office." International Trade in Services 2015 - CSO - Central Statistics Office. November 24, 2016. Accessed February 17, 2017. <http://www.cso.ie/en/releasesandpublications/er/its/internationaltradeinservices2015/>.
 - "Irish GDP up by 26.3% in 2015?" OECD. Paris, October 2016. Accessed February 8, 2017. <https://www.oecd.org/std/na/Irish-GDP-up-in-2015-OECD.pdf>.
 - "National Accounts and Balance of Payments FAQ - CSO - Central Statistics Office." Information Notice - CSO - Central Statistics Office. December 9, 2016. Accessed February 8, 2017. <http://www.cso.ie/en/media/csoie/methods/documents/pdfdocs/nationalaccounts/BOPNationalAccountsQ&ADec2016.pdf>.
 - "National accounts and GDP." National accounts and GDP - Statistics Explained. September 2016. Accessed February 3, 2017. http://ec.europa.eu/eurostat/statistics-explained/index.php/National_accounts_and_GDP.

Sources

- *Factors Analysis (cont'd)*
 - "Quarterly National Accounts Quarter 1 2016 - CSO - Central Statistics Office." Quarterly National Accounts Quarter 1 2016 - CSO - Central Statistics Office. July 12, 2016. Accessed February 17, 2017. <http://cso.ie/en/releasesandpublications/er/na/quarterlynationalaccountsquarter12016/>.
 - "Summary Table - CSO - Central Statistics Office." Summary Table - CSO - Central Statistics Office. Accessed February 3, 2017. <http://www.cso.ie/en/releasesandpublications/ep/p-isantf/isanff2015/st/>.
 - "U.S. foreign direct investment jumps 68 percent in 2015, inversions a factor." Reuters. July 13, 2016. Accessed February 17, 2017. <http://www.reuters.com/article/us-usa-economy-investment-idUSKCN0ZT26Q>.
 - "What is the difference between Foreign Direct Investment (FDI) net inflows and net outflows?" What is the difference between Foreign Direct Investment (FDI) net inflows and net outflows? – World Bank Data Help Desk. Accessed February 18, 2017. <https://datahelpdesk.worldbank.org/knowledgebase/articles/114954-what-is-the-difference-between-foreign-direct-inve>.
 - "Your key to European statistics." Database - Eurostat. Accessed February 3, 2017. http://ec.europa.eu/eurostat/data/database?node_code=tec00015.
 - Bartash, Jeffry. "Foreigners made record U.S. investments in 2015, but not for all best reasons." MarketWatch. July 17, 2016. Accessed February 17, 2017. <http://www.marketwatch.com/story/corporate-inversions-help-make-2015-record-year-for-foreign-investment-in-us-2016-07-13>.
 - Beesley, Arthur. "CSO revises 15 years of economic data to reflect aircraft leasing." The Irish Times. July 14, 2015. Accessed February 19, 2017. <http://www.irishtimes.com/business/economy/cso-revises-15-years-of-economic-data-to-reflect-aircraft-leasing-1.2285228>.
 - Bershidsky, Leonid. "How Apple Calculates and Pays Its Taxes." Bloomberg.com. September 1, 2016. Accessed February 15, 2017. <https://www.bloomberg.com/view/articles/2016-09-01/how-apple-calculates-and-pays-its-taxes>.

Sources

- *Factors Analysis (cont'd)*

- Bobkoff, Dan. "What just happened to Apple, explained." Business Insider. August 30, 2016. Accessed February 16, 2017. <http://www.businessinsider.com/what-just-happened-to-apple-explained-2016-8>.
- Brennan, Joe. "Apple timeline: countdown to €13bn tax bill – payable to Ireland." The Irish Times. August 30, 2016. Accessed February 15, 2017. <http://www.irishtimes.com/business/technology/apple-timeline-countdown-to-13bn-tax-bill-payable-to-ireland-1.2772973>.
- Casey, Eddie and Hannon, Andrew. Challenges Forecasting Irish Corporation Tax. Analytical Note No: 10, Irish Fiscal Advisory Council. September 2016. Accessed February 16, 2017. *Available at* <http://www.fiscalcouncil.ie/wp-content/uploads/2015/03/AN-10-Challenges-Forecasting-Irish-Corporation-Tax-Final-Web.pdf>.
- Coffey, Seamus. "26% GDP Growth: Where did it come from and who got it?" 26% GDP Growth: Where did it come from and who got it? July 13, 2016. Accessed February 19, 2017. <http://economic-incentives.blogspot.com/2016/07/26-gdp-growth-where-did-it-come-from.html>.
- Coffey, Seamus. "Contract Manufacturing in the QNAs." Contract Manufacturing in the QNAs. September 10, 2015. Accessed February 17, 2017. <http://economic-incentives.blogspot.com/2015/09/contract-manufacturing-in-qnas.html>.
- Coffey, Seamus. "Economy expands by 26.3%." The Irish Economy. July 12, 2016. Accessed February 9, 2017. <http://www.irisheconomy.ie/index.php/2016/07/12/economy-expands-by-26-3/>.
- Coffey, Seamus. "That 26% growth rate: two weeks on." The Irish Economy. July 27, 2016. Accessed February 17, 2017. <http://www.irisheconomy.ie/index.php/2016/07/27/that-26-growth-rate-two-weeks-on/>.
- Cortez, Michelle Fay, and David Welch. "Medtronic to Buy Device Maker Covidien for \$42.9 Billion." Bloomberg.com. June 16, 2014. Accessed February 10, 2017. <https://www.bloomberg.com/news/articles/2014-06-16/medtronic-to-buy-device-maker-covidien-for-42-9-billion>.

Sources

- *Factors Analysis (cont'd)*

- Douglas-Gabriel, Danielle. "These are the companies abandoning the U.S. to dodge taxes." The Washington Post. August 6, 2014. Accessed February 17, 2017. https://www.washingtonpost.com/news/wonk/wp/2014/08/06/these-are-the-companies-abandoning-the-u-s-to-dodge-taxes/?utm_term=.eab48b1efcfe.
- FitzGerald, John. "The Effect of Re-domiciled Plcs on Irish Output Measures and the Balance of Payments." The Economic and Social Research Institute. May 16, 2013. Accessed February 19, 2017. <https://www.esri.ie/publications/the-effect-of-re-domiciled-plcs-on-irish-output-measures-and-the-balance-of-payments/>.
- FitzGerald, John. Problems with the Irish National Accounts and Possible Solutions. Accessed February 11, 2017. Available at http://www.cso.ie/en/media/csoie/newsevents/documents/reportoftheeconomicstatisticsreviewgroup/National_Accounts_-_problems_and_possible_solutions.pdf.
- Garside, Juliette. "Ireland may have to revise GDP figures for last decade, warns expert." The Guardian. September 1, 2016. Accessed February 16, 2017. <https://www.theguardian.com/business/2016/sep/01/eu-apple-ruling-ireland-revise-gdp-figures-decade-expert>.
- Hannon, Paul. "Ireland Pins Growth Plan on U.S. Companies." The Wall Street Journal. July 17, 2016. Accessed January 12, 2017. <http://www.wsj.com/articles/ireland-pins-growth-plan-on-u-s-companies-1468789437>.
- Hoffman, Liz. "The Tax Inversion Wave Keeps Rolling." The Wall Street Journal. July 07, 2015. Accessed February 10, 2017. <https://www.wsj.com/articles/horizon-pharma-at-the-nexus-of-taxes-and-deals-1436296946>.
- Honohan, Patrick. Toward a Trimmed-GDP Concept. November 11, 2016. Accessed February 17, 2017. Available at http://www.cso.ie/en/media/csoie/newsevents/documents/reportoftheeconomicstatisticsreviewgroup/A_trimmed_GDP_for_Ireland.pdf.
- Houlder, Vanessa, Vincent Boland, and James Politi. "Tax avoidance: The Irish inversion." Financial Times. April 29, 2014. Accessed February 17, 2017. <https://www.ft.com/content/d9b4fd34-ca3f-11e3-8a31-00144feabdc0>.

Sources

- *Factors Analysis (cont'd)*

- Humer, Caroline, and Ransdell Pierson. "Obama's inversion curbs kill Pfizer's \$160 billion Allergan deal." Reuters. April 6, 2016. Accessed February 17, 2017. <http://www.reuters.com/article/us-allergan-m-a-pfizer-idUSKCN0X21NV>.
- Ireland Central Statistics Office. GDP Increases Significantly In 2015. 2016. Accessed February 11, 2017. Available at http://www.cso.ie/en/media/csoie/newsevents/documents/pr_GDPexplanatorynote.pdf.
- Jolly, David. "Ireland, Home to U.S. 'Inversions,' Sees Huge Growth in G.D.P." The New York Times. July 12, 2016. Accessed February 17, 2017. https://www.nytimes.com/2016/07/13/business/dealbook/ireland-us-tax-inversion.html?_r=0.
- Keena, Colm. "Apple's US returns indicate substantial rise in Irish tax paid." The Irish Times. November 4, 2015. Accessed February 16, 2017. <http://www.irishtimes.com/business/economy/apple-s-us-returns-indicate-substantial-rise-in-irish-tax-paid-1.2417355>.
- Kennedy, Eoin Burke. "Handful of multinationals behind 26.3% growth in GDP." The Irish Times. July 12, 2016. Accessed February 17, 2017. <http://www.irishtimes.com/business/economy/handful-of-multinationals-behind-26-3-growth-in-gdp-1.2719047>.
- Kennedy, John. "European Commission full ruling: Claims Ireland gave Apple illegal State aid." Silicon Republic. December 19, 2016. Accessed February 15, 2017. <https://www.siliconrepublic.com/companies/european-commission-full-ruling-apple-ireland>.
- Kinsella, Stephen. "Forget Apple – with investment funds, you ain't seen nothing yet." Stephen Kinsella Blog. September 12, 2016. Accessed February 17, 2017. <http://www.stephenkinsella.net/2016/09/12/forget-apple-with-investment-funds-you-aint-seen-nothing-yet/>.
- Lane, Philip R. Notes on the Treatment of Global Firms in National Accounts. December 2016. Accessed February 17, 2017. Available at http://www.cso.ie/en/media/csoie/newsevents/documents/reportoftheeconomicstatisticsreviewgroup/Global_Firms_in_National_Accounts.pdf.
- Manual on the changes between ESA 95 and ESA 2010. Luxembourg: Publications Office, 2014.

Sources

- *Factors Analysis (cont'd)*
 - Mider, Zachary. "Corporate Expatriates: See the Data." Bloomberg.com. Accessed February 10, 2017. <https://www.bloomberg.com/graphics/infographics/tax-runaways-tracking-inversions.html>.
 - O'Donovan, Donal. "'Leprechaun Economics' not all down to Apple move, insists CSO." Independent.ie. September 8, 2016. Accessed February 15, 2017. <http://www.independent.ie/business/irish/leprechaun-economics-not-all-down-to-apple-move-insists-cso-35034545.html>.
 - Organisation for Economic Cooperation and Development. Ireland - Information on residency for tax purposes. OECD. Available at <https://www.oecd.org/tax/automatic-exchange/crs-implementation-and-assistance/tax-residency/Ireland-Tax-Residency.pdf>.
 - Osborne-Kinch, Jenny, Dermot Coates, and Luke Nolan. "The Aircraft Leasing Industry in Ireland - Cross Border ..." Quarterly Bulletin 01 / January 17. January 2017. Accessed February 19, 2017. <https://www.centralbank.ie/publications/Documents/The%20Aircraft%20Leasing%20Industry%20in%20Ireland%20-%20Cross%20Border%20Flows%20and%20Statistical%20Treatment.pdf>.
 - Pyke, Alan. "Ireland To End 'Stateless' Tax Avoidance Gimmick, Leave Others Untouched." ThinkProgress. October 16, 2013. Accessed February 16, 2017. <https://thinkprogress.org/ireland-to-end-stateless-tax-avoidance-gimmick-leave-others-untouched-d3e502a3d9b9#.dhrpiy7ap>.
 - Quinn, Eamon, Juno McEnroe, and Fiachra Ó Cionnaith. "Apple tax affairs changes triggered surge in Irish economy." Irish Examiner. September 7, 2016. Accessed February 15, 2017. <http://www.irishexaminer.com/ireland/apple-tax-affairs-changes-triggered-surge-in-irish-economy-419912.html>.
 - Rapoza, Kenneth. "How Much Of The iPhone Is 'Made In China'?" Forbes. August 12, 2012. Accessed February 17, 2017. <http://www.forbes.com/sites/kenrapoza/2012/01/31/how-much-of-the-iphone-is-made-in-china/#30bbb3d717aa>.
 - Reuters. "Ireland Joins Forces With Apple to Combat the EU Tax Ruling." Apple and Ireland Join Forces to Combat EU Tax Ruling | Fortune.com. September 2, 2016. Accessed February 16, 2017. <http://fortune.com/2016/09/02/apple-ireland/>.

Sources

- *Factors Analysis (cont'd)*

- Schechner, Sam. "Ireland to Close 'Double Irish' Tax Loophole." The Wall Street Journal. October 14, 2014. Accessed February 16, 2017. <https://www.wsj.com/articles/ireland-to-close-double-irish-tax-loophole-1413295755>.
- Spence, Peter. "Ireland's economy grows by 26pc in one year after US tax inversion spree." The Telegraph. July 12, 2016. Accessed February 17, 2017. <http://www.telegraph.co.uk/business/2016/07/12/irelands-economy-grows-by-26pc-in-one-year-after-us-tax-inversio/>.
- Staff, WSJ. "Apple's Tax in Ireland – At A Glance." The Wall Street Journal. August 30, 2016. Accessed February 16, 2017. <http://blogs.wsj.com/briefly/2016/08/30/apples-irish-tax-bill-at-a-glance/>.
- Stapel-Weber, Silke, and John Verrinder. "EURONA: Globalisation at work in statistics - Questions arising from the 'Irish case', by Silke Stapel-Weber and John Verrinder - CROS - European Commission." Collaboration in Research and Methodology for Official Statistics. January 9, 2017. Accessed February 17, 2017. https://ec.europa.eu/eurostat/cros/content/globalisation-work-statistics-%E2%80%94-questions-arising-%E2%80%99-irish-case%E2%80%99-silke-stapel-weber-and-john_en.
- Tancred, Paul. An Analysis of Corporation Tax Receipts in 2014-2015. Ireland Department of Revenue, Statistics & Economic Research Branch. April 2016. Accessed February 15, 2017. Available at www.revenue.ie/en/about/publications/corporation-tax-receipts-2014-2015.pdf.
- The European Commission. Commission Decision of 30.8.2016 ON STATE AID SA.38373 (2014/C) (ex 2014/NN) (ex 2014/CP) implemented by Ireland to Apple. The European Commission, August 31, 2016. Available at http://ec.europa.eu/competition/state_aid/cases/253200/253200_1851004_666_2.pdf.
- Woo, Stu. "As Appeal of Apple Ruling Looms, Ireland Moves to Rebut Tax-Haven Criticism." The Wall Street Journal. September 6, 2016. Accessed February 8, 2017. <https://www.wsj.com/articles/as-appeal-of-apple-tax-ruling-looms-ireland-has-taken-steps-toward-transparency-1473193480>.
- Worstall, Tim. "Absolutely Fascinating - Apple's EU Tax Bill Explains Ireland's 26% GDP Rise." Forbes. September 8, 2016. Accessed February 16, 2017. <http://www.forbes.com/sites/timworstall/2016/09/08/absolutely-fascinating-apples-eu-tax-bill-explains-irelands-26-gdp-rise/#5f0f95c91b1c>.

Sources

- *Market Response: Variable Selection & Hypotheses*
 - Anderton, Robert and Aranki, Ted and Bonthuis, Boele and Jarvis, Valerie, Disaggregating Okun's Law: Decomposing the Impact of the Expenditure Components of GDP on Euro Area Unemployment (December 3, 2014). ECB Working Paper No. 1747. Available at SSRN: <https://ssrn.com/abstract=2533387>.
 - Bartolini, Leonardo and Goldberg, Linda S. and Sacarny, Adam, How Economic News Moves Markets (August 2008). Current Issues in Economics and Finance, Vol. 14, No. 6, August 2008. Available at SSRN: <https://ssrn.com/abstract=1265074>.
 - Cunningham, Rose, How Do Stock Markets React to U.S. GDP Releases? (2007) Independent Economic Advisors research note.
 - Fleming, Michael J. and Remolona, Eli M., What Moves the Bond Market? Economic Policy Review, Vol. 3, No. 4, December 1997. Available at SSRN: <https://ssrn.com/abstract=1016154>.
 - Picardo, Elvis. "The GDP and its Importance." Investopedia. August 2, 2016. Accessed March 29, 2017. <http://www.investopedia.com/articles/investing/121213/gdp-and-its-importance.asp>.
 - Puzanghera, Jim. "Ireland is not a tax haven for Apple, ambassador says." Los Angeles Times. May 31, 2013. Accessed April 16, 2017. <http://articles.latimes.com/2013/may/31/business/la-fi-tn-apple-ireland-tax-haven-20130531>.
 - Reilly, Gavan. "Ireland sells first 10-year government bonds since before bailout." TheJournal.ie. March 13, 2013. Accessed March 30, 2017. <http://www.thejournal.ie/ireland-auction-10-year-bonds-830376-Mar2013/>.
 - Tease, Warren, The Stock Market and Investment (1993). OECD Economic Studies no. 20: 41-63.

Sources

- *Market Response: Results*
 - Agudelo, Diego and Alvarez, Marcela and Osorno, Yesica, Reacción De Los Mercados Accionarios Latinoamericanos a Los Anuncios Macroeconomicos (Latin-American Stock Market's Reaction to Macroeconomic Announcements) (July 15, 2009). Center for Research in Economics and Finance (CIEF), Working Papers, No. 09-07. Available at SSRN: <https://ssrn.com/abstract=2428495> or <http://dx.doi.org/10.2139/ssrn.2428495>.
 - Ahmmed, Shahed, Immediate Impact of Stock Market Fluctuations on GDP: The Case of Bangladesh (April 17, 2012). Available at SSRN: <https://ssrn.com/abstract=2200606> or <http://dx.doi.org/10.2139/ssrn.2200606>.
 - Chun, Albert Lee, Expectations, Bond Yields and Monetary Policy (November 28, 2010). Review of Financial Studies, October 1, 2010; AFA 2006 Boston Meetings Paper; EFA 2007 Ljubljana Meetings Paper. Available at SSRN: <https://ssrn.com/abstract=685801> or <http://dx.doi.org/10.2139/ssrn.685801>.
 - Goldberg, Linda S. and Leonard, Deborah, What Moves Sovereign Bond Markets? The Effects of Economic News on U.S. and German Yields. Current Issues in Economics and Finance, Vol. 9, No. 9, September 2003. Available at SSRN: <https://ssrn.com/abstract=683269>.

Appendix

Select Manufacturing NACE Rev. 2 Codes

21 Manufacture of basic pharmaceutical products and pharmaceutical preparations

2110 Manufacture of basic pharmaceutical products

2120 Manufacture of pharmaceutical preparations

26 Manufacture of computer, electronic and optical products

2611 Manufacture of electronic components

2612 Manufacture of loaded electronic boards

2620 Manufacture of computers and peripheral equipment

2630 Manufacture of communication equipment

2640 Manufacture of consumer electronics

2651 Manufacture of instruments and appliances for measuring, testing and navigation

2652 Manufacture of watches and clocks

2660 Manufacture of irradiation, electromedical and electrotherapeutic equipment

2670 Manufacture of optical instruments and photographic equipment

2680 Manufacture of magnetic and optical media

28 Manufacture of machinery and equipment n.e.c.

2811 Manufacture of engines and turbines, except aircraft, vehicle and cycle engines

2812 Manufacture of fluid power equipment

2813 Manufacture of other pumps and compressors

2814 Manufacture of other taps and valves

2815 Manufacture of bearings, gears, gearing and driving elements

2821 Manufacture of ovens, furnaces and furnace burners

2822 Manufacture of lifting and handling equipment

2823 Manufacture of office machinery and equipment (except computers and peripheral equipment)

2824 Manufacture of power-driven hand tools

2825 Manufacture of non-domestic cooling and ventilation equipment

2829 Manufacture of other general-purpose machinery n.e.c.

2830 Manufacture of agricultural and forestry machinery

2841 Manufacture of metal forming machinery

2849 Manufacture of other machine tools

2891 Manufacture of machinery for metallurgy

2892 Manufacture of machinery for mining, quarrying and construction

2893 Manufacture of machinery for food, beverage and tobacco processing

2894 Manufacture of machinery for textile, apparel and leather production

2895 Manufacture of machinery for paper and paperboard production

2896 Manufacture of plastics and rubber machinery

2899 Manufacture of other special-purpose machinery n.e.c.

31 Manufacture of furniture

3101 Manufacture of office and shop furniture

3102 Manufacture of kitchen furniture

3103 Manufacture of mattresses

3109 Manufacture of other furniture

32 Other manufacturing

3211 Striking of coins

3212 Manufacture of jewelry and related articles

3213 Manufacture of imitation jewelry and related articles

3220 Manufacture of musical instruments

3230 Manufacture of sports goods

3240 Manufacture of games and toys

3250 Manufacture of medical and dental instruments and supplies

3291 Manufacture of brooms and brushes

3299 Other manufacturing n.e.c.

33 Repair and installation of machinery and equipment

3311 Repair of fabricated metal products

3312 Repair of machinery

3313 Repair of electronic and optical equipment

3314 Repair of electrical equipment

3315 Repair and maintenance of ships and boats

3316 Repair and maintenance of aircraft and spacecraft

3317 Repair and maintenance of other transport equipment

3319 Repair of other equipment

3320 Installation of industrial machinery and equipment

Irish National Accounts Statistics 2001-2015 (1/8)

Date	Release Event	GDP					GNP					Household Consumption					Government Consumption				
		Quarterly		Annual			Quarterly		Annual			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/28/2001	Q1 2001		13.2%					11.6%					5.7%					6.9%			
11/28/2001	Q2 2001		9.2%					1.6%					5.5%					4.5%			
2/28/2002	Q3 2001		3.2%					4.6%					4.8%					6.7%			
4/30/2002	Q4 2001 & Prediction 2001		0.0%	5.9%				3.8%	5.0%				5.2%	4.8%				5.1%	5.4%		
7/31/2002	Q1 2002		2.9%					1.6%					3.6%					5.3%			
10/10/2002	Actual 2001				5.7%	-0.2%				4.6%	-0.4%				5.1%	0.3%				10.8%	5.4%
11/7/2002	Q2 2002		6.5%					4.0%					2.3%					9.1%			
1/31/2003	Q3 2002		6.9%					-0.3%					2.6%					7.5%			
5/1/2003	Q4 2002 & Prediction 2002		6.4%	6.3%				-2.3%	0.6%				1.2%	2.6%				6.9%	8.3%		
7/15/2003	Actual 2002				6.9%	0.6%				0.1%	-0.5%				2.7%	0.1%				9.4%	1.1%
7/31/2003	Q1 2003		0.5%					0.8%					1.8%					4.4%			
10/30/2003	Q2 2003	2.2%	2.1%				2.4%	3.1%				0.3%	2.1%				0.7%	2.7%			
1/19/2004	Q3 2003	-1.3%	-0.1%				-0.4%	3.6%				1.0%	1.8%				1.3%	2.8%			
3/31/2004	Q4 2003 & Prediction 2003	3.1%	2.7%	1.4%			2.0%	5.5%	3.3%			0.5%	2.4%	1.9%			-0.1%	1.9%	2.1%		
7/1/2004	Q1 2004 & Actual 2003	0.6%	6.1%		3.7%	2.3%	1.5%	5.1%		2.8%	-0.5%	0.7%	2.0%		2.6%	0.7%	1.7%	3.9%		2.5%	0.4%
9/30/2004	Q2 2004	0.3%	4.1%				0.5%	4.2%				0.0%	2.2%				1.1%	3.7%			
12/22/2004	Q3 2004	-0.7%	5.8%				-0.4%	4.2%				0.5%	2.8%				0.4%	2.5%			
3/31/2005	Q4 2004 & Prediction 2004	2.0%	2.8%	4.9%			5.1%	7.1%	5.5%			-0.1%	3.1%	3.2%			1.4%	3.7%	2.9%		
7/28/2005	Q1 2005 & Actual 2004	0.3%	2.4%		4.5%	-0.4%	0.9%	3.9%		4.0%	-1.5%	3.3%	5.8%		3.8%	0.6%	1.1%	4.3%		2.4%	-0.5%
9/30/2005	Q2 2005	1.6%	4.1%				-0.7%	3.1%				-0.2%	4.7%				0.4%	2.6%			
12/22/2005	Q3 2005	0.3%	4.8%				3.1%	7.0%				1.9%	6.5%				1.3%	3.6%			
3/30/2006	Q4 2005 & Prediction 2005	1.9%	5.7%	4.7%			0.5%	5.7%	5.4%			0.5%	6.2%	5.6%			0.4%	2.8%	3.1%		
7/13/2006	Q1 2006 & Actual 2005	1.1%	5.8%		5.5%	0.8%	1.4%	7.0%		5.4%	0.0%	2.6%	6.0%		6.6%	1.0%	2.4%	3.7%		4.6%	1.5%
9/28/2006	Q2 2006	0.9%	5.0%				1.8%	9.0%				1.6%	6.7%				1.4%	4.8%			
12/21/2006	Q3 2006	2.6%	7.7%				0.3%	5.4%				-0.1%	4.5%				1.2%	5.8%			
3/28/2007	Q4 2006 & Prediction 2006	0.0%	5.0%	6.0%			2.9%	7.5%	7.4%			1.9%	6.3%	6.2%			0.3%	3.9%	4.1%		
7/3/2007	Q1 2007 & Actual 2006	4.7%	7.5%		5.7%	-0.3%	2.8%	6.4%		6.5%	-0.9%	1.2%	5.4%		5.7%	-0.5%	2.5%	5.8%		5.3%	1.2%

Irish National Accounts Statistics 2001-2015 (2/8)

Date	Release Event	Investment					Exports					Imports				
		Quarterly		Annual			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/28/2001 Q1 2001			13.0%					22.2%					21.5%			
11/28/2001 Q2 2001			0.0%					12.5%					2.6%			
2/28/2002 Q3 2001			-5.6%					5.3%					5.5%			
4/30/2002 Q4 2001 & Prediction 2001			-2.3%	0.5%				-1.3%	8.4%				3.1%	7.7%		
7/31/2002 Q1 2002			-5.1%					8.3%					5.7%			
10/10/2002 Actual 2001					-0.5%	-1.0%				6.7%	-1.7%				6.1%	-1.6%
11/7/2002 Q2 2002			-1.1%					4.8%					2.6%			
1/31/2003 Q3 2002			2.1%					7.7%					1.5%			
5/1/2003 Q4 2002 & Prediction 2002			1.1%	0.4%				-1.8%	3.8%				-8.4%	-1.0%		
7/15/2003 Actual 2002					1.7%	1.3%				6.2%	2.4%				2.3%	3.3%
7/31/2003 Q1 2003			-12.4%					-12.8%					-13.7%			
10/30/2003 Q2 2003		6.3%	-5.7%				2.7%	-8.1%				2.8%	-11.4%			
1/19/2004 Q3 2003		5.8%	-2.0%				0.4%	-6.9%				3.4%	-5.7%			
3/31/2004 Q4 2003 & Prediction 2003		12.0%	12.8%	-2.9%			4.6%	4.7%	-5.8%			6.0%	9.5%	-5.6%		
7/1/2004 Q1 2004 & Actual 2003		-8.2%	12.4%		3.4%	6.3%	-3.2%	4.8%		-5.8%	0.0%	-10.8%	1.2%		-6.6%	-1.0%
9/30/2004 Q2 2004		5.6%	14.0%				4.2%	6.6%				8.5%	6.1%			
12/22/2004 Q3 2004		-3.3%	3.6%				-0.8%	4.1%				-0.4%	0.4%			
3/31/2005 Q4 2004 & Prediction 2004		4.5%	3.0%	9.2%			3.0%	3.3%	4.4%			4.6%	2.7%	2.7%		
7/28/2005 Q1 2005 & Actual 2004		-1.0%	10.0%		8.0%	-1.2%	-2.6%	-1.0%		7.0%	2.6%	-2.6%	4.2%		7.6%	4.9%
9/30/2005 Q2 2005		6.7%	11.4%				2.2%	0.0%				2.6%	0.6%			
12/22/2005 Q3 2005		-2.5%	7.7%				1.6%	3.5%				2.8%	5.0%			
3/30/2006 Q4 2005 & Prediction 2005		8.8%	18.2%	13.1%			2.2%	4.8%	1.8%			3.7%	8.6%	4.6%		
7/13/2006 Q1 2006 & Actual 2005		2.2%	11.1%		12.8%	-0.3%	1.1%	7.7%		3.9%	2.1%	1.1%	8.8%		6.5%	1.9%
9/28/2006 Q2 2006		-1.3%	-2.2%				-0.3%	4.2%				0.1%	5.5%			
12/21/2006 Q3 2006		5.8%	8.2%				2.6%	6.6%				0.7%	3.7%			
3/28/2007 Q4 2006 & Prediction 2006		1.7%	5.1%	3.9%			-1.9%	1.7%	4.9%			2.0%	3.6%	5.3%		
7/3/2007 Q1 2007 & Actual 2006		11.8%	13.3%		3.1%	-0.8%	4.2%	7.8%		4.4%	-0.5%	3.0%	8.2%		4.4%	-0.9%

Irish National Accounts Statistics 2001-2015 (3/8)

Date	Release Event	Industry					Distribution, transportation, and communication					Other services (including rent)				
		Quarterly		Annual (Including Building)			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/28/2001 Q1 2001			26.0%					5.8%					7.7%			
11/28/2001 Q2 2001			11.6%					3.9%					7.8%			
2/28/2002 Q3 2001			2.0%					3.8%					7.4%			
4/30/2002 Q4 2001 & Prediction 2001			-3.8%	8.1%				4.4%	5.0%				7.3%	8.2%		
7/31/2002 Q1 2002			3.2%					-0.6%					5.6%			
10/10/2002 Actual 2001					7.5%	-0.6%				9.5%	4.5%				7.3%	-0.9%
11/7/2002 Q2 2002			11.6%					2.0%					3.5%			
1/31/2003 Q3 2002			9.8%					3.6%					4.9%			
5/1/2003 Q4 2002 & Prediction 2002			9.5%	9.3%				-0.1%	1.4%				5.7%	5.4%		
7/15/2003 Actual 2002					11.0%	1.7%				3.9%	2.5%				5.4%	0.0%
7/31/2003 Q1 2003			1.0%					2.7%					3.9%			
10/30/2003 Q2 2003		3.9%	1.1%				0.4%	1.9%				0.6%	2.9%			
1/19/2004 Q3 2003		-1.3%	1.2%				0.6%	0.5%				0.6%	2.6%			
3/31/2004 Q4 2003 & Prediction 2003		4.4%	6.0%	2.3%			-0.5%	0.9%	1.2%			0.8%	2.4%	3.2%		
7/1/2004 Q1 2004 & Actual 2003		-2.1%	8.0%		2.5%	0.2%	1.2%	2.7%		2.9%	1.7%	1.6%	4.3%		5.3%	2.1%
9/30/2004 Q2 2004		-1.6%	2.9%				0.7%	3.5%				0.5%	3.7%			
12/22/2004 Q3 2004		-0.3%	4.9%				0.6%	3.5%				0.8%	4.6%			
3/31/2005 Q4 2004 & Prediction 2004		1.7%	-2.2%	3.5%			0.7%	3.5%	3.4%			2.2%	5.5%	4.5%		
7/28/2005 Q1 2005 & Actual 2004		-0.8%	-0.8%		3.9%	0.4%	3.7%	7.1%		2.8%	-0.6%	1.4%	5.1%		5.4%	0.9%
9/30/2005 Q2 2005		2.2%	2.3%				-0.8%	5.4%				0.6%	5.7%			
12/22/2005 Q3 2005		0.5%	3.0%				1.1%	5.6%				1.5%	6.1%			
3/30/2006 Q4 2005 & Prediction 2005		4.9%	9.8%	4.7%			0.3%	4.4%	5.7%			1.4%	5.7%	5.8%		
7/13/2006 Q1 2006 & Actual 2005		-2.7%	0.6%		3.4%	-1.3%	3.6%	5.3%		5.3%	-0.4%	1.1%	7.8%		7.3%	1.5%
9/28/2006 Q2 2006		3.8%	6.8%				0.2%	5.6%				1.0%	6.1%			
12/21/2006 Q3 2006		1.2%	7.8%				0.7%	5.2%				2.8%	7.3%			
3/28/2007 Q4 2006 & Prediction 2006		0.1%	4.5%	6.1%			1.9%	6.9%	5.4%			0.7%	5.1%	6.2%		
7/3/2007 Q1 2007 & Actual 2006		14.2%	14.4%		4.6%	-1.5%	2.4%	7.1%		4.6%	-0.8%	1.5%	6.2%		7.8%	1.6%

Irish National Accounts Statistics 2001-2015 (4/8)

Date	Release Event	Non-Agricultural Renumeration ⁵	Notes
		Annual Actual Change (%)	
9/28/2001	Q1 2001		Constant 1995 prices
11/28/2001	Q2 2001		Constant 1995 prices
2/28/2002	Q3 2001		Constant 1995 prices
4/30/2002	Q4 2001 & Prediction 2001		Constant 1995 prices
7/31/2002	Q1 2002		Constant 1995 prices
10/10/2002	Actual 2001	13.1%	Constant 1995 prices
11/7/2002	Q2 2002		Constant 1995 prices
1/31/2003	Q3 2002		Constant 1995 prices
5/1/2003	Q4 2002 & Prediction 2002		Constant 1995 prices
7/15/2003	Actual 2002	6.8%	Constant 1995 prices
7/31/2003	Q1 2003		Constant 1995 prices
10/30/2003	Q2 2003		Constant 1995 prices; seasonally adjusted introduced
1/19/2004	Q3 2003		Constant 1995 prices
3/31/2004	Q4 2003 & Prediction 2003		Constant 1995 prices
7/1/2004	Q1 2004 & Actual 2003	7.2%	Constant 1995 prices
9/30/2004	Q2 2004		Constant 1995 prices
12/22/2004	Q3 2004		Constant 1995 prices
3/31/2005	Q4 2004 & Prediction 2004		Constant 1995 prices
7/28/2005	Q1 2005 & Actual 2004	8.9%	Constant 2003 prices
9/30/2005	Q2 2005		Constant 2003 prices
12/22/2005	Q3 2005		Constant 2003 prices
3/30/2006	Q4 2005 & Prediction 2005		Constant 2003 prices
7/13/2006	Q1 2006 & Actual 2005	10.9%	Constant 2004 prices
9/28/2006	Q2 2006		Constant 2004 prices
12/21/2006	Q3 2006		Constant 2004 prices
3/28/2007	Q4 2006 & Prediction 2006		Constant 2004 prices
7/3/2007	Q1 2007 & Actual 2006	9.8%	Constant 2005 prices

Irish National Accounts Statistics 2001-2015 (5/8)

Date	Release Event	GDP					GNP					Household Consumption					Government Consumption				
		Quarterly		Annual			Quarterly		Annual			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/27/2007 Q2 2007		-1.4%	5.4%				-0.9%	4.5%				1.5%	6.1%				1.0%	5.6%			
12/20/2007 Q3 2007		1.4%	4.1%				1.6%	6.0%				0.6%	6.4%				0.5%	6.4%			
3/20/2008 Q4 2007 & Prediction 2007		-0.8%	3.5%	5.3%			-2.2%	1.2%	4.5%			0.8%	4.4%	5.4%			0.8%	5.8%	6.7%		
6/30/2008 Q1 2008 & Actual 2007		-0.2%	-1.5%		6.0%	0.7%	0.9%	0.8%		4.1%	-0.4%	-0.2%	3.5%		6.3%	0.9%	1.7%	4.5%		6.0%	-0.7%
9/25/2008 Q2 2008		-0.5%	-0.8%				-3.1%	-2.1%				-3.0%	-1.4%				1.1%	4.0%			
12/18/2008 Q3 2008		1.2%	0.1%				-0.9%	-4.9%				1.1%	-1.3%				-0.7%	1.8%			
3/26/2009 Q4 2008 & Prediction 2008		-7.1%	-7.5%	-2.3%			-2.2%	-6.7%	-3.1%			-2.0%	-4.0%	-0.8%			0.1%	0.5%	2.1%		
6/30/2009 Q1 2009 & Actual 2008		-1.5%	-8.5%		-3.0%	-0.7%	-4.5%	-12.0%		-2.8%	0.3%	-6.2%	-9.1%		-1.0%	-0.2%	0.3%	1.2%		2.6%	0.5%
9/24/2009 Q2 2009		0.0%	-7.4%				-0.5%	-11.6%				0.5%	-6.8%				-0.9%	-0.9%			
12/17/2009 Q3 2009		0.3%	-7.4%				-1.4%	-11.3%				-0.7%	-7.3%				-0.9%	-2.0%			
3/25/2010 Q4 2009 & Prediction 2009		-2.3%	-5.1%	-7.1%			-2.3%	-10.4%	-11.3%			-0.3%	-5.2%	-7.2%			-0.8%	-3.5%	-1.2%		
6/30/2010 Q1 2010 & Actual 2009		2.7%	-0.7%		-7.6%	-0.5%	-0.5%	-4.2%		-10.7%	0.6%	-0.2%	-0.8%		-7.0%	0.2%	-0.9%	-6.4%		-4.4%	-3.2%
9/23/2010 Q2 2010		-1.2%	-1.8%				-0.3%	-4.1%				-0.2%	-1.7%				-0.8%	-3.4%			
12/16/2010 Q3 2010		0.5%	-0.5%				1.1%	-1.6%				-0.5%	-1.3%				-1.7%	-5.2%			
3/24/2011 Q4 2010 & Prediction 2010		-1.6%	-0.7%	-1.0%			2.0%	2.8%	-2.1%			-0.4%	-1.4%	-1.2%			0.3%	-0.7%	-2.2%		
6/23/2011 Q1 2011 & Actual 2010		1.3%	0.1%		-0.4%	0.6%	-4.3%	-0.9%		0.3%	2.4%	-1.9%	-2.9%		-0.8%	0.4%	-1.9%	-4.2%		-3.8%	-1.6%
9/22/2011 Q2 2011		1.6%	2.3%				1.1%	1.1%				0.3%	-2.4%				-0.8%	-3.3%			
12/16/2011 Q3 2011		-1.9%	-0.1%				-2.2%	-4.2%				-1.3%	-3.9%				-1.3%	-3.9%			
3/22/2012 Q4 2011 & Prediction 2011		-0.2%	0.7%	0.7%			-2.2%	-7.1%	-2.5%			0.5%	-2.2%	-2.7%			-3.4%	-7.0%	-3.7%		
7/12/2012 Q1 2012 & Actual 2011		-1.1%	1.2%		1.4%	0.7%	-1.3%	0.2%		-2.5%	0.0%	-2.1%	-2.2%		-2.4%	0.3%	2.2%	-3.3%		-4.3%	-0.6%
9/20/2012 Q2 2012		0.0%	-1.1%				4.3%	2.9%				-0.4%	-2.5%				-3.9%	-7.0%			
12/18/2012 Q3 2012		0.2%	0.8%				-0.4%	3.7%				0.5%	0.2%				-0.3%	-3.9%			
3/21/2013 Q4 2012 & Prediction 2012		0.0%	0.0%	0.9%			-0.8%	3.0%	3.4%			1.0%	0.2%	-0.9%			-0.7%	-2.6%	-3.7%		
6/27/2013 Q1 2013 & Actual 2012		-0.6%	-0.9%		0.2%	-0.7%	2.9%	6.1%		1.8%	-1.6%	-3.0%	-1.6%		-0.3%	0.6%	0.3%	-1.8%		-3.7%	0.0%
9/19/2013 Q2 2013		0.4%	-1.2%				-0.4%	-0.1%				0.7%	-1.3%				-1.3%	-1.7%			
12/19/2013 Q3 2013		1.5%	1.7%				1.6%	3.9%				0.9%	-1.0%				1.1%	1.1%			
3/13/2014 Q4 2013 & Prediction 2013		-2.3%	-0.7%	-0.3%			0.2%	4.2%	3.4%			-0.6%	-1.1%	-1.1%			0.2%	0.7%	-0.5%		
7/3/2014 Q1 2014 & Actual 2013		2.7%	4.1%		0.2%	0.5%	0.5%	3.4%		3.3%	-0.1%	-0.1%	0.2%		-0.8%	0.3%	-2.1%	2.6%		1.4%	1.9%
9/18/2014 Q2 2014		1.5%	7.7%				0.6%	9.0%				0.3%	1.8%				3.8%	7.9%			
12/11/2014 Q3 2014		0.1%	3.5%				0.5%	2.5%				0.0%	0.0%				-0.9%	-1.4%			
3/12/2015 Q4 2014 & Prediction 2014		0.2%	4.1%	4.8%			2.3%	6.3%	5.2%			1.3%	2.1%	1.1%			-0.1%	-2.7%	0.1%		
7/30/2015 Q1 2015 & Actual 2014		1.4%	6.5%		5.2%	0.4%	-0.8%	7.3%		6.9%	1.7%	1.2%	3.8%		2.0%	0.9%	-0.4%	5.9%		4.6%	4.5%
9/10/2015 Q2 2015		1.9%	6.7%				1.9%	5.3%				0.4%	2.8%				-0.7%	1.7%			
12/10/2015 Q3 2015		1.4%	7.0%				-0.8%	3.2%				0.7%	3.6%				-1.0%	-1.4%			
3/10/2016 Q4 2015 & Prediction 2015		2.7%	9.2%	7.8%			3.4%	5.2%	5.7%			1.0%	3.1%	3.5%			-1.4%	-6.8%	-0.8%		
7/12/2016 Q1 2016 & Actual 2015		-2.1%	2.3%		26.3%	18.5%	1.3%	10.6%		18.7%	13.0%	2.1%	5.0%		4.5%	1.0%	1.6%	3.5%		1.1%	1.9%

Irish National Accounts Statistics 2001-2015 (6/8)

Date	Release Event	Investment					Exports					Imports				
		Quarterly		Annual			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/27/2007 Q2 2007		-5.9%	6.5%				-0.5%	7.1%				-2.1%	3.7%			
12/20/2007 Q3 2007		-4.2%	-7.5%				2.4%	8.0%				3.3%	7.8%			
3/20/2008 Q4 2007 & Prediction 2007		-5.4%	-12.3%	0.2%			1.6%	9.3%	8.2%			2.0%	6.3%	6.4%		
6/30/2008 Q1 2008 & Actual 2007		-4.9%	-18.6%		1.2%	1.0%	-1.3%	0.5%		6.8%	-1.4%	-1.0%	0.7%		4.1%	-2.3%
9/25/2008 Q2 2008		-4.3%	-18.8%				1.3%	2.4%				-2.4%	-1.1%			
12/18/2008 Q3 2008		0.0%	-14.7%				-1.1%	0.6%				-1.9%	-6.0%			
3/26/2009 Q4 2008 & Prediction 2008		-15.4%	-30.6%	-19.9%			-2.6%	-4.9%	-0.4%			-3.5%	-10.4%	-4.4%		
6/30/2009 Q1 2009 & Actual 2008		-13.2%	-34.1%		-15.5%	4.4%	-0.7%	-3.0%		-1.0%	-0.6%	-3.9%	-11.7%		-2.1%	2.3%
9/24/2009 Q2 2009		5.7%	-24.4%				0.2%	-2.5%				1.0%	-7.1%			
12/17/2009 Q3 2009		-9.9%	-35.0%				-0.6%	-2.6%				-4.5%	-11.9%			
3/25/2010 Q4 2009 & Prediction 2009		-9.7%	-28.2%	-29.7%			0.1%	-1.2%	-2.3%			-0.1%	-7.5%	-9.3%		
6/30/2010 Q1 2010 & Actual 2009		-13.8%	-30.0%		-31.0%	-1.3%	6.9%	5.5%		-4.1%	-1.8%	2.0%	-2.1%		-9.7%	-0.4%
9/23/2010 Q2 2010		11.5%	-19.9%				1.6%	7.5%				4.5%	6.2%			
12/16/2010 Q3 2010		-18.1%	-30.9%				3.6%	13.2%				1.4%	11.0%			
3/24/2011 Q4 2010 & Prediction 2010		-2.3%	-26.7%	-27.8%			-1.4%	10.6%	9.4%			-0.1%	9.6%	6.6%		
6/23/2011 Q1 2011 & Actual 2010		1.1%	-9.1%		-24.9%	2.9%	3.8%	7.0%		6.3%	-3.1%	-0.3%	3.5%		2.7%	-3.9%
9/22/2011 Q2 2011		6.4%	-14.3%				1.0%	4.9%				-0.6%	0.1%			
12/16/2011 Q3 2011		-20.9%	-22.2%				0.8%	2.4%				-1.5%	-3.3%			
3/22/2012 Q4 2011 & Prediction 2011		14.0%	-1.3%	-10.6%			-1.1%	3.2%	4.1%			-1.0%	-3.5%	-0.7%		
7/12/2012 Q1 2012 & Actual 2011		11.6%	8.0%		-12.6%	-2.0%	2.6%	6.1%		5.1%	1.0%	4.9%	1.4%		-0.3%	0.4%
9/20/2012 Q2 2012		-29.4%	-17.9%				-0.5%	2.1%				-5.2%	-2.0%			
12/18/2012 Q3 2012		8.5%	8.8%				0.3%	2.0%				2.1%	0.8%			
3/21/2013 Q4 2012 & Prediction 2012		-0.1%	2.0%	1.2%			0.5%	2.0%	2.9%			0.8%	2.0%	0.3%		
6/27/2013 Q1 2013 & Actual 2012		-7.4%	-19.8%		-1.0%	-2.2%	-3.2%	-4.1%		1.6%	-1.3%	-1.0%	-4.2%		0.0%	-0.3%
9/19/2013 Q2 2013		-3.4%	1.0%				4.3%	1.0%				0.7%	2.6%			
12/19/2013 Q3 2013		10.9%	8.3%				-0.8%	0.6%				-0.3%	-1.3%			
3/13/2014 Q4 2013 & Prediction 2013		3.1%	20.7%	4.2%			2.1%	2.9%	0.2%			5.8%	6.3%	1.0%		
7/3/2014 Q1 2014 & Actual 2013		-8.1%	2.9%		-2.4%	-6.6%	1.8%	7.4%		1.1%	0.9%	0.8%	5.9%		0.6%	-0.4%
9/18/2014 Q2 2014		9.1%	18.5%				6.4%	13.0%				6.2%	11.8%			
12/11/2014 Q3 2014		-0.8%	7.8%				2.7%	15.5%				3.5%	15.6%			
3/12/2015 Q4 2014 & Prediction 2014		0.7%	8.2%	11.3%			1.2%	13.9%	12.6%			5.4%	18.8%	13.2%		
7/30/2015 Q1 2015 & Actual 2014		-3.1%	4.0%		14.3%	3.0%	2.3%	14.3%		12.1%	-0.5%	0.6%	14.7%		14.7%	1.5%
9/10/2015 Q2 2015		19.2%	34.2%				5.4%	13.6%				6.3%	16.9%			
12/10/2015 Q3 2015		4.9%	35.8%				2.2%	12.4%				5.4%	18.9%			
3/10/2016 Q4 2015 & Prediction 2015		2.9%	28.2%	28.2%			3.4%	15.6%	13.8%			2.5%	15.2%	16.4%		
7/12/2016 Q1 2016 & Actual 2015		-16.1%	-3.8%		32.7%	4.5%	-5.0%	1.3%		34.4%	20.6%	-9.8%	2.6%		21.7%	5.3%

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Date	Release Event	Industry					Distribution, transportation, and communication					Other services (including rent)				
		Quarterly		Annual (Including Building)			Quarterly		Annual			Quarterly		Annual		
		Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)	Prior Quarter ¹	Prior Year ⁴	Predicted Change (%)	Actual Change (%)	Surprise (%)
9/27/2007 Q2 2007		-8.1%	1.1%				0.7%	6.4%				2.1%	7.8%			
12/20/2007 Q3 2007		4.4%	6.2%				0.5%	6.2%				1.2%	5.8%			
3/20/2008 Q4 2007 & Prediction 2007		-3.1%	5.0%	6.9%			0.8%	4.5%	6.0%			1.8%	6.7%	6.2%		
6/30/2008 Q1 2008 & Actual 2007		0.2%	-5.2%		7.9%	1.0%	-0.4%	0.6%		5.8%	-0.2%	3.0%	4.5%		7.4%	1.2%
9/25/2008 Q2 2008		-0.9%	1.0%				-2.2%	-4.3%				-0.5%	2.5%			
12/18/2008 Q3 2008		0.5%	-2.4%				-0.1%	-4.3%				0.8%	2.1%			
3/26/2009 Q4 2008 & Prediction 2008		-9.9%	-12.5%	-4.3%			-2.1%	-8.3%	-5.0%			-2.3%	-2.2%	-1.5%		
6/30/2009 Q1 2009 & Actual 2008		4.6%	-10.5%		-3.6%	0.7%	-4.3%	-10.9%		-3.3%	1.7%	-0.9%	-3.5%		1.4%	2.9%
9/24/2009 Q2 2009		-1.6%	-11.3%				0.3%	-8.6%				-0.7%	-2.8%			
12/17/2009 Q3 2009		0.3%	-9.6%				-2.0%	-9.0%				-0.2%	-3.4%			
3/25/2010 Q4 2009 & Prediction 2009		-4.7%	-6.0%	-8.7%			-0.7%	-7.0%	-8.8%			-0.2%	-2.3%	-2.8%		
6/30/2010 Q1 2010 & Actual 2009		11.6%	7.7%		-7.8%	0.9%	1.2%	-1.4%		-9.3%	-0.5%	0.0%	-3.3%		-2.3%	0.5%
9/23/2010 Q2 2010		-3.6%	1.7%				0.4%	-0.7%				-0.2%	-2.0%			
12/16/2010 Q3 2010		1.4%	3.9%				-2.5%	-2.4%				-1.6%	-2.9%			
3/24/2011 Q4 2010 & Prediction 2010		1.9%	9.8%	5.0%			-0.4%	-1.9%	-1.5%			-0.5%	-2.8%	-2.7%		
6/23/2011 Q1 2011 & Actual 2010		-0.4%	-0.7%		5.2%	0.2%	1.3%	-1.0%		-2.0%	-0.5%	0.7%	-1.5%		-2.3%	0.4%
9/22/2011 Q2 2011		0.4%	7.5%				0.7%	-0.4%				-0.1%	-0.7%			
12/16/2011 Q3 2011		-1.3%	4.0%				-2.2%	-2.6%				-2.4%	-3.0%			
3/22/2012 Q4 2011 & Prediction 2011		1.4%	2.3%	2.7%			0.6%	-0.6%	-1.6%			-0.7%	-3.1%	-2.1%		
7/12/2012 Q1 2012 & Actual 2011		-0.9%	2.2%		1.8%	-0.9%	-11.5%	-9.7%		3.9%	5.5%	0.7%	1.5%		-0.9%	1.2%
9/20/2012 Q2 2012		4.6%	7.8%				-0.3%	-6.1%				-1.7%	-3.5%			
12/18/2012 Q3 2012		-4.0%	0.0%				12.8%	1.8%				1.1%	0.3%			
3/21/2013 Q4 2012 & Prediction 2012		-5.9%	-10.1%	0.3%			3.3%	9.4%	3.1%			-0.4%	0.4%	0.2%		
6/27/2013 Q1 2013 & Actual 2012		2.1%	-5.8%		-0.8%	-1.1%	0.1%	3.9%		-0.6%	-3.7%	1.6%	3.7%		2.7%	2.5%
9/19/2013 Q2 2013		-0.3%	-7.1%				1.4%	5.3%				-0.1%	2.8%			
12/19/2013 Q3 2013		2.2%	2.8%				2.1%	-0.4%				1.2%	3.0%			
3/13/2014 Q4 2013 & Prediction 2013		-4.7%	-1.9%	-3.3%			-1.2%	-2.2%	-2.5%			0.5%	3.0%	3.1%		
7/3/2014 Q1 2014 & Actual 2013		2.8%	2.1%		-1.4%	1.9%	0.7%	8.0%		-5.2%	-2.7%	1.1%	3.9%		2.4%	-0.7%
9/18/2014 Q2 2014		4.7%	6.5%				2.9%	11.3%				-0.8%	2.7%			
12/11/2014 Q3 2014		-0.5%	2.0%				-0.2%	6.4%				1.7%	3.7%			
3/12/2015 Q4 2014 & Prediction 2014		0.5%	4.1%	1.5%			-1.4%	2.8%	8.0%			1.0%	3.4%	3.4%		
7/30/2015 Q1 2015 & Actual 2014		0.5%	9.0%		7.1%	5.6%	2.1%	6.5%		5.6%	-2.4%	0.3%	4.4%		4.2%	0.8%
9/10/2015 Q2 2015		4.2%	4.4%				2.9%	11.4%				0.2%	4.4%			
12/10/2015 Q3 2015		2.5%	16.1%				1.3%	8.3%				1.4%	3.8%			
3/10/2016 Q4 2015 & Prediction 2015		6.4%	23.3%	13.7%			-0.2%	6.2%	8.7%			1.1%	4.7%	4.3%		
7/12/2016 Q1 2016 & Actual 2015		-9.2%	1.8%		87.3%	73.6%	2.8%	2.6%		7.7%	-1.0%	1.6%	6.7%		5.8%	1.5%

Irish National Accounts Statistics 2001-2015 (8/8)

Date	Release Event	Non-Agricultural Renumeration ⁵	Notes
		Annual Actual Change (%)	
9/27/2007 Q2 2007			Constant 2005 prices
12/20/2007 Q3 2007			Constant 2005 prices
3/20/2008 Q4 2007 & Prediction 2007			Constant 2005 prices
6/30/2008 Q1 2008 & Actual 2007		8.8%	Constant 2006 prices
9/25/2008 Q2 2008			Constant 2006 prices
12/18/2008 Q3 2008			Constant 2006 prices
3/26/2009 Q4 2008 & Prediction 2008			Constant 2006 prices
6/30/2009 Q1 2009 & Actual 2008		2.1%	Constant 2007 prices
9/24/2009 Q2 2009			Constant 2007 prices
12/17/2009 Q3 2009			Constant 2007 prices
3/25/2010 Q4 2009 & Prediction 2009			Constant 2007 prices
6/30/2010 Q1 2010 & Actual 2009		-8.5%	Constant 2008 prices
9/23/2010 Q2 2010			Constant 2008 prices
12/16/2010 Q3 2010			Constant 2008 prices
3/24/2011 Q4 2010 & Prediction 2010			Constant 2009 prices
6/23/2011 Q1 2011 & Actual 2010		-6.6%	Constant 2009 prices
9/22/2011 Q2 2011			Constant 2009 prices
12/16/2011 Q3 2011			Constant 2009 prices
3/22/2012 Q4 2011 & Prediction 2011			Constant 2010 prices
7/12/2012 Q1 2012 & Actual 2011		-1.4%	Constant 2010 prices; note change in definition: "Distribution, transport, software & communications"
9/20/2012 Q2 2012			Constant 2010 prices
12/18/2012 Q3 2012			Constant 2010 prices
3/21/2013 Q4 2012 & Prediction 2012			Constant 2011 prices
6/27/2013 Q1 2013 & Actual 2012		0.1%	Constant 2011 prices
9/19/2013 Q2 2013			Constant 2011 prices
12/19/2013 Q3 2013			Constant 2011 prices
3/13/2014 Q4 2013 & Prediction 2013			Constant 2012 prices
7/3/2014 Q1 2014 & Actual 2013		3.4%	Constant 2012 prices
9/18/2014 Q2 2014			Constant 2012 prices
12/11/2014 Q3 2014			Constant 2012 prices
3/12/2015 Q4 2014 & Prediction 2014			Chain linked annually and referenced to 2012
7/30/2015 Q1 2015 & Actual 2014		3.5%	Chain linked annually and referenced to 2013
9/10/2015 Q2 2015			Chain linked annually and referenced to 2013
12/10/2015 Q3 2015			Chain linked annually and referenced to 2013
3/10/2016 Q4 2015 & Prediction 2015			Chain linked annually and referenced to 2013
7/12/2016 Q1 2016 & Actual 2015		5.7%	Chain linked annually and referenced to 2014

BondDelta_T regression data (1/2)

Date	Release Event	GDPSurprise _T (%)	GNPSurprise _T (%)	HouseholdConsumptionSurprise _T (%)	GovernmentConsumptionSurprise _T (%)
10/10/2002	Actual 2001	-0.2	-0.4	0.3	5.4
7/15/2003	Actual 2002	0.6	-0.5	0.1	1.1
7/1/2004	Q1 2004 & Actual 2003	2.3	-0.5	0.7	0.4
7/28/2005	Q1 2005 & Actual 2004	-0.4	-1.5	0.6	-0.5
7/13/2006	Q1 2006 & Actual 2005	0.8	0.0	1.0	1.5
7/3/2007	Q1 2007 & Actual 2006	-0.3	-0.9	-0.5	1.2
6/30/2008	Q1 2008 & Actual 2007	0.7	-0.4	0.9	-0.7
6/30/2009	Q1 2009 & Actual 2008	-0.7	0.3	-0.2	0.5
6/30/2010	Q1 2010 & Actual 2009	-0.5	0.6	0.2	-3.2
6/23/2011	Q1 2011 & Actual 2010	0.6	2.4	0.4	-1.6
7/12/2012	Q1 2012 & Actual 2011	0.7	0.0	0.3	-0.6
6/27/2013	Q1 2013 & Actual 2012	-0.7	-1.6	0.6	0.0
7/3/2014	Q1 2014 & Actual 2013	0.5	-0.1	0.3	1.9
7/30/2015	Q1 2015 & Actual 2014	0.4	1.7	0.9	4.5
7/12/2016	Q1 2016 & Actual 2015	18.5	13.0	1.0	1.9

BondDelta_T regression data (2/2)

Date	Release Event	InvestmentSurprise _T (%)	ExportsSurprise _T (%)	ImportsSurprise _T (%)	IndustrySurprise _T (%)	DTCSurprise _T (%)	OtherServicesSurprise _T (%)	GiltDelta _T (BPS)	BondDelta _T (BPS)
10/10/2002	Actual 2001	-1.0	-1.7	-1.6	-0.6	4.5	-0.9	2.5	0.1
7/15/2003	Actual 2002	1.3	2.4	3.3	1.7	2.5	0.0	-4.8	0.3
7/1/2004	Q1 2004 & Actual 2003	6.3	0.0	-1.0	0.2	1.7	2.1	-0.4	0.2
7/28/2005	Q1 2005 & Actual 2004	-1.2	2.6	4.9	0.4	-0.6	0.9	-0.8	0.1
7/13/2006	Q1 2006 & Actual 2005	-0.3	2.1	1.9	-1.3	-0.4	1.5	1.0	0.0
7/3/2007	Q1 2007 & Actual 2006	-0.8	-0.5	-0.9	-1.5	-0.8	1.6	-1.2	-3.3
6/30/2008	Q1 2008 & Actual 2007	1.0	-1.4	-2.3	1.0	-0.2	1.2	0.1	0.0
6/30/2009	Q1 2009 & Actual 2008	4.4	-0.6	2.3	0.7	1.7	2.9	5.8	-4.4
6/30/2010	Q1 2010 & Actual 2009	-1.3	-1.8	-0.4	0.9	-0.5	0.5	-5.7	-3.8
6/23/2011	Q1 2011 & Actual 2010	2.9	-3.1	-3.9	0.2	-0.5	0.4	3.4	11.4
7/12/2012	Q1 2012 & Actual 2011	-2.0	1.0	0.4	-0.9	5.5	1.2	-1.4	0.3
6/27/2013	Q1 2013 & Actual 2012	-2.2	-1.3	-0.3	-1.1	-3.7	2.5	1.2	-1.3
7/3/2014	Q1 2014 & Actual 2013	-6.6	0.9	-0.4	1.9	-2.7	-0.7	-1.3	-5.3
7/30/2015	Q1 2015 & Actual 2014	3.0	-0.5	1.5	5.6	-2.4	0.8	5.3	-4.4
7/12/2016	Q1 2016 & Actual 2015	4.5	20.6	5.3	73.6	-1.0	1.5	-0.5	-4.2

ISEQDelta_T regression data (1/6)

Date	Release Event	GDPPriorQuarter _T (%)	GDPPriorYear _T (%)	GNPPriorQuarter _T (%)	GNPPriorYear _T (%)	HouseholdConsumptionPriorQuarter _T (%)	HouseholdConsumptionPriorYear _T (%)
9/28/2001	Q1 2001		13.2		11.6		5.7
11/28/2001	Q2 2001		9.2		1.6		5.5
2/28/2002	Q3 2001		3.2		4.6		4.8
4/30/2002	Q4 2001 & Prediction 2001		0		3.8		5.2
7/31/2002	Q1 2002		2.9		1.6		3.6
11/7/2002	Q2 2002		6.5		4		2.3
1/31/2003	Q3 2002		6.9		0.3		2.6
5/1/2003	Q4 2002 & Prediction 2002		6.4		2.3		1.2
7/31/2003	Q1 2003		0.5		0.8		1.8
10/30/2003	Q2 2003	2.2	2.1	2.4	3.1	0.3	2.1
1/19/2004	Q3 2003	1.3	0.1	0.4	3.6	1	1.8
3/31/2004	Q4 2003 & Prediction 2003	3.1	2.7	2	5.5	0.5	2.4
7/1/2004	Q1 2004 & Actual 2003	0.6	6.1	1.5	5.1	0.7	2
9/30/2004	Q2 2004	0.3	4.1	0.5	4.2	0	2.2
12/22/2004	Q3 2004	0.7	5.8	0.4	4.2	0.5	2.8
3/31/2005	Q4 2004 & Prediction 2004	2	2.8	5.1	7.1	0.1	3.1
7/28/2005	Q1 2005 & Actual 2004	0.3	2.4	0.9	3.9	3.3	5.8
9/30/2005	Q2 2005	1.6	4.1	0.7	3.1	0.2	4.7
12/22/2005	Q3 2005	0.3	4.8	3.1	7	1.9	6.5
3/30/2006	Q4 2005 & Prediction 2005	1.9	5.7	0.5	5.7	0.5	6.2
7/13/2006	Q1 2006 & Actual 2005	1.1	5.8	1.4	7	2.6	6
9/28/2006	Q2 2006	0.9	5	1.8	9	1.6	6.7
12/21/2006	Q3 2006	2.6	7.7	0.3	5.4	0.1	4.5
3/28/2007	Q4 2006 & Prediction 2006	0	5	2.9	7.5	1.9	6.3
7/3/2007	Q1 2007 & Actual 2006	4.7	7.5	2.8	6.4	1.2	5.4
9/27/2007	Q2 2007	1.4	5.4	0.9	4.5	1.5	6.1
12/20/2007	Q3 2007	1.4	4.1	1.6	6	0.6	6.4
3/20/2008	Q4 2007 & Prediction 2007	0.8	3.5	2.2	1.2	0.8	4.4
6/30/2008	Q1 2008 & Actual 2007	0.2	1.5	0.9	0.8	0.2	3.5

ISEQDelta_T regression data (2/6)

Date	Release Event	GovernmentConsumptionPriorQuarter _T (%)	GovernmentConsumptionPriorYear _T (%)	InvestmentPriorQuarter _T (%)	InvestmentPriorYear _T (%)	ExportsPriorQuarter _T (%)	ExportsPriorYear _T (%)
9/28/2001	Q1 2001		6.9		13		22.2
11/28/2001	Q2 2001		4.5		0		12.5
2/28/2002	Q3 2001		6.7		5.6		5.3
4/30/2002	Q4 2001 & Prediction 2001		5.1		2.3		1.3
7/31/2002	Q1 2002		5.3		5.1		8.3
11/7/2002	Q2 2002		9.1		1.1		4.8
1/31/2003	Q3 2002		7.5		2.1		7.7
5/1/2003	Q4 2002 & Prediction 2002		6.9		1.1		1.8
7/31/2003	Q1 2003		4.4		12.4		12.8
10/30/2003	Q2 2003	0.7	2.7	6.3	5.7	2.7	8.1
1/19/2004	Q3 2003	1.3	2.8	5.8	2	0.4	6.9
3/31/2004	Q4 2003 & Prediction 2003	0.1	1.9	12	12.8	4.6	4.7
7/1/2004	Q1 2004 & Actual 2003	1.7	3.9	8.2	12.4	3.2	4.8
9/30/2004	Q2 2004	1.1	3.7	5.6	14	4.2	6.6
12/22/2004	Q3 2004	0.4	2.5	3.3	3.6	0.8	4.1
3/31/2005	Q4 2004 & Prediction 2004	1.4	3.7	4.5	3	3	3.3
7/28/2005	Q1 2005 & Actual 2004	1.1	4.3	1	10	2.6	1
9/30/2005	Q2 2005	0.4	2.6	6.7	11.4	2.2	0
12/22/2005	Q3 2005	1.3	3.6	2.5	7.7	1.6	3.5
3/30/2006	Q4 2005 & Prediction 2005	0.4	2.8	8.8	18.2	2.2	4.8
7/13/2006	Q1 2006 & Actual 2005	2.4	3.7	2.2	11.1	1.1	7.7
9/28/2006	Q2 2006	1.4	4.8	1.3	2.2	0.3	4.2
12/21/2006	Q3 2006	1.2	5.8	5.8	8.2	2.6	6.6
3/28/2007	Q4 2006 & Prediction 2006	0.3	3.9	1.7	5.1	1.9	1.7
7/3/2007	Q1 2007 & Actual 2006	2.5	5.8	11.8	13.3	4.2	7.8
9/27/2007	Q2 2007	1	5.6	5.9	6.5	0.5	7.1
12/20/2007	Q3 2007	0.5	6.4	4.2	7.5	2.4	8
3/20/2008	Q4 2007 & Prediction 2007	0.8	5.8	5.4	12.3	1.6	9.3
6/30/2008	Q1 2008 & Actual 2007	1.7	4.5	4.9	18.6	1.3	0.5

ISEQDelta_T regression data (3/6)

Date	Release Event	ImportsPriorQuarter _T (%)	ImportsPriorYear _T (%)	IndustryPriorQuarter _T (%)	IndustryPriorYear _T (%)	DTCPriorQuarter _T (%)	DTCPriorYear _T (%)	OtherServicesPriorQuarter _T (%)	OtherServicesPriorYear _T (%)	FTSEDelta _T (BPS)	ISEQDelta _T (BPS)
9/28/2001	Q1 2001		21.5		26		5.8		7.7	-43.3	452.5
11/28/2001	Q2 2001		2.6		11.6		3.9		7.8	-54.8	-75.6
2/28/2002	Q3 2001		5.5		2		3.8		7.4	64.1	-27.8
4/30/2002	Q4 2001 & Prediction 2001		3.1		3.8		4.4		7.3	-102.1	-8.4
7/31/2002	Q1 2002		5.7		3.2		0.6		5.6	-4.8	186.8
11/7/2002	Q2 2002		2.6		11.6		2		3.5	-123.6	-152.2
1/31/2003	Q3 2002		1.5		9.8		3.6		4.9	-64.2	-54.4
5/1/2003	Q4 2002 & Prediction 2002		8.4		9.5		0.1		5.7	0.9	-30.7
7/31/2003	Q1 2003		13.7		1		2.7		3.9	-2.2	1.6
10/30/2003	Q2 2003	2.8	11.4	3.9	1.1	0.4	1.9	0.6	2.9	101.4	7.2
1/19/2004	Q3 2003	3.4	5.7	1.3	1.2	0.6	0.5	0.6	2.6	48.3	-71.7
3/31/2004	Q4 2003 & Prediction 2003	6	9.5	4.4	6	0.5	0.9	0.8	2.4	31.6	-9.3
7/1/2004	Q1 2004 & Actual 2003	10.8	1.2	2.1	8	1.2	2.7	1.6	4.3	-11.9	-67.7
9/30/2004	Q2 2004	8.5	6.1	1.6	2.9	0.7	3.5	0.5	3.7	0.2	45.2
12/22/2004	Q3 2004	0.4	0.4	0.3	4.9	0.6	3.5	0.8	4.6	44.7	26.9
3/31/2005	Q4 2004 & Prediction 2004	4.6	2.7	1.7	2.2	0.7	3.5	2.2	5.5	17.1	31.7
7/28/2005	Q1 2005 & Actual 2004	2.6	4.2	0.8	0.8	3.7	7.1	1.4	5.1	-39.8	-35.9
9/30/2005	Q2 2005	2.6	0.6	2.2	2.3	0.8	5.4	0.6	5.7	36.0	58.2
12/22/2005	Q3 2005	2.8	5	0.5	3	1.1	5.6	1.5	6.1	-21.1	-7.4
3/30/2006	Q4 2005 & Prediction 2005	3.7	8.6	4.9	9.8	0.3	4.4	1.4	5.7	-20.1	3.9
7/13/2006	Q1 2006 & Actual 2005	1.1	8.8	2.7	0.6	3.6	5.3	1.1	7.8	32.6	26.0
9/28/2006	Q2 2006	0.1	5.5	3.8	6.8	0.2	5.6	1	6.1	-2.4	59.3
12/21/2006	Q3 2006	0.7	3.7	1.2	7.8	0.7	5.2	2.8	7.3	-10.6	-44.2
3/28/2007	Q4 2006 & Prediction 2006	2	3.6	0.1	4.5	1.9	6.9	0.7	5.1	-44.1	28.8
7/3/2007	Q1 2007 & Actual 2006	3	8.2	14.2	14.4	2.4	7.1	1.5	6.2	21.1	45.4
9/27/2007	Q2 2007	2.1	3.7	8.1	1.1	0.7	6.4	2.1	7.8	-48.0	-8.7
12/20/2007	Q3 2007	3.3	7.8	4.4	6.2	0.5	6.2	1.2	5.8	45.9	-34.0
3/20/2008	Q4 2007 & Prediction 2007	2	6.3	3.1	5	0.8	4.5	1.8	6.7	-33.8	223.8
6/30/2008	Q1 2008 & Actual 2007	1	0.7	0.2	5.2	0.4	0.6	3	4.5	108.3	76.7

ISEQDelta_T regression data (4/6)

Date	Release Event	GDPPriorQuarter _T (%)	GDPPriorYear _T (%)	GNPPriorQuarter _T (%)	GNPPriorYear _T (%)	HouseholdConsumptionPriorQuarter _T (%)
9/25/2008	Q2 2008	0.5	0.8	3.1	2.1	3
12/18/2008	Q3 2008	1.2	0.1	0.9	4.9	1.1
3/26/2009	Q4 2008 & Prediction 2008	7.1	7.5	2.2	6.7	2
6/30/2009	Q1 2009 & Actual 2008	1.5	8.5	4.5	12	6.2
9/24/2009	Q2 2009	0	7.4	0.5	11.6	0.5
12/17/2009	Q3 2009	0.3	7.4	1.4	11.3	0.7
3/25/2010	Q4 2009 & Prediction 2009	2.3	5.1	2.3	10.4	0.3
6/30/2010	Q1 2010 & Actual 2009	2.7	0.7	0.5	4.2	0.2
9/23/2010	Q2 2010	1.2	1.8	0.3	4.1	0.2
12/16/2010	Q3 2010	0.5	0.5	1.1	1.6	0.5
3/24/2011	Q4 2010 & Prediction 2010	1.6	0.7	2	2.8	0.4
6/23/2011	Q1 2011 & Actual 2010	1.3	0.1	4.3	0.9	1.9
9/22/2011	Q2 2011	1.6	2.3	1.1	1.1	0.3
12/16/2011	Q3 2011	1.9	0.1	2.2	4.2	1.3
3/22/2012	Q4 2011 & Prediction 2011	0.2	0.7	2.2	7.1	0.5
7/12/2012	Q1 2012 & Actual 2011	1.1	1.2	1.3	0.2	2.1
9/20/2012	Q2 2012	0	1.1	4.3	2.9	0.4
12/18/2012	Q3 2012	0.2	0.8	0.4	3.7	0.5
3/21/2013	Q4 2012 & Prediction 2012	0	0	0.8	3	1
6/27/2013	Q1 2013 & Actual 2012	0.6	0.9	2.9	6.1	3
9/19/2013	Q2 2013	0.4	1.2	0.4	0.1	0.7
12/19/2013	Q3 2013	1.5	1.7	1.6	3.9	0.9
3/13/2014	Q4 2013 & Prediction 2013	2.3	0.7	0.2	4.2	0.6
7/3/2014	Q1 2014 & Actual 2013	2.7	4.1	0.5	3.4	0.1
9/18/2014	Q2 2014	1.5	7.7	0.6	9	0.3
12/11/2014	Q3 2014	0.1	3.5	0.5	2.5	0
3/12/2015	Q4 2014 & Prediction 2014	0.2	4.1	2.3	6.3	1.3
7/30/2015	Q1 2015 & Actual 2014	1.4	6.5	0.8	7.3	1.2
9/10/2015	Q2 2015	1.9	6.7	1.9	5.3	0.4
12/10/2015	Q3 2015	1.4	7	0.8	3.2	0.7
3/10/2016	Q4 2015 & Prediction 2015	2.7	9.2	3.4	5.2	1
7/12/2016	Q1 2016 & Actual 2015	2.1	2.3	1.3	10.6	2.1

ISEQDelta_T regression data (5/6)

Date	Release Event	HouseholdConsumptionPriorYear _T (%)	GovernmentConsumptionPriorQuarter _T (%)	GovernmentConsumptionPriorYear _T (%)	InvestmentPriorQuarter _T (%)	InvestmentPriorYear _T (%)	ExportsPriorQuarter _T (%)
9/25/2008	Q2 2008	1.4	1.1	4	4.3	18.8	1.3
12/18/2008	Q3 2008	1.3	0.7	1.8	0	14.7	1.1
3/26/2009	Q4 2008 & Prediction 2008	4	0.1	0.5	15.4	30.6	2.6
6/30/2009	Q1 2009 & Actual 2008	9.1	0.3	1.2	13.2	34.1	0.7
9/24/2009	Q2 2009	6.8	0.9	0.9	5.7	24.4	0.2
12/17/2009	Q3 2009	7.3	0.9	2	9.9	35	0.6
3/25/2010	Q4 2009 & Prediction 2009	5.2	0.8	3.5	9.7	28.2	0.1
6/30/2010	Q1 2010 & Actual 2009	0.8	0.9	6.4	13.8	30	6.9
9/23/2010	Q2 2010	1.7	0.8	3.4	11.5	19.9	1.6
12/16/2010	Q3 2010	1.3	1.7	5.2	18.1	30.9	3.6
3/24/2011	Q4 2010 & Prediction 2010	1.4	0.3	0.7	2.3	26.7	1.4
6/23/2011	Q1 2011 & Actual 2010	2.9	1.9	4.2	1.1	9.1	3.8
9/22/2011	Q2 2011	2.4	0.8	3.3	6.4	14.3	1
12/16/2011	Q3 2011	3.9	1.3	3.9	20.9	22.2	0.8
3/22/2012	Q4 2011 & Prediction 2011	2.2	3.4	7	14	1.3	1.1
7/12/2012	Q1 2012 & Actual 2011	2.2	2.2	3.3	11.6	8	2.6
9/20/2012	Q2 2012	2.5	3.9	7	29.4	17.9	0.5
12/18/2012	Q3 2012	0.2	0.3	3.9	8.5	8.8	0.3
3/21/2013	Q4 2012 & Prediction 2012	0.2	0.7	2.6	0.1	2	0.5
6/27/2013	Q1 2013 & Actual 2012	1.6	0.3	1.8	7.4	19.8	3.2
9/19/2013	Q2 2013	1.3	1.3	1.7	3.4	1	4.3
12/19/2013	Q3 2013	1	1.1	1.1	10.9	8.3	0.8
3/13/2014	Q4 2013 & Prediction 2013	1.1	0.2	0.7	3.1	20.7	2.1
7/3/2014	Q1 2014 & Actual 2013	0.2	2.1	2.6	8.1	2.9	1.8
9/18/2014	Q2 2014	1.8	3.8	7.9	9.1	18.5	6.4
12/11/2014	Q3 2014	0	0.9	1.4	0.8	7.8	2.7
3/12/2015	Q4 2014 & Prediction 2014	2.1	0.1	2.7	0.7	8.2	1.2
7/30/2015	Q1 2015 & Actual 2014	3.8	0.4	5.9	3.1	4	2.3
9/10/2015	Q2 2015	2.8	0.7	1.7	19.2	34.2	5.4
12/10/2015	Q3 2015	3.6	1	1.4	4.9	35.8	2.2
3/10/2016	Q4 2015 & Prediction 2015	3.1	1.4	6.8	2.9	28.2	3.4
7/12/2016	Q1 2016 & Actual 2015	5	1.6	3.5	16.1	3.8	5

ISEQDelta_T regression data (6/6)

Date	Release Event	ExportsPriorYear _T (%)	ImportsPriorQuarter _T (%)	ImportsPriorYear _T (%)	IndustryPriorQuarter _T (%)	IndustryPriorYear _T (%)	DTCPriorQuarter _T (%)	DTCPriorYear _T (%)	OtherServicesPriorQuarter _T (%)	OtherServicesPriorYear _T (%)	FTSEDelta _T (BPS)	ISEQDelta _T (BPS)
9/25/2008	Q2 2008	2.4	2.4	1.1	0.9	1	2.2	4.3	0.5	2.5	67.8	-299.6
12/18/2008	Q3 2008	0.6	1.9	6	0.5	2.4	0.1	4.3	0.8	2.1	-97.0	88.4
3/26/2009	Q4 2008 & Prediction 2008	4.9	3.5	10.4	9.9	12.5	2.1	8.3	2.3	2.2	12.0	25.3
6/30/2009	Q1 2009 & Actual 2008	3	3.9	11.7	4.6	10.5	4.3	10.9	0.9	3.5	-29.8	-66.6
9/24/2009	Q2 2009	2.5	1	7.1	1.6	11.3	0.3	8.6	0.7	2.8	-22.1	60.4
12/17/2009	Q3 2009	2.6	4.5	11.9	0.3	9.6	2	9	0.2	3.4	-6.1	-110.5
3/25/2010	Q4 2009 & Prediction 2009	1.2	0.1	7.5	4.7	6	0.7	7	0.2	2.3	3.7	114.1
6/30/2010	Q1 2010 & Actual 2009	5.5	2	2.1	11.6	7.7	1.2	1.4	0	3.3	-21.0	-2.8
9/23/2010	Q2 2010	7.5	4.5	6.2	3.6	1.7	0.4	0.7	0.2	2	63.2	62.9
12/16/2010	Q3 2010	13.2	1.4	11	1.4	3.9	2.5	2.4	1.6	2.9	16.4	29.3
3/24/2011	Q4 2010 & Prediction 2010	10.6	0.1	9.6	1.9	9.8	0.4	1.9	0.5	2.8	47.0	72.6
6/23/2011	Q1 2011 & Actual 2010	7	0.3	3.5	0.4	0.7	1.3	1	0.7	1.5	-25.8	-73.8
9/22/2011	Q2 2011	4.9	0.6	0.1	0.4	7.5	0.7	0.4	0.1	0.7	35.1	-83.3
12/16/2011	Q3 2011	2.4	1.5	3.3	1.3	4	2.2	2.6	2.4	3	3.9	4.6
3/22/2012	Q4 2011 & Prediction 2011	3.2	1	3.5	1.4	2.3	0.6	0.6	0.7	3.1	-10.0	30.5
7/12/2012	Q1 2012 & Actual 2011	6.1	4.9	1.4	0.9	2.2	11.5	9.7	0.7	1.5	-23.1	-36.4
9/20/2012	Q2 2012	2.1	5.2	2	4.6	7.8	0.3	6.1	1.7	3.5	-10.2	66.1
12/18/2012	Q3 2012	2	2.1	0.8	4	0	12.8	1.8	1.1	0.3	-35.1	-49.6
3/21/2013	Q4 2012 & Prediction 2012	2	0.8	2	5.9	10.1	3.3	9.4	0.4	0.4	23.1	-22.2
6/27/2013	Q1 2013 & Actual 2012	4.1	1	4.2	2.1	5.8	0.1	3.9	1.6	3.7	43.7	-23.1
9/19/2013	Q2 2013	1	0.7	2.6	0.3	7.1	1.4	5.3	0.1	2.8	100.5	47.4
12/19/2013	Q3 2013	0.6	0.3	1.3	2.2	2.8	2.1	0.4	1.2	3	80.2	105.9
3/13/2014	Q4 2013 & Prediction 2013	2.9	5.8	6.3	4.7	1.9	1.2	2.2	0.5	3	-56.7	-87.2
7/3/2014	Q1 2014 & Actual 2013	7.4	0.8	5.9	2.8	2.1	0.7	8	1.1	3.9	-1.8	86.5
9/18/2014	Q2 2014	13	6.2	11.8	4.7	6.5	2.9	11.3	0.8	2.7	2.4	57.2
12/11/2014	Q3 2014	15.5	3.5	15.6	0.5	2	0.2	6.4	1.7	3.7	-10.6	-33.7
3/12/2015	Q4 2014 & Prediction 2014	13.9	5.4	18.8	0.5	4.1	1.4	2.8	1	3.4	-43.7	84.3
7/30/2015	Q1 2015 & Actual 2014	14.3	0.6	14.7	0.5	9	2.1	6.5	0.3	4.4	5.1	-56.3
9/10/2015	Q2 2015	13.6	6.3	16.9	4.2	4.4	2.9	11.4	0.2	4.4	10.1	46.0
12/10/2015	Q3 2015	12.4	5.4	18.9	2.5	16.1	1.3	8.3	1.4	3.8	5.0	10.4
3/10/2016	Q4 2015 & Prediction 2015	15.6	2.5	15.2	6.4	23.3	0.2	6.2	1.1	4.7	99.5	122.1
7/12/2016	Q1 2016 & Actual 2015	1.3	9.8	2.6	9.2	1.8	2.8	2.6	1.6	6.7	-90.9	-76.1

BondDelta_T correlation table

	GDP Surprise _T (%)	GNP Surprise _T (%)	Household Consumption Surprise _T (%)	Government Consumption Surprise _T (%)	Investment Surprise _T (%)	Exports Surprise _T (%)	Imports Surprise _T (%)	Industry Surprise _T (%)	DTCS Surprise _T (%)	Other Services Surprise _T (%)	Gilt Delta _T (BPS)	Bond Delta _T (BPS)
GDP Surprise _T (%)	1.00											
GNP Surprise _T (%)	0.95	1.00										
Household Consumption Surprise _T (%)	0.42	0.36	1.00									
Government Consumption Surprise _T (%)	0.15	0.13	0.13	1.00								
Investment Surprise _T (%)	0.39	0.41	0.21	0.03	1.00							
Exports Surprise _T (%)	0.95	0.87	0.37	0.17	0.26	1.00						
Imports Surprise _T (%)	0.46	0.39	0.18	0.17	0.14	0.69	1.00					
Industry Surprise _T (%)	0.98	0.96	0.37	0.17	0.35	0.95	0.52	1.00				
DTCS Surprise _T (%)	-0.09	-0.13	-0.27	0.08	0.16	-0.09	-0.04	-0.16	1.00			
Other Services Surprise _T (%)	0.11	0.05	0.04	-0.30	0.47	0.11	0.19	0.09	-0.16	1.00		
Gilt Delta _T (BPS)	-0.08	0.05	0.15	0.44	0.36	-0.16	-0.13	-0.05	-0.10	0.28	1.00	
Bond Delta _T (BPS)	-0.17	-0.11	0.10	-0.30	0.19	-0.29	-0.45	-0.25	0.22	-0.15	0.13	1.00

Appendix: 2015 NIE Tables

2015 NIE Table A: Main Aggregates, 2010-2015

Table A Main Aggregates, 2010-2015						
Description	2010	2011	2012	2013	2014	2015 ¹
						€ million
Gross Domestic Product (GDP) at current market prices	167,124	173,070	175,754	180,209	193,160	255,815
plus Net factor income from the rest of the world	-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
Gross National Product (GNP) at current market prices	138,667	139,282	142,203	151,899	163,445	202,642
EU subsidies	1,494	1,698	1,632	1,450	1,318	1,571
EU taxes	-229	-240	-242	-247	-275	-327
Gross National Income (GNI) at current market prices	139,932	140,741	143,593	153,102	164,488	203,886
less provision for depreciation	-25,087	-25,349	-26,994	-28,452	-30,891	-61,558
less Non EU taxes	-18,063	-17,779	-18,344	-19,285	-21,196	-22,455
plus Non EU subsidies	1,828	1,725	1,921	1,913	1,853	1,785
Net National Product at factor cost	98,610	99,338	100,175	107,278	114,254	121,658
Gross National Disposable Income at current market prices	137,253	138,099	140,999	150,194	161,759	200,762
Chained linked volume measures referenced to year 2014						€ million
Gross Domestic Product at constant market prices	178,190	178,118	176,153	178,089	193,160	243,914
Index of GDP at constant market prices	92.3	92.2	91.2	92.2	100.0	126.3
Gross National Product at constant market prices	149,379	143,434	142,903	149,658	163,445	193,986
Index of GNP at constant market prices	91.4	87.8	87.4	91.6	100.0	118.7
Gross National Income at constant market prices	150,952	144,983	144,372	150,794	164,488	195,169
Index of GNI at constant market prices	91.8	88.1	87.8	91.7	100.0	118.7
Gross national disposable income at constant market prices	146,308	144,583	144,831	151,050	161,759	199,737
Index of gross national disposable income at constant market prices	90.4	89.4	89.5	93.4	100.0	123.5
Per head of population						(€)
GDP at current market prices	36,692	37,830	38,329	39,235	41,904	55,187
GNP at current market prices	30,444	30,445	31,012	33,071	35,457	43,716
GNI at current market prices	30,722	30,764	31,315	33,333	35,684	43,985
GNDI at current market prices	30,134	30,186	30,749	32,700	35,092	43,311
Net national product at factor cost	21,650	21,714	21,847	23,356	24,786	26,246
GDP at constant market prices	39,121	38,934	38,416	38,773	41,904	52,620
GNP at constant market prices	32,796	31,352	31,165	32,583	35,457	41,849
GNI at constant market prices	33,141	31,691	31,485	32,831	35,684	42,104
GNDI at constant market prices	32,122	31,604	31,585	32,886	35,092	43,090
Per person in employment ²						(€)
GDP at current market prices	88,257	92,984	95,716	96,374	101,577	130,605
GNP at current market prices	73,230	74,831	77,444	81,234	85,951	103,457
GNI at current market prices	73,898	75,614	78,201	81,877	86,500	104,093
GNDI at current market prices	72,483	74,195	76,788	80,322	85,064	102,498
Net national product at factor cost	52,076	53,370	54,556	57,371	60,083	62,112
GDP at constant market prices	94,101	95,695	95,934	95,240	101,577	124,529
GNP at constant market prices	78,886	77,061	77,825	80,035	85,951	99,038
GNI at constant market prices	79,717	77,893	78,625	80,643	86,500	99,642
GNDI at constant market prices	77,265	77,679	78,875	80,780	85,064	101,974
¹ Preliminary						
² Persons in employment on an ILO basis as in the QNHS (April-June) for 2010 to 2015						

2015 NIE Table B: Annual Percentage Changes in the Main Aggregates, Deflators and CPI

Table B Annual Percentage Changes in the Main Aggregates, Deflators and the Consumer Price Index

Description	2010-2015	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Gross Domestic Product (GDP) at current market prices	8.9	3.6	1.6	2.5	7.2	32.4
Gross National Product (GNP) at current market prices	7.9	0.4	2.1	6.8	7.6	24.0
Gross National Income (GNI) at current market prices	7.8	0.6	2.0	6.6	7.4	24.0
Gross National Disposable Income (GNDI)						
at current market prices	7.9	0.6	2.1	6.5	7.7	24.1
Net national product at factor cost	4.3	0.7	0.8	7.1	6.5	6.5
Chain linked volume measures referenced to year 2014						
Gross Domestic Product at constant market prices	6.5	-0.0	-1.1	1.1	8.5	26.3
Gross National Product at constant market prices	5.4	-4.0	-0.4	4.7	9.2	18.7
Gross National Income at constant market prices	5.3	-4.0	-0.4	4.4	9.1	18.7
Gross National Disposable Income at constant market prices	6.4	-1.2	0.2	4.3	7.1	23.5
GDP deflator	2.3	3.6	2.7	1.4	-1.2	4.9
GNP deflator	2.4	4.6	2.5	2.0	-1.5	4.5
GNI deflator	2.4	4.7	2.5	2.1	-1.5	4.5
GNDI deflator	1.4	1.8	1.9	2.1	0.6	0.5
Consumer price index	0.9	2.6	1.7	0.5	0.2	1.2

2015 NIE Table 1: Net Value Added at Factor Cost and Net National Income at Market Prices

Table 1 Net Value Added at Factor Cost and Net National Income at Market Prices

Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
							€ million
Value added from agriculture, forestry and fishing	(B.1n-D.29+D.39) Pt	2,572	3,256	3,022	3,159	3,326	3,296
1. Income from self-employment and other trading income	B.3 (Pt)	1,953	2,633	2,398	2,468	2,599	2,625
Remuneration of employees:	D.1 (Pt)						
2. Wages and salaries	(D.11+D.12) Pt	568	571	572	636	671	614
3. Employers' contribution to social insurance	D.12 (Pt)	52	52	53	54	56	57
Non-agricultural value added	(B.1n-D.29+D.39) Pt	124,456	130,019	131,171	134,751	142,556	171,381
Profits and self employed earnings:							
4. Domestic trading profits of companies (including corporate bodies) before tax	B.2 (Pt)	41,105	46,894	46,764	47,913	52,302	75,398
5. Self employed earnings	B.3 (Pt)	8,382	7,375	7,070	7,175	7,361	7,927
of which:							
5(a) Withdrawals from quasi-corporations ²	D.422	821	691	736	713	733	788
6. Adjustment for stock appreciation	B.2 (Pt)	-310	-239	480	539	248	17
7. Rent of dwellings (actual and imputed)	B.2 (Pt)	6,854	7,090	7,866	8,169	9,221	10,415
of which imputed rent		5,235	5,316	5,858	6,053	6,820	7,699
8. Rent element in land annuities		1	0	1	0	0	0
Remuneration of employees:	D.1 (Pt)						
9. Wages and salaries	(D.11+D.12) Pt	63,545	63,586	64,035	65,684	67,662	71,469
10. Employers' contribution to social insurance	D.12 (Pt)	4,880	5,313	4,956	5,272	5,761	6,155
Adjustments:							
12. Statistical discrepancy		39	-149	-467	-2,322	-1,913	155
13. Net value added at factor cost	(B.1n-D.29+D.39)	127,067	133,125	133,726	135,588	143,969	174,831
14. Net factor income from the rest of the world	D.1 & D.4 (net to abroad)	-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
15. Net national product at factor cost		98,610	99,338	100,175	107,278	114,254	121,658
16. National (i.e. non EU) taxes	D.2 (Pt)	18,063	17,779	18,344	19,285	21,196	22,455
17. National (i.e. non EU) subsidies	D.3 (Pt)	-1,828	-1,725	-1,921	-1,913	-1,853	-1,785
18. Net national income at market prices	B.5*n	114,845	115,392	116,599	124,650	133,597	142,328

¹Preliminary

² This represents the earnings of the owners of large non incorporated businesses (e.g. large partnerships) which are [similar to companies of an equivalent size].

2015 NIE Table 2(a): Net Value Added at Factor Cost by Sector & GNI at Current Market Prices

Table 2 Net Value Added at Factor Cost by Sector of Origin and Gross National Income at Current Market Prices ¹

(Note the sectors here are based on NACE Rev. 2. For further details see the background and methodology notes)

Description	ESA Code	2010	2011	2012	2013	2014
						€ million
19. Agriculture, forestry and fishing						
Net value added	(B.1n-D.29+D.39) Pt	2,573	3,256	3,023	3,159	3,326
Remuneration of employees	D.1 (Pt)	620	623	625	690	727
Other	(B.2 & B.3) Pt	1,953	2,634	2,399	2,469	2,599
20. Industry (including building)						
Net value added	(B.1n-D.29+D.39) Pt	32,089	37,642	37,378	37,801	39,662
Remuneration of employees	D.1 (Pt)	14,194	14,024	13,588	14,196	14,919
Other	(B.2 & B.3) Pt	18,568	23,859	23,304	23,336	24,999
Adjustment for stock appreciation	(B.2 & B.3) Pt	-672	-241	486	269	-256
20a. Industry						
Net value added	(B.1n-D.29+D.39) Pt	30,054	35,410	34,055	33,544	34,541
Remuneration of employees	D.1 (Pt)	10,184	10,690	10,521	11,006	11,274
Other	(B.2 & B.3) Pt	20,543	24,961	23,048	22,269	23,523
Adjustment for stock appreciation	(B.2 & B.3) Pt	-672	-241	486	269	-256
20b. Building and construction						
Net value added	(B.1n-D.29+D.39) Pt	2,035	2,232	3,323	4,257	5,121
Remuneration of employees	D.1 (Pt)	4,010	3,334	3,067	3,190	3,645
Other	(B.2 & B.3) Pt	-1,975	-1,101	256	1,067	1,476
21. Distribution, transport, software and communication						
Net value added	(B.1n-D.29+D.39) Pt	32,302	33,089	34,885	37,866	40,127
Remuneration of employees	D.1 (Pt)	17,395	17,541	18,160	19,364	19,938
Other	(B.2 & B.3) Pt	14,545	15,547	16,731	18,232	19,685
Adjustment for stock appreciation	(B.2 & B.3) Pt	362	1	-6	270	504

2015 NIE Table 2(b): Net Value Added at Factor Cost by Sector & GNI at Current Market Prices

22. Public administration and defence						
Remuneration of employees	D.1 (Pt)	5,506	5,749	5,617	5,690	5,801
23. Other services (including rent)						
Net value added	(B.1n-D.29+D.39) Pt	54,557	53,538	53,291	53,394	56,965
Remuneration of employees	D.1 (Pt)	31,329	31,586	31,626	31,706	32,765
Other	(B.2 & B.3) Pt	23,228	21,952	21,665	21,688	24,200
26. Statistical discrepancy (= Item 12)		39	-149	-467	-2,322	-1,913
27. Net value added at factor cost	B.1n-D.29+D.39	127,067	133,125	133,726	135,588	143,969
28. plus Provision for depreciation	P.51c	25,087	25,349	26,994	28,452	30,891
Agriculture, forestry and fishing		796	759	756	772	828
Industry (including building)		6,698	6,535	6,763	6,881	6,863
Industry		6,250	6,158	6,430	6,583	6,579
Building and construction		448	377	333	298	284
Distribution, transport, software and communication		5,535	5,690	6,332	6,723	6,980
Public administration and defence		1,295	1,282	1,306	1,323	1,360
Other services		10,763	11,083	11,837	12,753	14,860
29. Gross value added at factor cost	B.1g-D.29+D.39	152,154	158,474	160,721	164,041	174,860
30. Non product taxes	D.29	1,981	2,074	2,245	2,536	2,957
31. Non product subsidies	D.39	-2,212	-2,335	-2,465	-2,284	-2,191
32. Gross value added at basic prices	B.1g	151,924	158,213	160,501	164,293	175,626
33. Product taxes	D.21	16,311	15,945	16,341	16,996	18,514
34. Product subsidies	D.31	-1,111	-1,088	-1,089	-1,079	-981
35. Gross domestic product at current market prices	B.1*g	167,124	173,070	175,754	180,209	193,160
36. Net factor income from the rest of the world	D.1 & D.4 (net to abroad)	-28,457	-33,788	-33,551	-28,310	-29,715
37. Gross national product at current market prices		138,667	139,282	142,203	151,899	163,445
38. EU subsidies	D.3 (Pt)	1,494	1,698	1,632	1,450	1,318
39. EU taxes	D.2 (Pt)	-229	-240	-242	-247	-275
40. Gross national income at current market prices	B.5*g	139,932	140,741	143,593	153,102	164,488

¹ 2015 results are suppressed in this table for confidentiality reasons

2015 NIE Table 3: Gross Value Added at Factor Cost by Sector & GNI at Current Market Prices

Table 3 Gross Value Added at Factor Cost by Sector of Origin and Gross National Income at Current Market Prices

(Note the sectors here are based on NACE Rev. 2. For further details see the background and methodology notes)

Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
							€ million
41. Agriculture, forestry and fishing	(B.1g-D.29+D.39) Pt	3,369	4,015	3,779	3,932	4,154	4,135
42. Industry (including building)	(B.1g-D.29+D.39) Pt	38,787	44,177	44,141	44,682	46,525	97,792
42a. Industry	(B.1g-D.29+D.39) Pt	36,304	41,568	40,485	40,127	41,121	91,796
42b. Building and construction	(B.1g-D.29+D.39) Pt	2,482	2,609	3,656	4,555	5,405	5,996
43. Distribution, transport, software and communication	(B.1g-D.29+D.39) Pt	37,837	38,779	41,217	44,589	47,107	48,846
44. Public administration and defence	(B.1g-D.29+D.39) Pt	6,802	7,031	6,922	7,013	7,161	7,430
45. Other services (including rent)	(B.1g-D.29+D.39) Pt	65,320	64,621	65,128	66,147	71,825	78,032
47. Statistical discrepancy (= Item 12)		39	-149	-467	-2,322	-1,913	155
48. Gross value added at factor cost	B.1g-D.29+D.39	152,154	158,474	160,721	164,041	174,860	236,389
49. Non product taxes	D.29	1,981	2,074	2,245	2,536	2,957	3,023
50. Non product subsidies	D.39	-2,212	-2,335	-2,465	-2,284	-2,191	-2,444
51. Gross value added at basic prices	B.1g	151,924	158,213	160,501	164,293	175,626	236,968
52. Product taxes	D.21	16,311	15,945	16,341	16,996	18,514	19,758
53. Product subsidies	D.31	-1,111	-1,088	-1,089	-1,079	-981	-911
54. Gross domestic product at current market prices	B.1*g	167,124	173,070	175,754	180,209	193,160	255,815
55. Net factor income from the rest of the world	D.1 & D.4	-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
	(net to abroad)						
56. Gross national product at current market prices		138,667	139,282	142,203	151,899	163,445	202,642
57. EU subsidies	D.3 (Pt)	1,494	1,698	1,632	1,450	1,318	1,571
58. EU taxes	D.2 (Pt)	-229	-240	-242	-247	-275	-327
59. Gross national income at current market prices	B.5*g	139,932	140,741	143,593	153,102	164,488	203,886

¹Preliminary

2015 NIE Table 21(a): Gross Value Added at Current Basic Prices

Table 21 Gross Value Added at Current Basic Prices

NACE REV. 2 section	NACE REV. 2 division	Description	2010	2011	2012	2013	2014	2015 ¹
A	01-03	Agriculture, forestry and fishing	1,597	2,240	1,845	2,195	2,585	2,398
B	05-09	Mining and quarrying	687	786	921	761	754	899
C	10-33	Manufacturing	32,758	37,865	36,218	35,832	37,093	87,448
		of which						
CA	10-12	food products, beverages and tobacco products	6,497	6,737	7,082	7,964	8,744	9,287
CB	13-15	textiles, wearing apparel and leather products	151	160	154	149	155	159
CC	16-18	wood and paper products, and printing	736	762	671	749	754	801
CD-CE	19-20	coke and refined petroleum products, chemicals and chemical products	1,634	2,250	3,392	3,434	3,070	3,764
CF ²	21	basic pharmaceutical products and pharmaceutical preparations	14,788	17,100	14,364	12,297	12,965	n/a
CG	22-23	rubber and plastic products, and other non-metallic mineral products	775	834	826	980	1,028	1,095
CH	24-25	basic metals and fabricated metal products, except machinery and equipment	729	792	808	893	918	984
CI ²	26	computer, electronic and optical products	3,166	3,310	3,492	3,044	2,929	n/a
CJ	27	electrical equipment	126	263	256	296	337	354
CK ²	28	machinery and equipment n.e.c.	671	874	965	1,029	1,058	n/a
CL	29-30	transport equipment	209	325	304	298	258	259
CM ²	31-33	furniture; other manufacturing; repair and installation of machinery and equipment	3,275	4,458	3,903	4,701	4,878	n/a
D	35	Electricity, gas, steam and air-conditioning supply	2,475	3,044	3,324	3,518	3,230	3,312
E	36-39	Water Supply; sewerage, waste management and remediation activities	1,160	659	813	823	871	959
F	41-43	Construction	2,509	2,635	3,683	4,583	5,434	6,025
G	45-47	Wholesale and retail trade, repair of motor vehicles and motorcycles	15,216	16,481	17,017	18,712	18,748	19,648
H	49-53	Transportation and storage	6,053	5,642	5,512	5,733	6,163	6,374
I	55-56	Accommodation and food services activities	3,316	2,894	3,127	3,829	4,112	4,295
JA	58-60	Publishing, audiovisual and broadcasting activities	6,814	8,112	9,219	9,209	11,093	10,385
JB	61	Telecommunications	2,560	2,299	2,142	2,049	1,506	1,892
JC	62-63	Computer programming, consultancy and related activities; information service activities	4,460	3,931	4,788	5,672	6,120	6,888
K	64-66	Financial and insurance activities	17,088	15,226	14,602	13,250	15,560	14,966
L	68	Real estate activities	9,995	10,696	11,902	12,655	14,392	15,873

€ million

2015 NIE Table 21(b): Gross Value Added at Current Basic Prices

MA	69-71	Legal and accounting activities; activities of head offices; management consultancy activities; architecture and engineering activities; technical testing and analysis	4,384	5,523	5,521	6,359	6,655	7,208
MB	72	Scientific research and development	600	533	433	729	786	810
MC	73-75	Advertising and market research; other professional, scientific and technical activities; veterinary activities	1,836	1,184	995	1,251	1,422	1,598
N	77-82	Administrative and support service activities	6,946	7,845	8,239	8,583	9,850	13,136
O	84	Public administration and defence; compulsory social security	6,807	7,036	6,928	7,019	7,167	7,436
P	85	Education	9,227	8,501	8,668	8,758	8,691	9,031
QA	86	Human health activities	8,951	9,261	9,042	8,642	8,689	9,227
QB	87-88	Social work activities	2,893	2,690	2,786	3,113	3,188	3,460
R	90-93	Arts, entertainment and recreation	2,437	2,176	2,087	2,131	2,063	2,179
S	94-96	Other service activities	980	955	997	1,066	1,233	1,189
T	97-98	Activities of households as employers of domestic personnel and undifferentiated goods and services production for households for own use	133	149	157	142	132	177
U ³	99	Activities of extra-territorial organisations and bodies	1	2	0	6	3	0
		Statistical Discrepancy	39	-149	-467	-2,322	-1,913	155
		Gross value added at current basic prices	151,924	158,213	160,501	164,293	175,626	236,969
¹ Preliminary								
² Nace Rev.2 sections CF, CI, CK and CM are suppressed for 2015 for confidentiality reasons								
³ Sector U is not included in the total as per ESA 2010 Section 2.06.								

2015 NIE Table 22(a): Gross Value Added at Constant Basic Prices

Table 22 Gross Value Added at Constant Basic Prices (chain linked annually and referenced to year 2014)

NACE REV. 2			2010	2011	2012	2013	2014	2015 ¹
section	division	Description						€ million
A	01-03	Agriculture, forestry and fishing	2,274	2,524	2,263	2,178	2,585	2,865
B	05-09	Mining and quarrying	762	651	583	840	754	679
C	10-33	Manufacturing	37,782	37,968	37,332	34,819	37,093	78,094
		of which						
CA	10-12	food products, beverages and tobacco products	6,146	7,249	7,581	8,015	8,744	8,945
CB	13-15	textiles, wearing apparel and leather products	182	164	147	150	155	155
CC	16-18	wood and paper products, and printing	824	806	777	743	754	783
CD-CE	19-20	coke and refined petroleum products, chemicals and chemical products	2,372	3,165	3,597	3,493	3,070	2,685
CF ²	21	basic pharmaceutical products and pharmaceutical preparations	14,423	14,235	12,879	11,510	12,965	n/a
CG	22-23	rubber and plastic products, and other non-metallic mineral products	1,033	1,072	1,000	1,022	1,028	1,138
CH	24-25	basic metals and fabricated metal products, except machinery and equipment	744	842	744	820	918	987
CI ²	26	computer, electronic and optical products	4,425	3,334	3,651	2,974	2,929	n/a
CJ	27	electrical equipment	298	357	358	363	337	339
CK ²	28	machinery and equipment n.e.c.	726	860	914	922	1,058	n/a
CL	29-30	transport equipment	370	369	343	327	258	257
CM ²	31-33	furniture; other manufacturing; repair and installation of machinery and equipment	6,120	5,201	5,459	4,559	4,878	n/a
D	35	Electricity, gas, steam and air-conditioning supply	3,141	3,066	3,005	2,845	3,230	3,228
E	36-39	Water Supply; sewerage, waste management and remediation activities	893	888	884	863	871	844
F	41-43	Construction	5,638	4,917	4,586	4,966	5,434	5,817
G	45-47	Wholesale and retail trade, repair of motor vehicles and motorcycles	17,923	17,713	17,612	17,678	18,748	20,057
H	49-53	Transportation and storage	5,463	5,445	5,519	5,584	6,163	6,609
I	55-56	Accommodation and food services activities	4,081	4,053	3,885	4,011	4,112	4,311
JA	58-60	Publishing, audiovisual and broadcasting activities	8,176	8,949	8,442	10,099	11,093	12,508
JB	61	Telecommunications	2,095	1,798	1,594	1,563	1,506	1,461
JC	62-63	Computer programming, consultancy and related activities; information service activities	4,548	4,024	4,736	5,700	6,120	6,472
K	64-66	Financial and insurance activities	20,217	19,643	15,780	13,988	15,560	15,833
L	68	Real estate activities	10,170	8,294	9,770	11,118	14,392	14,904

2015 NIE Table 22(b): Gross Value Added at Constant Basic Prices

MA	69-71	Legal and accounting activities; activities of head offices; management consultancy activities; architecture and engineering activities; technical testing and analysis	4,942	6,082	6,050	6,317	6,655	6,726
MB	72	Scientific research and development	891	856	807	788	786	735
MC	73-75	Advertising and market research; other professional, scientific and technical activities; veterinary activities	1,341	1,358	1,325	1,376	1,422	1,406
N	77-82	Administrative and support service activities	5,697	6,077	7,123	7,988	9,850	12,924
O	84	Public administration and defence; compulsory social security	7,523	7,597	7,426	7,166	7,167	7,577
P	85	Education	8,468	8,515	8,534	8,606	8,691	8,809
QA	86	Human health activities	9,546	9,558	9,025	9,063	8,689	8,899
QB	87-88	Social work activities	3,095	3,193	3,102	3,211	3,188	3,401
R	90-93	Arts, entertainment and recreation	2,657	2,448	2,310	2,158	2,063	2,016
S	94-96	Other service activities	1,086	1,106	1,205	1,259	1,233	1,237
T	97-98	Activities of households as employers of domestic personnel and undifferentiated goods and services production for households for own use	204	228	206	173	132	183
U ³	99	Activities of extra-territorial organisations and bodies	0	0	0	2	3	8
		Statistical Discrepancy ⁴	~	~	~	~	-1,913	-1,677
		Gross value added at constat basic prices ⁵	161,968	162,941	161,081	162,561	175,626	225,918
¹ Preliminary								
² Nace Rev.2 sections CF, CI, CK and CM are suppressed for 2015 for confidentiality reasons								
³ Sector U is not included in the total as per ESA 2010 Section 2.06.								
⁴ Chain linked series not additive except for 2014 and 2015								

⁵The total GVA at constant basic prices differs in this table from that in Table 4. The chain linking here is done at a different level (37 sectors) to the level used in Table 4 (5 sectors). The methodology employed in the two tables differs also. Table 4 firstly calculates GVA at factor cost and then adjusts for taxes and subsidies to derive GVA at basic prices whereas in this table GVA at basic prices for each sector is compiled directly.

2015 NIE Table 4(a): Gross Value Added at Cons. Factor Cost by Sector & GNI at Constant Mkt Prices

Table 4 Gross Value Added at Constant Factor Cost by Sector of Origin and Gross National Income at Constant Market Prices

(chain linked annually and referenced to year 2014)

(Note the sectors here are based on NACE Rev. 2. For further details see the background and methodology notes)

							€ million
Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
60. Agriculture, forestry and fishing		3,937	4,109	3,960	3,651	4,154	4,585
61. Industry (including building)	(B.1g-D.29+D.39) Pt	46,984	46,564	45,525	43,461	46,525	87,144
Industry	(B.1g-D.29+D.39) Pt	41,673	41,643	40,834	38,511	41,121	81,355
of which ^{2 & 3}							
Chemicals and pharmaceuticals		17,329	17,688	16,481	14,956	16,056	n/a ³
Computers and Instrument engineering		4,396	3,295	3,613	2,933	2,886	n/a ³
Medical and dental instruments and supplies		1,778	2,048	1,986	1,803	2,953	n/a ³
Building and construction	(B.1g-D.29+D.39) Pt	5,622	4,895	4,560	4,938	5,405	5,789
62. Distribution, transport, software and communication	(B.1g-D.29+D.39) Pt	42,515	41,823	41,519	44,123	47,107	50,727
of which							
Software and communication		16,437	15,996	15,846	18,079	19,335	21,089
63. Public administration and defence	(B.1g-D.29+D.39) Pt	7,517	7,592	7,420	7,160	7,161	7,571
64. Other services (including rent)	(B.1g-D.29+D.39) Pt	65,396	64,170	63,579	64,918	71,825	76,023
66. Statistical discrepancy		..	..	..	..	-1,913	-1,677
67. Gross value added at constant factor cost	B.1g-D.29+D.39	162,818	163,173	161,093	161,897	174,860	224,372

2015 NIE Table 4(b): Gross Value Added at Cons. Factor Cost by Sector & GNI at Constant Mkt Prices

68. Non product taxes	D.29	1,953	2,056	2,231	2,529	2,957	3,023
69. Non product subsidies	D.39	-2,428	-2,524	-2,573	-2,353	-2,191	-2,396
70. Gross value added at constant basic prices	B.1g	162,344	162,717	160,773	162,089	175,626	224,999
71. Product taxes	D.21	16,888	16,450	16,415	17,029	18,514	19,817
72. Product subsidies	D.31	-1,051	-1,045	-1,031	-1,025	-981	-902
73. Gross domestic product at constant market prices	B.1 *g	178,190	178,118	176,153	178,089	193,160	243,914
74. Net factor income from the rest of the world	D.1 & D.4	-29,053	-34,618	-33,191	-28,452	-29,715	-49,928
	(net to abroad)						
75. Gross national product at constant market prices		149,379	143,434	142,903	149,658	163,445	193,986
76. EU subsidies	D.3 (Pt)	1,813	1,812	1,727	1,377	1,318	1,510
77. EU taxes	D.2 (Pt)	-231	-246	-244	-247	-275	-328
78. Gross national income at constant market prices	B.5*g	150,952	144,983	144,372	150,794	164,488	195,169
¹ Preliminary							
² The three sectors distinguished correspond to NACE Rev 2 classes 20 & 21; 26; 32.5.							
³ Sub-sector detail within the Industry Sector of Origin is suppressed for 2015 for confidentiality reasons							
..Chain linked series not additive except for 2014 and 2015							

2015 NIE Table 4.1: Annual Percentage Changes in the Main Constituents of Table 4

Table 4.1 Annual Percentage Changes in the Main Constituents of Table 4

Description	ESA Code	2010-2015	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Agriculture, forestry and fishing	(B.1g-D.29+D.39) Pt	3.1	4.4	-3.6	-7.8	13.8	10.4
Industry (including building)	(B.1g-D.29+D.39) Pt	13.2	-0.9	-2.2	-4.5	7.1	87.3
Industry	(B.1g-D.29+D.39) Pt	14.3	-0.1	-1.9	-5.7	6.8	97.8
of which ^{1&2}							
Chemicals and pharmaceuticals		n/a ²	2.1	-6.8	-9.3	7.4	n/a ²
Computers and Instrument engineering		n/a ²	-25.0	9.6	-18.8	-1.6	n/a ²
Medical and dental instruments & supplies		n/a ²	15.2	-3.0	-9.2	63.8	n/a ²
Building and construction	(B.1g-D.29+D.39) Pt	0.6	-12.9	-6.8	8.3	9.5	7.1
Distribution, transport, software and communication	(B.1g-D.29+D.39) Pt	3.6	-1.6	-0.7	6.3	6.8	7.7
of which							
Software and communication		5.1	-2.7	-0.9	14.1	6.9	9.1
Public administration and defence	(B.1g-D.29+D.39) Pt	0.1	1.0	-2.3	-3.5	0.0	5.7
Other services (including rent)	(B.1g-D.29+D.39) Pt	3.1	-1.9	-0.9	2.1	10.6	5.8
Gross value added at constant factor cost	B.1g-D.29+D.39	6.6	0.2	-1.3	0.5	8.0	28.3
Gross value added at constant basic prices	B.1g	6.7	0.2	-1.2	0.8	8.4	28.1
Gross domestic product at constant market prices	B.1*g	6.5	0.0	-1.1	1.1	8.5	26.3
Gross national product at constant market prices		5.4	-4.0	-0.4	4.7	9.2	18.7
Gross national income at constant market prices	B.5*g	5.3	-4.0	-0.4	4.4	9.1	18.7
¹ The three sectors distinguished correspond to NACE Rev 2 classes 20 & 21; 26; 32.5.							
² Sub-sector detail within the Industry Sector of Origin is suppressed for 2015 for confidentiality reasons							

2015 NIE Table 5: Expenditure on Gross National Income at Current Market Prices

Table 5 Expenditure on Gross National Income at Current Market Prices

Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
							€ million
79. Personal consumption of goods and services	P.3 (Pt)	83,741	83,684	84,203	84,983	87,760	92,377
of which:							
79(a) Final consumption expenditure of Households and NPISHs		78,785	78,726	78,961	79,940	82,566	87,260
79(b) Final consumption expenditure of government		4,956	4,958	5,242	5,043	5,194	5,117
80. Net expenditure by central and local government on current goods and services	P.3 (Pt)	26,631	26,625	25,901	25,550	26,479	26,985
81. Gross domestic fixed capital formation	P.51 (Pt) & P.53	29,482	29,813	34,178	32,887	39,572	54,103
82. Value of physical changes in stocks	P.51 (Pt) & P.52	-561	639	859	598	2,827	1,293
of which							
82(a) Net additions to the breeding stocks		-55	19	83	-20	1	128
83. Exports of goods and services ²	P.6	172,795	177,303	187,662	191,183	219,790	317,197
84. less Imports of goods and services ²	P.7	-144,925	-145,143	-157,516	-157,314	-185,182	-235,985
85. Statistical discrepancy (= - Item 12)		-39	149	467	2,322	1,913	-155
86. Gross domestic product at current market prices	B.1*g	167,124	173,070	175,754	180,209	193,160	255,815
87. Net factor income from the rest of the world	D.1 & D.4	-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
	(net to abroad)						
88. Gross national product at current market prices		138,667	139,282	142,203	151,899	163,445	202,642
89. EU subsidies	D.3 (Pt)	1,494	1,698	1,632	1,450	1,318	1,571
90. EU taxes	D.2 (Pt)	-229	-240	-242	-247	-275	-327
91. Gross national income at current market prices	B.5*g	139,932	140,741	143,593	153,102	164,488	203,886
¹ Preliminary							
² Excluding factor income flows							

2015 NIE Table 5.1: Annual Percentage Changes in the Main Constituents of Table 5

Table 5.1 Annual Percentage Changes in the Main Constituents of Table 5

Description	ESA Code	2010-2015	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Personal consumption of goods and services	P.3 (Pt)	2.0	-0.1	0.6	0.9	3.3	5.3
Net expenditure by central and local government on current goods and services	P.3 (Pt)	0.3	0.0	-2.7	-1.4	3.6	1.9
Gross domestic physical capital formation	P.5	13.9	5.3	15.1	-4.4	26.6	30.7
of which							
Gross domestic fixed capital formation	P.51 (Pt) & P.53	12.9	1.1	14.6	-3.8	20.3	36.7
Exports of goods and services	P.6	12.9	2.6	5.8	1.9	15.0	44.3
Imports of goods and services	P.7	10.2	0.2	8.5	-0.1	17.7	27.4
Gross domestic product at current market prices	B.1*g	8.9	3.6	1.6	2.5	7.2	32.4
Gross national product at current market prices		7.9	0.4	2.1	6.8	7.6	24.0
Gross national income at current market prices	B.5*g	7.8	0.6	2.0	6.6	7.4	24.0

2015 NIE Table 6: Expenditure on Gross National Income at Constant Market Prices

Table 6 Expenditure on Gross National Income at Constant Market Prices

(chain linked annually and referenced to year 2014)

		€ million					
Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
92. Personal consumption of goods and services	P.3 (Pt)	88,749	87,825	86,984	86,276	87,760	91,707
of which:							
92(a). Final consumption expenditure of Households and NPISHs		83,199	82,425	81,397	81,113	82,566	86,732
92(b). Final consumption expenditure of government		5,561	5,404	5,602	5,163	5,194	4,975
93. Net expenditure by central and local government on current goods and services	P.3 (Pt)	26,436	26,187	25,111	25,134	26,479	26,784
94. Gross domestic fixed capital formation	P.51 (Pt) & P.53	30,632	31,668	35,368	33,468	39,572	52,494
95. Value of physical changes in stocks	P.51 (Pt) & P.52	-549	613	855	574	2,827	1,219
of which:							
95(a). Net additions to the breeding stocks		-25	8	30	-7	1	110
96. Exports of goods and services ²	P.6	176,873	181,959	186,298	192,091	219,790	295,373
97. less Imports of goods and services ²	P.7	-146,860	-150,705	-158,825	-160,577	-185,182	-225,341
98. Statistical discrepancy (= - item 66)		..	..	..	..	1,913	1,677
99. Gross domestic product at constant market prices	B.1 *g	178,190	178,118	176,153	178,089	193,160	243,914
100. Net factor income from the rest of the world	D.1 & D.4	-29,053	-34,618	-33,191	-28,452	-29,715	-49,928
	(net to abroad)						
101. Gross national product at constant market prices		149,379	143,434	142,903	149,658	163,445	193,986
102. EU subsidies	D.3 (Pt)	1,813	1,812	1,727	1,377	1,318	1,510
103. EU Taxes	D.2 (Pt)	-231	-246	-244	-247	-275	-328
104. Gross national income at constant market prices	B.5 *g	150,952	144,983	144,372	150,794	164,488	195,169
¹ Preliminary							
² Excluding factor income flows							
..Chain linked series not additive except for 2014 and 2015							

2015 NIE Table 6.1: Annual Percentage Changes in the Main Constituents of Table 6

Table 6.1 Annual Percentage Changes in the Main Constituents of Table 6							
Description	ESA Code	2010-2015	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Personal consumption of goods and services	P.3 (Pt)	0.7	-1.0	-1.0	-0.8	1.7	4.5
Net expenditure by central and local government on current goods and services	P.3 (Pt)	0.3	-0.9	-4.1	0.1	5.4	1.1
Gross domestic physical capital formation	P.5	12.4	7.6	12.3	-6.0	24.9	26.7
of which							
Gross domestic fixed capital formation	P.51 (Pt) & P.53	11.4	3.4	11.7	-5.4	18.2	32.7
Exports of goods and services	P.6	10.8	2.9	2.4	3.1	14.4	34.4
Imports of goods and services	P.7	8.9	2.6	5.4	1.1	15.3	21.7
Gross domestic product at constant market prices	B.1*g	6.5	0.0	-1.1	1.1	8.5	26.3
Gross national product at constant market prices		5.4	-4.0	-0.4	4.7	9.2	18.7
Gross national income at constant market prices	B.5*g	5.3	-4.0	-0.4	4.4	9.1	18.7

2015 NIE Table 7: Gross National Disposable Income and its Use

Table 7 Gross National Disposable Income and its Use							
							€ million
Description	ESA Code	2010	2011	2012	2013	2014	2015 ¹
105. Gross domestic product at current market prices	B.1*g	167,124	173,070	175,754	180,209	193,160	255,815
106. Net factor income from the rest of the world	D.1 & D.4	-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
	(net to abroad)						
107. Gross national product at current market prices		138,667	139,282	142,203	151,899	163,445	202,642
108. EU subsidies	D.3 (Pt)	1,494	1,698	1,632	1,450	1,318	1,571
109. EU taxes	D.2 (Pt)	-229	-240	-242	-247	-275	-327
110. Gross national income at current market prices	B.5*g	139,932	140,741	143,593	153,102	164,488	203,886
111. Current transfers from the rest of the world							
less current transfers to the rest of the world (excluding EU subsidies and taxes)	D.7 (Pt)	-2,679	-2,641	-2,594	-2,908	-2,730	-3,124
112. Gross national disposable income	B.6g	137,253	138,099	140,999	150,194	161,759	200,762
113. Personal consumption of goods and services	P.3 (Pt)	83,741	83,684	84,203	84,983	87,760	92,377
114. Net expenditure by central and local government on current goods and services	P.3 (Pt)	26,631	26,625	25,901	25,550	26,479	26,985
115. Total consumption expenditure	P.3	110,373	110,309	110,104	110,533	114,240	119,362
116. Gross national savings	B.8g	26,881	27,790	30,894	39,661	47,519	81,400
117. Provision for depreciation	P.51c	25,087	25,349	26,994	28,452	30,891	61,558
118. Net national savings	B.8n	1,794	2,442	3,900	11,209	16,628	19,843

¹Preliminary

2015 NIE Table 7.1: Annual Percentage Changes in the Main Constituents of Table 7

Table 7.1 Annual Percentage Changes in the Main Constituents of Table 7

Description	ESA Code	2010-2015	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Gross domestic product at current market prices	B.1 *g	8.9	3.6	1.6	2.5	7.2	32.4
Gross national product at current market prices		7.9	0.4	2.1	6.8	7.6	24.0
Gross national disposable income	B.6g	7.9	0.6	2.1	6.5	7.7	24.1
Personal consumption of goods and services	P.3 (Pt)	2.0	-0.1	0.6	0.9	3.3	5.3
Net expenditure by central and local government on current goods and services	P.3 (Pt)	0.3	0.0	-2.7	-1.4	3.6	1.9
Total consumption expenditure	P.3	1.6	-0.1	-0.2	0.4	3.4	4.5
Gross national savings	B.8g	24.8	3.4	11.2	28.4	19.8	71.3
Provision for depreciation	D.7 (Pt)	19.7	1.0	6.5	5.4	8.6	99.3
Net national savings	B.8n	61.7	36.1	59.7	187.4	48.3	19.3

2015 NIE Table 11: Savings and Capital Formation

Table 11 Savings and Capital Formation

Description	2010	2011	2012	2013	2014	2015 ¹
Savings before adjustment for stock appreciation						
140. Personal	6,619	3,916	5,453	2,445	3,083	5,062
141. Companies	10,301	12,265	10,799	18,405	19,307	15,875
142. Central and local government ²	-14,817	-13,500	-12,832	-10,180	-6,010	-1,111
143. Net national savings before adjustment for stock appreciation	2,104	2,681	3,420	10,670	16,380	19,826
144. Adjustment for stock appreciation	-310	-239	480	539	248	17
145. Net national savings	1,794	2,442	3,900	11,209	16,628	19,843
146. Provision for depreciation	25,087	25,349	26,994	28,452	30,891	61,558
147. Net foreign capital transfers	91	234	86	-936	-6,769	-1,255
148. Net foreign disinvestment	1,910	2,576	4,523	-2,918	3,562	-24,904
149. Statistical discrepancy	39	-149	-467	-2,322	-1,913	155
150. Gross total available for investment in domestic physical capital formation	28,921	30,452	35,036	33,485	42,399	55,396
Capital formation						
151. Building and construction	11,220	9,359	9,366	10,827	12,479	14,244
152. Other home produced capital goods and services	3,878	4,344	4,248	4,789	4,246	5,759
153. Imported capital goods and services	14,384	16,110	20,564	17,271	22,847	34,101
154. Value of physical changes in agric. stocks	-162	-52	198	122	-67	126
155. Increase in value of non-agricultural stocks and work in progress (incl. EU intervention stocks)	-88	930	181	-63	2,646	1,150
156. Adjustment for stock appreciation	-310	-239	480	539	248	17
157. Gross domestic physical capital formation	28,921	30,452	35,036	33,485	42,399	55,396
¹ Preliminary						

²See explanatory note to Table 10 in methodology notes

In this table the total amount available for investment, (i.e. current savings, the provision for depreciation, net foreign capital transfers and net foreign disinvestment) is equated to gross domestic physical capital formation. The figures for capital formation are obtained by adding figures for imported and home produced capital goods ready for use to the value of the physical changes in stocks, including the value of the changes in agricultural stocks. Since personal savings (item 129 in Table 9) is a residual figure it includes the effect of the changes in agricultural and certain other stocks. Personal savings accordingly includes a substantial non-monetary element.

2015 NIE Table 17: Gross Domestic Physical Capital Formation at Constant Market Prices

Table 17 Gross Domestic Physical Capital Formation at Constant Market Prices

(chain linked annually and referenced to year 2014)

						€ million
Description	2010	2011	2012	2013	2014	2015 ¹
Fixed capital						
Dwellings	5,379	4,274	3,310	3,452	4,064	4,276
Roads	1,826	1,191	1,119	727	938	789
Other building and construction (including land rehabilitation etc.)	4,785	4,519	5,315	6,665	6,731	7,639
Costs associated with transfer of land and buildings	249	311	392	549	746	730
Transport equipment	6,953	7,616	10,320	7,583	9,556	8,786
Agricultural machinery	159	213	331	379	375	435
Other machinery and equipment	2,709	3,480	2,724	4,624	5,690	6,862
Software	1,116	1,183	1,337	1,407	1,490	1,667
Exploration	333	303	427	222	229	194
Artistic originals	174	191	145	169	174	165
Research and development	7,174	8,372	9,797	7,735	9,579	20,951
Gross domestic fixed capital formation	30,632	31,668	35,368	33,468	39,572	52,494
Changes in stocks						
Value of physical changes in stocks on farms	-204	-60	212	119	-67	110
Value of physical changes in EU intervention stocks	-144	-199	-72	0	0	4
Value of physical changes in other stocks	-344	674	664	457	2,894	1,105
Total value of physical changes in stocks	-549	613	855	574	2,827	1,219
164. Gross domestic physical capital formation at constant market prices	29,917	32,176	36,124	33,939	42,399	53,713
¹ Preliminary						
Chain linked series not additive except for 2014 and 2015						

2015 NIE Table 18: GDFC Formation by Sector of Use at Constant Market Prices

Table 18 Gross Domestic Fixed Capital Formation by Sector of Use at Constant Market Prices						
(chain linked annually and referenced to year 2014)						
						€ million
Description	2010	2011	2012	2013	2014	2015 ¹
Agriculture, forestry and fishing	584	683	760	857	864	935
Fuel and power products	1,847	1,394	1,480	1,918	1,636	1,514
Manufacturing products	5,179	5,450	5,845	6,186	5,924	11,040
Building and construction	14	15	-6	28	99	141
Market services	20,714	21,807	25,214	21,958	28,512	36,057
Dwellings (incl. transfer costs)	5,417	4,415	3,518	3,741	4,453	4,657
Roads	1,826	1,191	1,119	727	938	789
Other market services	13,639	16,258	20,562	17,508	23,120	30,611
Non-market services	2,342	2,343	2,091	2,565	2,536	2,807
165. Gross domestic fixed capital formation at constant market prices	30,632	31,668	35,368	33,468	39,572	52,494
¹ Preliminary						
Chain linked series not additive except for 2014 and 2015						

2015 NIE Table 19: Balance of International Payments (Current Account)

Table 19 Balance of International Payments: Current Account

							€ million
Description		2010	2011	2012	2013	2014	2015 ¹
1. Merchandise and services ²	Cr	172,795	177,303	187,662	191,183	219,790	317,197
	Db	-144,925	-145,143	-157,516	-157,314	-185,182	-235,985
2. Net factor income		-28,457	-33,788	-33,551	-28,310	-29,715	-53,173
3. EU Subsidies less EU taxes		1,265	1,458	1,390	1,203	1,044	1,244
4. Net transfers		-2,679	-2,641	-2,594	-2,908	-2,730	-3,124
5. Net balance on current account		-2,001	-2,810	-4,609	3,854	3,207	26,159
¹ Preliminary							
² Adjusted for balance of payments purposes							

2015 NIE Table 20: BOP (Capital & Financial Account; Net Errors and Omissions)

Table 20 Balance of International Payments: Capital and Financial Account and Net Errors and Omissions

						€ million
Description	2010	2011	2012	2013	2014	2015 ¹
6. Balance on Capital Account	91	234	86	-936	-6,769	-1,255
Financial Account						
7. Direct Investment	-16,318	-18,698	-18,957	-12,996	3,031	-19,871
8. Portfolio Investment	-85,965	-26,908	-833	45,576	-56,662	-119,738
9. Other Investment ²	90,883	31,086	11,025	-26,436	48,089	161,898
10. Reserve Assets	-5	-329	-12	10	136	494
11. Balance on Financial account	-11,404	-14,849	-8,777	6,155	-5,404	22,784
12. Net errors and omissions	-9,495	-12,272	-4,254	3,237	-1,842	-2,120
¹ Preliminary						
² Including financial derivatives and trade credits						

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