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# Currency Unions and Irish External Trade

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# Currency Unions and Irish External Trade

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# CURRENCY UNIONS AND IRISH EXTERNAL TRADE *

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**Tara McIndoe**
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**Abstract**

Ireland has participated in two currency unions - a bilateral union with the United Kingdom that lasted until 1979 and as a founder member of European Monetary Union that began in 1999. This paper investigates whether currency unions have influenced Irish trade patterns.

(JEL: F14, F17, F31)

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* Lane's work on this paper was supported by the IRCHSS and the HEA-PRTLI grant to the IIIS. We thank Patrick Honohan for helpful suggestions and Luca Ricci for Stata code.

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## 1. Introduction

The impact of currency union on the volume of international trade has been studied intensively in recent years, following the seminal contribution of Rose (2000). Estimates vary widely across different specifications and samples, with the out-of-sample relevance of estimated coefficients much disputed. In particular, the original Rose estimates have been viewed as having limited relevance for currency unions among high-income countries. This has led to a wave of research that has tried to directly estimate the impact of European Monetary Union (EMU) on trade, rather than rely on estimates obtained from other currency unions. Prominent contributions in this literature include Micco et al (2003) and the survey by Baldwin (2006).

The 'EMU and trade' literature has recognized that differences in the structural characteristics and initial positions of the individual member countries mean that the impact of EMU is unlikely to be uniform across these countries. For this reason, it is useful to consider studies of individual member countries. In this regard, Ireland is a particularly interesting case, since EMU is not its first experience with currency union – until 1979, it was in a long-standing currency union with the United Kingdom. Accordingly, our goal in this paper is investigate the impact of these two currency unions on Irish trade.

Our paper relates to several recent contributions. The time series evidence on the relation between currency unions and trade has been most extensively explored by Glick and Rose (2002), who find a significant impact: for instance, leaving a currency union implies a decline in trade volume of about 50 percent. In relation to Ireland, Thom and Walsh (2002)

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investigated the impact of the currency union between Ireland and the United Kingdom that was in place from 1922 until 1979, when Ireland broke link with Sterling and entered the European Monetary System. However, neither of these studies incorporates the EMU period. In terms of methodology, Faruqee (2004) also adopts a cointegration framework and employs the dynamic ordinary least squares estimator. However, his panel only covers 1992-2002 and has twenty-two source countries – in contrast, we focus on a single source country (Ireland) and a much longer time span (1950-2004). Finally, Dwane (2006) provides a comprehensive review of the literature, data sources and methodologies that have been applied in studying Irish trade.

## 2. Data Description and Empirical Specification

We compile a long time series panel of data, running over 1950-2004, for Ireland's twenty one major trading partners that have data over this time period.[1] These countries are the EU-15, plus Australia, Canada, New Zealand, Norway, Switzerland and the United States.

Figures 1a and 1b show the evolution of the export shares of the United Kingdom and the EMU member countries over 1950-2004. The figures show a dramatic decline in the United Kingdom share of Irish exports and a substantial increase in the EMU share of Irish imports; there are similar, but less steep, changes in import shares. Our goal is to ask whether the shifts in trading patterns are related to changes in Ireland's participation in currency unions.

[1] A detailed data appendix is available from the auhors upon request.

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Our baseline empirical specification postulates a long-run relation between the volume of trade and a set of core regressors, including dummy variables to capture participation in a currency union. This can be written as

$$\log(T_{ijt}) = \alpha_j + \phi_t + \gamma_1 * EMU_IN_{jt} + \gamma_2 * EMU_OUT_{jt} + \gamma_3 * STERLING_{jt} + \gamma_4 * EU_{ijt} + \beta * Z_{ijt} + u_{ijt} \quad (1)$$

where $T_{ijt}$ is the level of trade between Ireland and trade partner $j$ in period $t$, $\alpha_j$ is a country dummy, $\phi_t$ is a time dummy, $EMU_IN_{jt}$ takes the value 1 if trade partner $j$ is also a member of EMU in period $t$ for $t \geq 1999$ and 0 otherwise; $EMU_OUT_{jt}$ takes the value 1 if trade partner $j$ is not a member of EMU in period $t$ for $t \geq 1999$ and 0 otherwise; $STERLING_{jt}$ takes the value 1 for the United Kingdom until 1978 and 0 otherwise; $EU_{ijt}$ takes the value 1 if both Ireland and the trading partner are members of the European Union in period $t$ and 0 otherwise; and $Z_{ijt}$ represent time-varying bilateral factors that influence trade volumes (in particular, the log levels of GDP and GDP per capita). The $EMU_OUT_{jt}$ variable is included to allow for the possibility that EMU boosts trade with all partner countries, for the reasons outlined in Baldwin (2006). The inclusion of country dummies means that the focus is only on the within-country variation in trade – differences in the level of trade across partner countries is not explored. Similarly, the inclusion of year dummies means that we strip out the impact of global factors that may affect the general level of trade with all partner countries, such as shifts in global trading costs.

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Since trade volumes, GDP and GDP per capita are non-stationary but cointegrated variables, dynamic ordinary least squares (DOLS) is an appropriate estimation framework.[2] This estimator includes leads and lags of the first differences of non-stationary regressors in order to correct for the impact of serial correlation in the residuals. In view of the limited time horizon, we implement a DOLS(-1,1) specification.

Table 1 reports our baseline specification. The estimates show that EMU is not directly associated with an increase in trade – either with other EMU partner countries or with non-member countries. However, the Sterling dummy is significantly positive – the level of trade between Ireland and the United Kingdom was significantly higher during the period of currency union up to 1979. This effect derives from the behavior of exports - the Sterling dummy is not significant for imports.

In terms of the other regressors, it shows that the time-series evolution of Irish trade is significantly linked to the dynamics of GDP per capita - trade expands with those partner countries that are growing most quickly. In addition, holding fixed GDP per capita, there is a significantly negative time-series association with the level of total GDP. The correct interpretation is that faster population growth in a partner country is associated with a relative decline in trade – we do not dwell on this result, which highlights the difference between cross-sectional analysis (total trade is increasing in country size) and time-series analysis.

[2] Unit root and cointegration test results are available upon request from the authors. See also Kao and Chiang (2000) and Faruqee (2004) on the DOLS estimator.

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In order to assess the robustness of the result that the Sterling currency union boosted trade, we explore an alternative specification in Table 2. In this specification, we allow the level of trade with the United Kingdom to be influenced by two other factors. First, following Thom and Walsh (2002), we interact the EU dummy with the United Kingdom country dummy, on the basis that membership of the European Union was another major factor in reducing the dependence of Ireland on the United Kingdom as a trading partner. Second, we also interact the United Kingdom country dummy with a time trend. This is intended to capture the gradual erosion over time of the special status of the United Kingdom as a trading partner, in view of the complex historical and political factors that accounted for the high degree of trade with the United Kingdom at the start of the sample period.[3]

Indeed, it turns out that the EMU dummies remain insignificant and the Sterling dummy is no longer significant in the alternative specification reported in Table 2. Rather, the dynamics of trade with the United Kingdom is better captured by the country-specific time trend - the table shows that there has been a gradual decline in exports to the United Kingdom, rather than 'step' changes associated with EU membership in 1973 and the breaking of the Sterling link in 1979. Again, the trend is only evident on the export side: the interaction terms are not significant for imports.

**Conclusions**

We have investigated the impact of currency unions on Irish trade patterns. In contrast to most of the multi-country panel studies, we do not find any impact of EMU on trade.

[3] See also Berger and Nitsch (2006) who argue that trade among EMU partner countries has shown a positive trend for many years.

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However, this is qualitatively consistent with the pattern noted by Baldwin (2006) that EMU has had a bigger impact on the 'core' member countries than on the peripheral member countries that have weaker economic linkages with the rest of the currency union. That said, we acknowledge that the time period may be too short to pick up the EMU effect on Irish trade – it will important to re-visit this study in a few years. Finally, in relation to the Sterling currency union, we have emphasized that the apparent significance of the Sterling link on trade is misleading – rather, Irish trade with the United Kingdom has shown a negative trend over many years.

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Table 1. Baseline Specification

Dynamic OLS Fixed Effects Estimates, 1950 – 2004

| | Trade | Imports | Exports |
|---|---|---|---|
| EMU – In | -0.189 | -0.054 | -0.135 |
| | (1.046) | (1.060) | (0.644) |
| EMU – Out | 0.409 | 0.405 | 0.004 |
| | (1.047) | (1.062) | (0.645) |
| Sterling | 2.428*** | 0.403 | 2.024*** |
| | (0.422) | (0.428) | (0.260) |
| EU | .072 | 0.023 | 0.049 |
| | (0.179) | (0.182) | (0.110) |
| Log of GDP | -3.853*** | -2.967*** | -0.887 |
| | (0.902) | (0.915) | (0.556) |
| Log of GDP per capita | 6.697*** | 4.439*** | 2.258*** |
| | (0.860) | (0.872) | (0.530) |
| F – test | 443.20 | 201.45 | 328.63 |
| (*p* – value) | (0.000) | (0.000) | (0.000) |
| $R^2$ | 0.972 | 0.940 | 0.962 |
| Adj $R^2$ | 0.970 | 0.935 | 0.959 |
| Root MSE | 0.767 | 0.471 | 0.542 |

Notes: ***, **, * indicates significance at 1, 5, 10 per cent levels.
Standard errors given in parentheses.
Number of observations is 1040. All specifications include time and country dummies.
Arellano-Bond test for AR(1) residuals: $H_0$ rejected in all specifications.

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Table 2. Alternative Specification

| Dynamic OLS Fixed Effects Estimates, 1950 – 2004 | | | |
|---|---|---|---|
| | Trade | Imports | Exports |
| EMU – In | -0.209 | -0.060 | -0.149 |
| | (0.999) | (1.048) | (0.606) |
| EMU – Out | 0.509 | 0.426 | 0.083 |
| | (1.002) | (1.050) | (0.608) |
| Sterling | 0.218 | 0.069 | 0.149 |
| | (0.777) | (0.816) | (0.472) |
| EU | 0.094 | 0.016 | 0.079 |
| | (0.173) | (0.182) | (0.105) |
| UK*EU | -0.328 | 0.260 | -0.588 |
| | (0.766) | (0.804) | (0.465) |
| UK*Trend | -0.079** | -0.021 | -0.057*** |
| | (0.031) | (0.032) | (0.019) |
| Log of GDP | -4.304*** | -3.057*** | -1.247** |
| | (0.873) | (0.916) | (0.530) |
| Log of GDP per capita | 6.958*** | 4.505*** | 2.453*** |
| | (0.827) | (0.867) | (0.502) |
| F – test | 446.68 | 197.07 | 335.40 |
| (*p* – value) | (0.000) | (0.000) | (0.000) |
| $R^2$ | 0.972 | 0.940 | 0.964 |
| Adj $R^2$ | 0.971 | 0.935 | 0.961 |
| Root MSE | 0.755 | 0.471 | 0.530 |

Notes: ***, **, * indicates significance at 1, 5, 10 per cent levels.
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Number of observations is 1040. All specifications include time and country dummies.
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Figure 1a. Ireland: Export Shares, 1950-2004

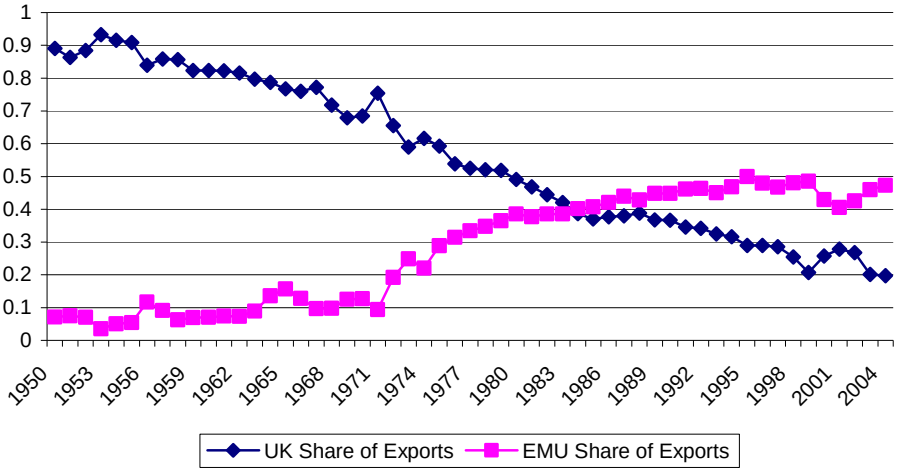
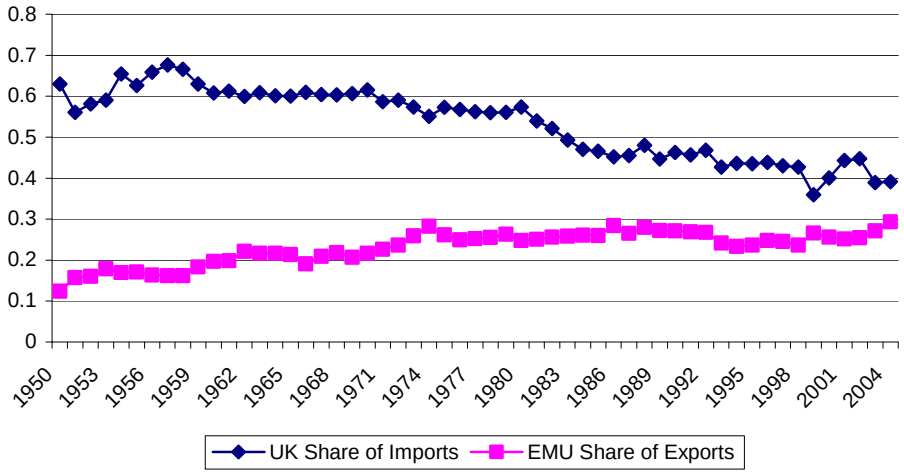



Figure 1b. Ireland: Import Shares, 1950-2004



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**Abstract**

Ireland has participated in two currency unions - a bilateral union with the United Kingdom that lasted until 1979 and as a founder member of European Monetary Union that began in 1999. This paper investigates whether currency unions have influenced Irish trade patterns.

(JEL: F14, F17, F31)

* Lane's work on this paper was supported by the IRCHSS and the HEA-PRTLI grant to the IIIS. We thank Patrick Honohan for helpful suggestions and Luca Ricci for Stata code. We thank the anonymous referee for useful comments. Correspondence: plane@tcd.ie

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## 1. Introduction

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The 'EMU and trade' literature has recognized that differences in the structural characteristics and initial positions of the individual member countries mean that the impact of EMU is unlikely to be uniform across these countries. For this reason, it is useful to consider studies of individual member countries. In this regard, Ireland is a particularly interesting case, since EMU is not its first experience with currency union – until 1979, it was in a long-standing currency union with the United Kingdom. Accordingly, our goal in this paper is investigate the impact of these two currency unions on Irish trade.

Our paper relates to several recent contributions. The time series evidence on the relation between currency unions and trade has been most extensively explored by Glick and Rose (2002), who find a significant impact: for instance, leaving a currency union implies a decline in trade volume of about 50 percent. In relation to Ireland, Thom and Walsh (2002)

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investigated the impact of the currency union between Ireland and the United Kingdom that was in place from 1922 until 1979, when Ireland broke link with Sterling and entered the European Monetary System. However, neither of these studies incorporates the EMU period. In terms of methodology, Faruqee (2004) also adopts a cointegration framework and employs the dynamic ordinary least squares estimator. However, his panel only covers 1992-2002 and has twenty-two source countries – in contrast, we focus on a single source country (Ireland) and a much longer time span (1950-2004).

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We compile a long time series panel of data, running over 1950-2004, for Ireland's twenty-one major trading partners that have data over this time period.[1] These countries are the EU-15, plus Australia, Canada, New Zealand, Norway, Switzerland and the United States.

Figures 1a and 1b show the evolution of the export shares of the United Kingdom and the EMU member countries over 1950-2004. The figures show a dramatic decline in the United Kingdom share of Irish exports and a substantial increase in the EMU share of Irish imports; there are similar, but less steep, changes in import shares. Our goal is to ask whether these shifts in trading patterns are related to changes in Ireland's participation in currency unions.

[1] A detailed data appendix is available from the authors upon request.

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Our baseline empirical specification postulates a long-run relation between the volume of trade and a set of core regressors, including dummy variables to capture participation in a currency union. This can be written as

$$T_{ijt} = \alpha_j + \phi_t + \gamma_1 * EMU_IN_{jt} + \gamma_2 * EMU_OUT_{jt} + \gamma_3 * STERLING_{jt} + \gamma_4 * EU_{ijt} + \beta * Z_{ijt} + u_{ijt} \quad (1)$$

where $T_{ijt}$ is the sum of the log of exports and the log of imports between Ireland and trade partner $j$ in period $t$, $\alpha_j$ is a country dummy, $\phi_t$ is a time dummy, $EMU_IN_{jt}$ takes the value 1 if trade partner $j$ is also a member of EMU in period $t$ for $t \geq 1999$ and 0 otherwise; $EMU_OUT_{jt}$ takes the value 1 if trade partner $j$ is not a member of EMU in period $t$ for $t \geq 1999$ and 0 otherwise; $STERLING_{jt}$ takes the value 1 for the United Kingdom until 1978 and 0 otherwise; $EU_{ijt}$ takes the value 1 if both Ireland and the trading partner are members of the European Union in period $t$ and 0 otherwise (Ireland joined the European Community in 1973 at the same time as the United Kingdom and Denmark); and $Z_{ijt}$ represent time-varying bilateral factors that influence trade volumes (in particular, the log levels of GDP and GDP per capita).[2]

The $EMU_OUT_{jt}$ variable is included to allow for the possibility that EMU boosts trade with all partner countries, for the reasons outlined in Baldwin (2006). The inclusion of

[2] We follow Baldwin (2006) in measuring total trade as the sum of the log of exports and the log of imports, since this is theoretically appropriate in the context of a gravity framework. Trade data are deflated using export and import price deflators.

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country dummies means that the focus is only on the within-country variation in trade – differences in the level of trade across partner countries is not explored. Similarly, the inclusion of year dummies means that we strip out the impact of global factors that may affect the general level of trade with all partner countries, such as shifts in global trading costs.

Since trade volumes, GDP and GDP per capita are non-stationary but cointegrated variables, dynamic ordinary least squares (DOLS) is an appropriate estimation framework.[3] This estimator includes leads and lags of the first differences of non-stationary regressors in order to correct for the impact of serial correlation in the residuals. In view of the limited time horizon, we implement a DOLS(-1,1) specification.

## 3. Results

Table 1 reports our baseline specification. The estimates show that EMU is not directly associated with an increase in trade – either with other EMU partner countries or with non-member countries. However, the Sterling dummy is significantly positive – the level of trade between Ireland and the United Kingdom was significantly higher during the period of currency union up to 1979. This effect derives from the behavior of exports; the Sterling dummy is not significant for imports.

[3] Unit root and cointegration test results are available upon request from the authors. See also Kao and Chiang (2000) and Faruqee (2004) on the DOLS estimator.

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In terms of the other regressors, it shows that the time-series evolution of Irish trade is significantly linked to the dynamics of GDP per capita - trade expands with those partner countries that are growing most quickly. In addition, holding fixed GDP per capita, there is a significantly negative time-series association with the level of total GDP.[4] The correct interpretation is that faster population growth in a partner country is associated with a relative decline in trade – we do not dwell on this result, which highlights the difference between cross-sectional analysis (total trade is increasing in country size) and time-series analysis.

In order to assess the robustness of the result that the Sterling currency union boosted trade, we explore an alternative specification in Table 2. In this specification, we allow the level of trade with the United Kingdom to be influenced by two other factors. First, following Thom and Walsh (2002), we interact the EU dummy with the United Kingdom country dummy, on the basis that membership of the European Union was another major factor in reducing the dependence of Ireland on the United Kingdom as a trading partner. Second, we also interact the United Kingdom country dummy with a time trend. This is intended to capture the gradual erosion over time of the special status of the United Kingdom as a trading partner, in view of the complex historical and political factors that accounted for the high degree of trade with the United Kingdom at the start of the sample period.[5]

[4] We note that the magnitudes of the coefficients on GDP and GDP per capita are larger than typically found in gravity studies. One reason is that we are estimating a cointegration equation, where the coefficient captures the permanent impact on trade of a permanent change in the regressors: this will naturally be larger than the short-run impact. A second is that our fixed-effects specification means that only the time-series dimension of the data are examined – the coefficients are much lower if the cross-sectional variation is incorporated.

[5] See also Berger and Nitsch (2006) who argue that trade among EMU partner countries has shown a positive trend for many years.

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Indeed, it turns out that the EMU dummies remain insignificant and the Sterling dummy is no longer significant in the alternative specification reported in Table 2. Rather, the dynamics of trade with the United Kingdom is better captured by the country-specific time trend - the table shows that there has been a gradual decline in exports to the United Kingdom, rather than 'step' changes associated with EU membership in 1973 and the breaking of the Sterling link in 1979. Again, the trend is only evident on the export side: the interaction terms are not significant for imports. Quantitatively, the size of this effect corresponds to an annual trend decline of 6.9 percent in exports.

**4. Conclusions**

We have investigated the impact of currency unions on Irish trade patterns. In contrast to most of the multi-country panel studies, we do not find any impact of EMU on trade. However, this is qualitatively consistent with the pattern noted by Baldwin (2006) that EMU has had a bigger impact on the 'core' member countries than on the peripheral member countries that have weaker economic linkages with the rest of the currency union. That said, we acknowledge that the time period may be too short to pick up the EMU effect on Irish trade – it will be important to re-visit this study in a few years. It is also possible that EMU has had an impact in particular sectors: this hypothesis could be investigated in future research. Finally, in relation to the Sterling currency union, we have emphasized that the apparent significance of the Sterling link for trade is misleading – rather, Irish trade with the United Kingdom has shown a negative trend over many years.

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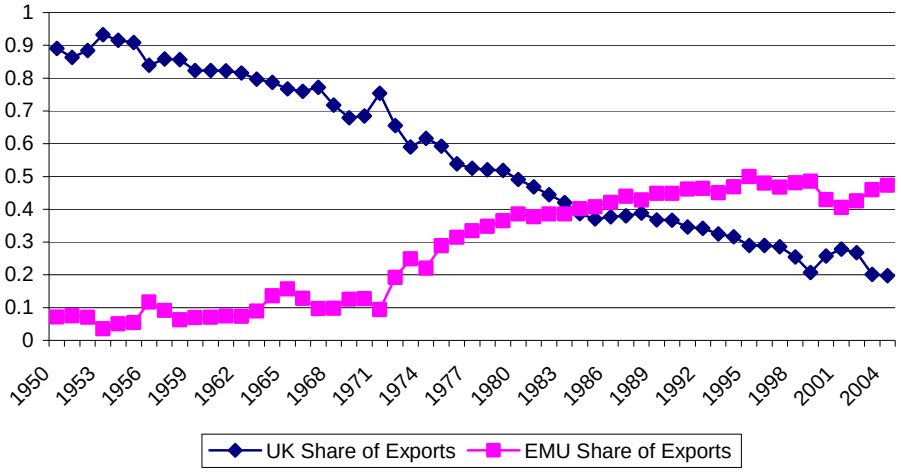
| | Trade | Imports | Exports |
| EMU – In | -0.209 | -0.060 | -0.149 |
| | (0.999) | (1.048) | (0.606) |
| EMU – Out | 0.509 | 0.426 | 0.083 |
| | (1.002) | (1.050) | (0.608) |
| Sterling | 0.218 | 0.069 | 0.149 |
| | (0.777) | (0.816) | (0.472) |
| EU | 0.094 | 0.016 | 0.079 |
| | (0.173) | (0.182) | (0.105) |
| UK*EU | -0.328 | 0.260 | -0.588 |
| | (0.766) | (0.804) | (0.465) |
| UK*Trend | -0.079** | -0.021 | -0.057*** |
| | (0.031) | (0.032) | (0.019) |
| Log of GDP | -4.304*** | -3.057*** | -1.247** |
| | (0.873) | (0.916) | (0.530) |
| Log of GDP per capita | 6.958*** | 4.505*** | 2.453*** |
| | (0.827) | (0.867) | (0.502) |
| F – test | 446.68 | 197.07 | 335.40 |
| (*p* – value) | (0.000) | (0.000) | (0.000) |
| $R^2$ | 0.972 | 0.940 | 0.964 |
| Adj $R^2$ | 0.971 | 0.935 | 0.961 |
| Root MSE | 0.755 | 0.471 | 0.530 |

Notes: ***, **, * indicates significance at 1, 5, 10 per cent levels.
Standard errors given in parentheses.
Number of observations is 1040. All specifications include time and country dummies.
Arellano-Bond test for AR(1) residuals: $H_0$ rejected in all specifications.

For Peer Review

Figure 1a. Ireland: Export Shares, 1950-2004



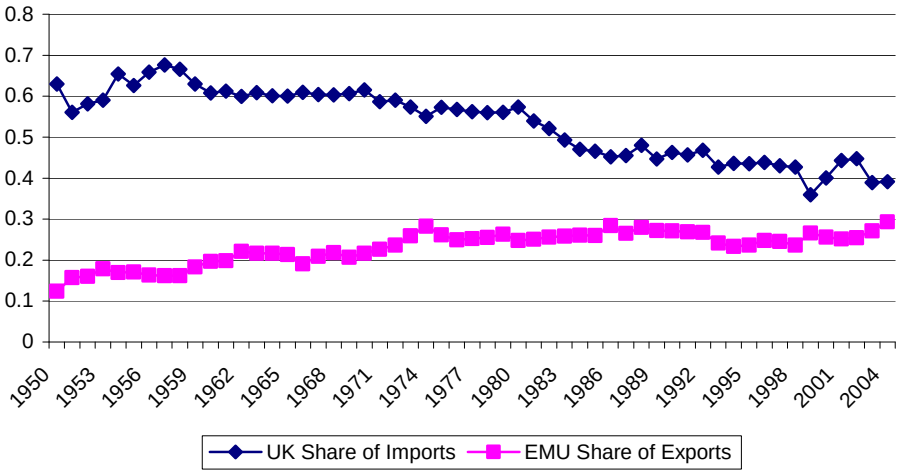


Figure 1b. Ireland: Import Shares, 1950-2004