

Symposium: The Evolution of Data Needs for Policy/Research in Ireland [Marking the Donation of Roy Geary's Papers to the UCD Geary Institute]

R. C. Geary and Economic History

Alan de Bromhead[♦]

University College Dublin

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Abstract: This paper pays tribute to the work of R.C. Geary from the perspective of an economic historian. It engages with aspects of Geary's work that touch on areas of economic history, such as international comparisons of living standards and the development of the official statistics of the early Irish state. The paper also gives an overview of some of Geary's early contributions to the analysis of important policy issues, read to this Society in the 1920s and 1930s. It concludes with a brief reflection on the ways in which Geary's approach, methods and values resonate with those of contemporary economic historians.

Keywords: Geary, economic history, Irish statistics; official statistics

JELs: N01; B31; C82

1. INTRODUCTION

"My deepest belief is that one cannot aspire to suggest improvements in anything whatever without trying to understand why things are as they are."

Roy Geary, quoted in Spencer, 1993, p.222

It is a great pleasure to speak to you today at this event marking the transfer of Roy Geary's personal papers to the UCD archives. What I want to discuss draws on accounts of those who knew Roy or worked closely with him over his long career. I will also offer my own personal impressions of how Roy's work relates to the subject of economic history based on my reading of a selection of that work, and my encounters with the statistics he established and developed. Before I begin, however, I want to touch briefly on the relationship between Roy Geary and the history of his own time, which I feel is relevant to understanding his motivations. Roy came of age at a tumultuous and pivotal time in Irish history, when Ireland was on the brink of civil war over the issue of Home Rule. He was present at the momentous first meeting of the Irish Volunteers in Dublin in 1913 and, as a student in Paris, assisted the Sinn Féin delegation in their diplomatic efforts in 1919. By all accounts, Roy was a patriot, and a firmly pragmatic one (Spencer 1993). This sense of service to the nation infused his career. His efforts to create a world-class statistical branch were driven by a desire to see Ireland take its place among the 'serious' nations of the world. However, it was not just the establishment of the state that motivated him but also the well-being of the nation and its people - wherever they might be. The analysis in his papers focused on the perennial ills of Irish society, be it the scourge of tuberculosis or the depressing drain of emigration. Roy's contribution to Irish state and society through his impressive record makes him stand out as one of the most dedicated public servants in the history of the state. For this, we owe him a significant debt of gratitude. I hope this event makes some small contribution towards acknowledging that debt, not least in the eyes of his family here today.

This evening I will touch briefly on three areas of Roy's work that resonate for economic historians: the debate over living standards in the long run, his contributions to the statistics of the emerging Irish state, and a discussion of some of his early work analysing Irish economy and society that he read to the *Statistical and Social Inquiry*

[♦] I am very grateful to Cormac Ó Gráda for helpful comments and suggestions.

Society of Ireland (SSISI) in the 1920s and 1930s. My treatment will be far from comprehensive, given the time constraints. For a more complete (and better) overview of Roy's life and career the interested reader can read the tribute volume edited by Denis Conniffe (1997) or the series of papers published by John E. Spencer (*inter alia* 1976; 1983). I hope, however, that by the end, I have managed to convey an impression of Roy Geary that tells you something about his contributions, his convictions and his character.

2. LIVING STANDARDS OVER THE LONG-RUN

The first place in which young economic historians are likely to come across the name of Roy Geary is through the Geary-Khamis International Dollar, especially as employed by Angus Maddison in his reconstructions of long-run living standards across the world. Geary's algorithm, presented in a 1958 paper of barely three pages, proposed a method of addressing the problem of comparing purchasing power across countries (Geary 1958). Using a system of average world prices, consumption in one country could be converted to an international currency and directly compared to others.¹ As in much of Geary's work, the motivation for writing such a paper was to solve a practical problem: how to meaningfully compare living standards across countries. A feature of Roy's work was his consistent use of international comparisons to illustrate differences and to gain perspective. In this regard he was likely influenced by C.H. Oldham, UCD economist and President of SSISI during Geary's early years at the Society, who advocated international comparisons with the pithy affirmation that "*Nobody can know Ireland who only Ireland knows*" (Oldham 1927).

Geary's method, while not the only approach proposed, gained wider currency when it was adopted by the International Price Comparison Project in 1968, which later developed into the production of the Penn World Tables, one of the most widely used macroeconomic datasets (Neary 1997). Through this, Maddison adopted the convention of using Geary's international currency for his work on reconstructing long-run living standards.²

Maddison's estimates, originally expressed in constant 1990 Geary-Khamis international dollars, ostensibly allow for comparisons of living standards over two millennia of human history. For example, we are given a figure of GDP per capita in Turkey in the first century AD that we can, adding several grains of salt as appropriate, compare directly to the GDP per capita of Ireland in the twentieth century. While Maddison's dataset was impressively comprehensive, many economic historians question its accuracy and reliability, particularly for inferences about the distant past (see Lindert 2016). Indeed, findings based on these estimates, such as when northwestern Europe overtook China (the Great Divergence), or when the US overtook the UK as the world's largest economy, have been challenged by studies that look to establish more reliable benchmarks.³ Geary's original challenge, to establish a reliable way to compare aggregates across time and space is one that remains unresolved. Indeed, the index number problem is one that resists a definitive solution as there are always trade-offs involved in choosing one method over another. As Peter Lindert (2016) describes it:

If one really wants to compare purchasing powers in 1700 the way an observer should have seen them then, one should replace the 1990 price comparisons with 1700 price comparisons. Even then, of course, one would have to make an arbitrary choice. On the other hand, the task of supplying and updating a global record of the growth of real national product and productivity will always be one for which the Maddison Project can accumulate, revise, and compare real national-account growth rates. This is a task that the benchmark direct comparisons, with their changing weights, cannot perform as well. Different questions call for different approaches.

This is something with which I suspect Roy Geary would firmly agree.

3. CONTRIBUTION TO THE STATISTICS OF THE EARLY IRISH STATE

Roy Geary's overall contribution to Irish official statistics is too vast to be given adequate recognition in one paper. His impact spanned many decades and reached disparate areas of the Irish economy and society. What follows touches on just a few of his early contributions, cherry-picked to highlight aspects of his professional and personal dedication to measurement - not measurement for measurement's sake, but measurement to understand the problems facing society and to shape policies to better the lives of Irish people.

¹ Geary motivated his efforts by a reference to the importance attached to comparing European economies as European integration emerged. He referred to this hypothetical currency as the 'Europa' (Geary 1958)

² Other methods, such as the EKS approach adopted by Eurostat, have been proposed and employed and the debate over the pros and cons of the approaches is a long one (Neary 1997).

³ Some of which have been incorporated into the estimates of the Maddison Project (Bolt and van Zanden 2025) that seeks to build on the legacy of Maddison's original work.

The first population census of the new Irish state took place early in Roy's career, but he was not the only Geary involved in its production. Roy's father, Edmond Geary, was an advisor on the 1926 Census, having led the production of the previous census in 1911 in his role at the Registrar General's office. Indeed, he worked as a clerk on an earlier census, giving the Geary family a connection to the census all the way back to 1901 (Spencer 1997). A search for the Geary family in the 1926 census finds Geary Sr. listed as Superintendent of Statistics at the General Register Office, while Roy, aged 30, is an Administrative Officer in the Department of Industry and Commerce. His eldest sister, Kathleen, is working as a Clerk at the Revenue department. A family comfortable with numbers, one might safely say! What makes this all the more interesting is that when we look at reported ages for the family across the 1911 and 1926 census returns. Looking at 1911 first, we see Edmond is 43 and Roy is 14. Fast forward 15 years to 1926 and the respective ages are 58 and 30, as expected.⁴ However, Roy's mother, Jennie, is listed as 40 in 1911 and 58 in 1926, a gap of 18 where 15 might be expected. That such a discrepancy should appear in such a statistically proficient household, directly involved in the creation of the census, is a pointed reminder of the hazards of using census age data – as sometimes happens in economic history – as an indicator of basic numeracy!

At the time, of course, Roy was working actively on the census and on processing the data collected. The census allowed Roy to calculate, as part of its publication, the first life tables of the new state in 1929. These life tables are accompanied by a detailed memorandum, written by Roy in his characteristically transparent and meticulous style, outlining and describing their process of construction. It was a style of writing and exposition that would be recognisable in his work across the next 50 years.

Roy would go on to be involved in many more firsts in the subsequent two decades (Linehan 1997).⁵ These included the first Balance of Payments estimates published in the *Irish Trade Journal* in 1938 and the pioneering National Income and Expenditure estimates for 1938-44. The *Statistical Abstract*, initiated in 1931 and continuing annually, was a compendium of data collected by government departments and would become a treasure trove of data for anyone interested in the economic development of the Irish economy over the 20th century. Inside are the expected official statistics on population, agricultural production and trade but also, for example, statistics on the number of university graduates and their degree classifications, juvenile crime by age and sex and monthly Private Motor Car registrations. Within the 'miscellaneous' category, further jewels include Quarterly Cost of Living indices and statistics on trade union membership. Selected international comparisons complete the abstract, providing useful context and a window into which areas were of particular interest to policy makers of the time. It should also be noted, of course, that the 1931 volume required significant effort to reconstitute the pre-1922 series for a consistent 26 county Irish Free State.⁶

Time precludes a full discussion of Geary's work developing early statistics for the Irish state. But I will highlight two further contributions here that stand out as good examples of Roy's impact and that have proved invaluable in my own research. The first is the 50-page-plus volume, *'The Agricultural Output of Saorstát Éireann, 1926-1927'* (Department of Industry and Commerce 1930). This publication, written almost exclusively by Geary, is a deep and wide-ranging statistical analysis of the agricultural sector of the new state (Linehan 1997; see too O'Connor and Guionard 1985). Although a separate inquiry for agriculture was produced in 1912 following the Census of Industrial Production of 1908, the 1926 report was a step up in terms of detail, presentation and commentary (DATI 1912). One striking feature is an international comparison of agricultural productivity at the time. Output per worker in the Irish Free State was estimated to be 92% that of Northern Ireland, 57% that of England and Wales and only 49% that of Denmark. In keeping with Geary's outlook, international comparison is a recognisable feature of the report.⁷

While the report presents many statistics at the aggregate level, we are also taken through a careful explanation of the process used to arrive at estimates of milk yields - extending across 12 pages - where evidence is presented, deductions are made and the answer finally revealed.⁸ Overall the report's analysis is as much a sociological study of farming practices as a presentation of dry statistical figures, revealing an author that is searching for answers to deep structural questions about agricultural production in Ireland. My only regret when I first encountered this work when reconstructing regional national accounts for Ireland, was that the exercise does not appear to have been repeated in subsequent years (de Bromhead and Kenny 2025).

⁴ Roy was born on 11 April – the 1911 census was taken on 3rd April while the 1926 census was taken on 18th April, shortly after his 30th birthday.

⁵ As Linehan comments, it is not always possible to precisely allocate credit for contributions in this period between Geary and his Director, Stanley Lyon.

⁶ The historical series of Statistical Abstracts have been digitised by the Centre for Economics, Policy and History and the data are now available on the CSO website.

⁷ The analysis of milk yields indicates that yields in Limerick compare favourably to international leaders, Switzerland and Denmark.

⁸ The answer for the average Free State yield was 487 Gallons per annum.

The second publication highlighted here is the 1933 *Census of Distribution* published in 1936. Following the 1926 Census of Industrial Production and the 1926 agricultural output estimates, it was clear that to reach estimates of national income, inquiries would need to be made as to the nature and extent of the services sector. What followed was truly pioneering - arguably the first of its kind in Europe and one of the first in the world.⁹ That a relatively poor, newly-independent state would produce such a study during the height of the Great Depression is no minor achievement. Inside are statistics detailing the number, size and location of retail shops, their wages and salaries paid and their stocks and sales. A response rate of 82% was achieved, impressive given the novel nature of the inquiry (Douglas 1937). The structure of Irish retail trade is revealed for the first time, alongside patterns of employment, distribution of sales and cycles of business turnover. The report is perhaps most impressive in its geographical granularity. If you want to find out the total sales of the 16 public houses in Kenmare Rural District in 1933 you need look no further than the Census of Distribution!¹⁰

4. EARLY WORK ON IRISH SOCIETY AND ECONOMY IN JSSISI

If not busy enough with the day-to-day job of preparing and compiling official statistics, Roy Geary was also engaged in public policy debates during these early years through his contributions to SSISI. In the first paper he read to the Society in 1925 (Geary 1925), his characteristically clear and well-documented approach to analysis was already on display. The topic of his paper, read a year after he became a member of the Society, was the accuracy of using random sampling - a method very much still in development in the early 1920s.¹¹ Roy's approach was a pragmatic and imaginative one - to test the accuracy of a sample of Irish agricultural statistics against the full count returns, returns that had been collected annually since the 1840s. The practical problem that Roy was attempting to get to grips with was the issue that during the "recent troubles" of the early 1920s, the system of full enumeration had broken down and only samples were collected, which raised questions about accuracy. While the motivation and data were agricultural, Geary emphasises that the relevance of the question is much broader, citing the application to cost-of-living indices and population sampling. Theoretical and practical concerns are blended, with statistical theory utilised as a key to unlock deeper truths. From theory and application, two essential elements to accurate sampling approaches are derived: that the samples are random, and that they are sufficiently large. While this may sound straightforward, achieving both in the real world of official statistics requires care, preparation and forethought, or as Geary eloquently states, "It seems paradoxically to be true that the golden rule of random sampling is to leave nothing to chance", a conclusion with which any modern behavioural or development economist would firmly concur. The paper ends with a thoughtful, introspective, and philosophical discussion of where and when methods of sampling should or shouldn't be applied. Geary's conclusion was that sampling and full enumeration are complements and not direct substitutes. Sampling should be used to extend our understanding of different areas of economic and social life, but not as replacements for full counts: the "great enumerations" are, to use a phrase from a modern context, the 'ground truth' of our societies. I am also uplifted to read that Geary recognised a duty to future economic historians: "His [the statistician's] existing statistics for a given year are but a part and incomplete if they are not comparable with those for previous years. He is also a custodian for the future: his statistics of today may only assume a significance twenty years hence."

His next paper in 1930 (Geary 1930) explored another pressing societal problem, the exceptionally high rates of tuberculosis (TB) that Ireland suffered in the first half of the twentieth century. The severity of the issue is made clear at the outset with a striking figure - in 1929 over 40% of deaths among those between the ages of 15 and 45 were due to TB. Drawing on his own life tables for 1926, Geary estimated that the eradication of the disease would add a full four years of life to male life expectancy. To this public health problem Roy turned his statistical lens and produced a fascinating exploration of TB mortality statistics in Ireland. The study explores many aspects and avenues to sketch the observed patterns of mortality, making comparisons across countries, cohorts and time, as well as Irish geography. The material assembled for analysis is indeed impressive, as is the attempt to evaluate various hypotheses.¹² Throughout the paper, it is apparent that Geary is searching for a causal interpretation, albeit he is too careful, of course, to fully conflate correlation with causation. Perhaps the most fascinating section is that which deals with the relationship between TB mortality and soil type in County Wexford - a theory put

⁹ For example, the UK did not complete a census of services until 1950 (Penneck 2005).

¹⁰ £5,474.

¹¹ The paper also demonstrates that Geary was also working at the technological frontier: "*It should be added that a Powers' Sorting and Tabulating Installation made this experiment but the work of a few hours*". These proto-computers would go on to be used in the tabulation of the 1926 census.

¹² "It would be extremely valuable for future guidance in combating this or other diseases to be able to show that the counties which exhibit the greatest declines in mortality are just those counties in which the public health activities were most pronounced. Perhaps some enquirer with special knowledge will examine these statistics in this sense". We took inspiration from Roy's call in our recent paper looking at mortality and social housing in Ireland (de Bromhead, Lyons and Ohler 2025).

forward by the English medical statistician, Dr. John Brownlee.¹³ Having elicited a soil map from a geological surveyor, Geary set about examining the spatial patterns within the county, finding a strong correlation between areas of marine boulder clay, or marl, and TB mortality; Brownlee having found a positive relationship between the proportion of area covered by boulder clay and TB in Suffolk, Norfolk and Essex.¹⁴ A less surprising correlation is also identified between urbanisation and social class. Mortality from TB would be a recurring topic of Roy's writing over subsequent years and represents one of his headline contributions (Breathnach and Moynihan 2003).

The final paper I will mention is one that relates to another of Geary's longstanding interests, that of future population.¹⁵ Ireland, as it is well known, is an outlier when it comes to its demography over the last 200 years. Famine and emigration led to population decline in the 19th century, a population decline that continued well into the 20th century. Such was the backdrop of Roy's 1936 JSSISI paper, *The Future Population of Saorstát Éireann and Some Observations on Population Statistics* (Geary 1936).¹⁶ The paper begins with producing projections of population up to 2016, seemingly intended to dispel the common misconception of the time that Ireland's population would recover following the effective cessation of emigration during the economic dislocations of the 1930s. What follows however is a digression that Geary cannot resist, with the opening lines offering a confession of his inherent curiosity:

While the principal object of this paper is to place on record the results of a couple of experiments in forecasting population, certain extended digressions have been made into the past (sometimes the distant past) not always with a view to extrapolation into the future. If these digressions depart too much from the main theme, it is hoped that they will compensate, in however small a degree, in interest for what they lack in relevance.

In terms of interest, the analysis does not disappoint. What follows is a characteristically thorough exploration of the determinants of population growth. The first examination is of fertility rates, with Ireland highlighted as an outlier in terms of having low marriage rates alongside high marital fertility rates. Looking across data for 22 countries however, Geary observes a clear inverse relationship between marriage rates and marital fertility rates. He speculates that some societal force may be at play that links overall birth rates with death rates and the needs of the economy.¹⁷ It is suggested perhaps that causation might run from high marital fertility to low marriage rates – high marital fertility potentially acting as a deterrent to marriage. Tantalisingly, further exploration of the topic is left to future researchers.

Next, it is the drivers of emigration that are put into focus, identifying push and pull factors most relevant to the Irish context. As ever, a diverse set of statistical evidence is brought to bear on the issue, including structural change within agriculture and shifting policies and conditions in destination countries. Taken together, Geary interprets the evidence as supportive of pull factors having a greater bearing on emigration. What is more, the plight of many Irish immigrants to the United States is highlighted – Irish migrants being overrepresented in low-skill occupations, experiencing higher mortality and poorer health.

Estimates of comparative living standards follow, both in levels and changes, employing valuations of agricultural stocks per capita and real wages in Dublin and London, before a final consideration of the level of Irish population in 1841. The paper therefore speaks to many aspects of demography - and Irish demography in particular - making it an engaging and interesting read, undertaken by an earnest and dedicated inquirer. In his response to comments from the floor, Geary gives us this in his own words: what he had tried to do throughout was “to find a reasonable explanation of certain statistical relationships”. His cautious characterisation of these explanations as “working hypotheses” was not an expression of “‘protective civil servese’ but a genuine expression of scientific doubt”. Here, the value of the comments and responses published alongside the paper emphasises the rare opportunity to witness the informal expression of debate and disagreement so preciously preserved by this noteworthy SSISI tradition.

¹³ On Brownlee see Brownlee 1920; Farewell and Johnson 2013.

¹⁴ Again, Geary is explicit in describing his approach: “The result is extremely striking when these proportions are expressed in figures. This was done roughly by drawing the boundaries on transparent paper, depositing the resulting map on 1-10-inch meshed squared paper and counting the squares.”

¹⁵ Again, the paper leans heavily on Geary's own life tables for 1926

¹⁶ Read to the Society in November 1935

¹⁷ This suggestion of a lack of agency on behalf of individuals was firmly challenged by Prof. Busteed in the post-reading comments. Geary's response is robust.

5. IN THE SPIRIT OF ECONOMIC HISTORY

When Mary Daly (1997) wrote the official history of the first 150 years of this Society, she adopted the title “The Spirit of Earnest Inquiry”, a phrase used to describe SSISI’s activities by the Trinity scholar J.K. Ingram in his address to the Society in 1863. Ingram, who had little time for the presentation of “dilettante statistics, collected with no special purpose”, demanded careful statistical analysis applied “to the most important questions affecting the condition of the country” (Ingram 1864: 13). Roy Geary’s contributions to the Society embody this spirit. His numerous contributions to SSISI still repay reading.¹⁸

There is a natural affinity between Geary’s approach and that of the economic historian. Economic history is an inherently interdisciplinary field, and an interdisciplinary approach is manifest throughout Geary’s work. He imaginatively combined the skills of a mathematician, a statistician, an economist and a historian as well as applying the “common sense of the practitioner” (Kendall 1973). While Geary had more sympathy for history than economic theory – his opposition to ‘literary’ economists was notorious – his outlook was one that favoured a practical attitude to future improvements over history for history’s sake. Despite his unashamedly data-driven approach, statistical analysis on its own was insufficient to reach reliable conclusions: deeper inquiries as to plausible mechanisms and channels were always required. In his own words, “It was useless to calculate correlation coefficients unless there were commonsense grounds for believing that a relationship existed.” (Geary 1936). An attitude of the greatest care in using data, a spark of imagination and creativity, and a wide curiosity are all values that economic historians would share.

This paper opens with a quote from Roy Geary that seems to capture much of what motivated him throughout his career. Roy’s work was about solving problems and gaining a better understanding of economy and society. To do this required accurate and complete information through the careful collection of data and the presentation of statistics. But statistics, or even the illumination they provided, were never the end in themselves. The end was improvement: for Ireland and the lives of Irish people. To sustain the levels of drive, productivity and energy that characterised Roy’s career over the decades required an innate motivation and insatiable curiosity about data and the secrets that they might reveal. To economic historians, the secrets of the past, long buried, must be excavated with care and veneration, and the fragments pieced together. The excitement of new discoveries is what propels us on and it is an excitement that Roy shared. As Brendan Walsh (1997) recollected:

I can recall his delight on receiving a new volume of a Census of Population or Industrial Production – two of his favourite statistical sources – and the enthusiasm with which he would announce: Here be riches.

Roy Geary did not only unearth riches — he created them. His legacy was to endow a nation with a statistical wealth that has been maintained and expanded for more than a century. That twentieth century Irish economic history rests on such solid foundations is something for which we are extremely grateful.

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¹⁸ According to the JSSISI archive on TARA, Geary authored eleven articles in his career, making him among the most prolific authors over more than 175 years.

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