

Accounting for the origins and impact of the DAE: Attempting an intellectual history of economic measurement

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Abstract

A product of the empirical zeal of the 1930s, the Department of Applied Economics (DAE) founded in the 1940s by Keynes and others, had a remarkable lifespan which left an indelible mark upon applied economics in the UK. In order to compare and contrast the intended outcomes of the Department against the intention of its founders the paper starts by outlining the climate which led to its emergence. After discussing the DAE’s climate under the first Director in greater depth, it adopts an institutional lens and considers how the department evolved over time. After highlighting some of the key outputs of the DAE an argument is advanced to reconceptualise the DAE as a training centre, this changed premise enables a much richer discussion of the legacy of this organisation and leads to questions about the way we measure academic organisations. This paper concludes that the continuing legacy is broadly within the parameters intended by the founding members.

Keywords: Department of Applied Economics, Cambridge Economics, Richard Stone, History of Measurement

¹ I would like to give considerable thanks to my supervisor Shailaja Fennell for her continuing help and support

1. Introduction

In the history of economic thought the Cambridge Department of Applied Economics (1945 – 2004) had a marked impact upon economic measurement. With an innovative approach to research it made many advances to our understanding of measurement and economic phenomena. As a training centre, the DAE provided the home for prominent thinkers who later impacted society through their intellectual work and contributions to public life. Understanding this relationship between the training centre, the process of intellectual development and its impact upon the public space is crucial. We ultimately see the world through conceptual lenses and what is measured in society impacts upon public debate (Prévost and Beaud, 2012).

The paper starts by first outlining the data landscape before the entry of the DAE. It highlights the shifting attitudes towards data collection and empiricism in economics in the interwar period. It then goes on to show how Keynes and others set up the department to help meet this need. Crucial to this story is the first Director of the Department who struck out a vision of economic measurement following on from Keynes. The paper then discusses the dénouement of Stone's directorship before going on to describe the evolution of the department by discussing the resources of the DAE used to generate its research. Before concluding it then considers some of the impacts of the department emphasising the impact it had upon people. Finally, the paper concludes by testing the outcomes from the DAE against the founding visions of the founders – Keynes and Stone - finding that despite evolving in response to a changing environment, the recent legacy of the DAE would to a large extent please its founders.

Using a mixed methods approach this paper combines archival research conducted at King's College Cambridge (the Keynes and Stone Collections), the Colin Clark Archives at the Fryer Library of the University of Queensland, Cambridge University Library (the Department of Applied Economics meeting minute books and records of the DAE review conducted in the 1980s), with reviews of the Annual Reports of the DAE held at the Faculty of Economics. The paper has been supplemented with elite interviews with a variety of individuals associated with the department or the University such as former employees; in order to preserve anonymity of interviewees, full details will not be disclosed. The paper focuses attention primarily on the work of the DAE prior to the 1990s in order to further preserve the anonymity of interviewees.

2. The need for data in the 1930s

The Great Crash of 1929 posed not only a huge shock to the real economy but also a challenge to the existing economic data paradigms. Researchers, and some government employees² bemoaned the lack of decent quality economic data. Before this Britain saw 'little systematic data collection and no expectation that decision-making should routinely proceed on the basis of data analysis' (Middleton,

² Professor Bowley's submission to the Economic Advisory Council of 1930 highlighted the delays in the publication of official statistics and was robustly opposed by the Permanent Consultative Committee on Official Statistics for suggesting methods of improving production. Colin Clark archive – Fryer Library UQFL87 – Box Thirteen, Folder 2, document 2.

1998, pp. 119–120). The powerlessness of the political system to adequately observe and respond to changing economic conditions led to concerns about a need for a statistical revolution.³

As Studenski (1956) highlights during the interwar years, income estimation - a fringe activity conducted by a few scholars – flourished into a research approach suitable for the government to work out how to pay for the war. This increasing drive for national level empirical research was seen internationally with innovations at the Institut für Konjunkturforschung in Germany (Tooze 2001), Ragnar Frisch’s Oslo School of Economics (Aukrust 1994) and the American National Bureau of Economic Research. In particular, the novel research area of business cycle research at Harvard led to an empirical culture which was the envy of the rest of the world. Keynes, at the end of the *Treatise on Money*, notably appealed for increased quantitative knowledge of economic transactions in Britain and highlighted quality work in America – in particular at the NBER, the Federal Reserve and Harvard research institutes as examples of good practise (Keynes, 2012, pp. 356–6).

This, along with the advances in economic thinking that had occurred in Cambridge under the stewardship of Marshall (Keynes, 2012, p. 355) led to increasing efforts to test abstract and esoteric theories against cool hard data. Marshall and others such as Pigou, and later Colin Clark, formed part of a Cambridge tradition of economics which sought to improve public data such as national income (Endres, 1982).

These increasing institutional demands for economic data created a window of opportunity to establish a national centre of excellence which would help lead the statistical revolution, such an organisation would have the attention of the country. Cambridge at the turn of the 1900s was a slow innovator – as shown by the level of work Marshall needed to exercise to set up an economics course at the University (Johnson and Cornford, 2008)⁴. But in making the case for applied economics to the Senate it was argued Cambridge’s pre-eminence in the economics field, thanks to Marshall, meant the University would be well positioned to conduct this work.⁵ Cambridge was however a latecomer to Applied Economics; Oxford, London and Manchester had already started to invest the funds and resources required to fill this national need⁶. And, relative to other disciplinary departments in Cambridge, the notion of a pure applied research unit with no students was a relatively untested innovation particularly given the undergraduate College focus of its recent academic past.

On 2 December 1939, the University Senate passed a resolution establishing a Department of Applied Economics. Its remit was to:

“make more effective provision for certain types of economic research. The Progress of economics follows two separate but interdependent channels. It depends in part on the continued development and refinement of the logic of economic analysis; in part on the measurement and recording of economic phenomena, and the testing of economic theories by statistical and other methods”⁷

³ It should be noted that one estimate of national income had been prepared by the Inland Revenue during the 1920s but crucially this was not released to the general public (Board of Inland Revenue and Stone, 1977).

⁴ “London, Birmingham, Manchester, Leeds and Liverpool were beginning to mount undergraduate courses in the subject” (Johnson and Cornford, 2008, p. 76)

⁵ JRNS 4/10 Letter to Richard Stone from Pierro Sraffa Attachment 2 – Memorandum on the Establishment of the DAE

⁶ JRNS 4/10 Letter to Richard Stone from Pierro Sraffa Attachment 2 – Memorandum on the Establishment of the DAE

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Measurement and recording would have to wait as the start of World War II and the removal of many members of the Faculty to government positions delayed the proper establishment of the department until the closure of the military stage; “it was felt to be better to postpone its effective start until after the war rather than to begin with possibly second-rate staff and insufficient supervision”⁸. Despite the delayed launch of the department, it is this exposure to government of Keynes, Stone, Meade and others, that helped to create an academic culture that actively engaged with government. Their active engagement with the younger researchers helped to nurture and inspire an economics in their bent of mind amongst the next generation.⁹

Despite wartime pressures the half-founded department remained prominent in Keynes’s mind as correspondence with Jan Tinbergen, Richard Stone and with Colin Clark illustrates. Colin Clark, an innovator in social accounting then based in Australia was informed of the aspiration to create the DAE in 1942, and he expressed an interest in a potential professorship¹⁰. It is clear in Keynes’s response to a query from Tinbergen at the Central Planning Bureau in Holland¹¹ that the generation of empirical studies to help inform policy analysis was one of his aspirations for the Department¹². Even at the height of war the chronic issues with data preparation and use was seen as an important issue which required addressing.

3. The launch of the Department of Applied Economics

With the turn of tides on the Western Front increasingly attention focused on a future in post conflict Britain. The penmanship of Piero Sraffa notes on 4th November 1944¹³, the first official meeting of the DAE Committee of Management. Chaired by Shove in Keynes’s absence the first Committee also had Professor Robertson, Mrs Robinson, Mr Champenowne and Mr Sraffa in attendance¹⁴.

In the formative stages the agenda was naturally dominated by the need to secure funding and in finding a suitable person to fill the post of Director. The Rockefeller Foundation was seen as the most viable option; in their bid to the Foundation the committee outlines a vision of a department likely to research:

“Studies in National Income (e.g. changes in the value and quantity of output of particular industries, or changes in the division of national income between profits, rents and wages).

Pricing policies (e.g. methods by which overhead costs are allocated between different products)

International comparisons of productive efficiency

⁸ JRNS 4/10 Letter to Richard Stone from Piero Sraffa Attachment 2 – Memorandum on the Establishment of the DAE

⁹ Interviews 5, 7 and 9

¹⁰ Keynes Archive w/4/220 – w/4/222

¹¹ Tinbergen had been “charged with an investigation on the long run development of the Rotterdam harbour” and required data on Allied intentions and business cycle policy information. In his reply of 15 June 1945 Keynes noted “in Cambridge we are setting up a new Department of Applied Economics, which will devote itself particularly to the subjects you are interested in, and you will be interested to know that Stone has been appointed the Director.” w/4/236

¹² Keynes Archive w/4/236

¹³ The minutes actually note the meeting was held on both the 4th and 5th of November

¹⁴ E A G Robinson, though a member of the committee, was also in America with Keynes at the time.

Foreign Trade (e.g. Problems of the balance of payments of various countries).

Population problems (e.g. estimation of the distribution of families according to number of children)

Social Surveys (e.g. the social and economic structure of a small country town)."¹⁵

The influence of Keynes upon this agenda and the formative days of the department was pronounced. The DAE project received very active support from Keynes, not only did he help underwrite its finances¹⁶ but even after the appointment of the new Director Keynes was noted as the point of reference with regard to finances.¹⁷ Despite some authors arguments on Keynes's dislike of econometrics¹⁸, Keynes's active interest in founding the DAE is certainly not surprising when a broader perspective is taken of Keynes's drive to have a more rigorous empirical form of economics. The first DAE annual report, written whilst Keynes was still Chair of the Committee of Management, argued "that the theoretical achievements of Cambridge economics required the testing that could be conducted only by realistic studies"¹⁹.

Keynes was also instrumental in the selection of the first Director of the Centre. From an early stage DAE correspondence show that "We have a man in mind who is not at present in Cambridge"²⁰. Richard Stone, a close aide to Keynes, who he met three to four times per week during wartime (Harrod, 1951) was unanimously accepted as the Director of the Department.

From the outset, even before accepting the post there were tensions over the governance structure and who, ultimately, had control over the research direction of the department. Several rounds of correspondence were exchange which ultimately left final say over the research direction with the Committee of Management but empowered the Director to run day to day operations and act as a forwarding mechanism for proposals to the Committee of Management²¹. Correspondence in the Stone Archives between Stone and Shove (the Management representative on this) illustrate the concerns Stone had with this uneasy arrangement from the outset. It was this governance structure which was one of mechanisms which helped end Richard Stone's Directorship.

4. An early end and new beginnings: changing research agendas between Keynes and Stone

A few weeks after the death of Keynes on 21st April 1946 the Committee of Management of the DAE met. As the record for the twelfth meeting minute notes:

¹⁵ DAE Committee 2nd Meeting Minutes

¹⁶ DAE Committee 6th Meeting Minutes

¹⁷ DAE Committee 6th Meeting Minutes

¹⁸ Patinkin (1976) notably adopted a position which caricatured Keynes as an anti-empiricist based upon the Keynes (1939) review of Tinbergen's work. Not only was this hotly contested at the time by Stone (1978) but recent authors (Tily, 2009; Vanoli, 2005) have acknowledged Keynes's contribution to the development of National Income for example and broadened discussion of Keynes's empirical contributions illustrating the limitations of the Patinkin narrative.

¹⁹ First annual report pp6

²⁰ DAE Committee 1st Meeting Minutes, letter to Rockefeller Foundation 4 November 1944

²¹ Correspondence between Shove and Stone in the Stone archive.

“While no formal record can justly explain all that is lost to Cambridge by the death of Maynard Keynes, his friends and colleagues forming the Committee of this Department desired to have recorded in these minutes their sense of the great loss the Department has suffered in the death of its first Chairman. He had its foundation and future always at heart and no more severe blow could have befallen it”. 5th May 1946.

With the passage of Keynes this left the new Director, Richard Stone, much greater scope to implement the vision of economics he had developed at the Central Statistical Office. In earlier correspondence with Director of Social Sciences at the Rockefeller Foundation he outlined his vision of the economics profession and the area of applied economics: “So far as the work of the Department is concerned there is I think no need to emphasise how great is the importance, especially in this country, of rapidly increasing our stock of factual data”²². Further he noted that “I think that a strong observational basis for the work of the Department supported by close contact with the real world of economic activity, can and will be developed.”²³

In his correspondence Stone noted the influence of the changed environment; “The whole atmosphere has changed during the war; there are now enough enlightened business men who know that all academics have not got their heads in the clouds, and enough academics who realise that all business men are not just “economic men”, to make practical co-operation feasible.”²⁴ This new opportunity to access data also changed the type of work which was required in the profession: “In the next ten years in England we shall have to try to close the gap between the requirements of industry and administration and purely theoretical economics.”²⁵

Stone also hoped there would be a change to economists themselves. The start of the war had seen economists drawn into active service but their abstract skill sets fell well behind the skills of the Americans although doing “as best we could...the academic economists and others, had to acquire piece-meal by direct experience the outlook and techniques which the situation demanded”²⁶. Stone recognised the pedagogical benefits of the work of an applied research centre:

*“There is no school of training I think to compare with that which an active research unit can provide, and I believe that a solid research centre devoted to applied economics can have an influence not only on the trend of economic thought through its own results, but also through shaping the outlook and equipment of young graduates”*²⁷

Not only does the Rockefeller correspondence illustrate the pressing need to produce figures of how the economy was performing for the purpose of business, and the benefits for economists in getting their hands dirty with the data, but it also demonstrates his deeply ingrained empirical mind developed when he was a chemist. As Stone later noted in an interview:

“it seems to me that the development of a science requires attention to both facts and theories and I agree with Marshall that economic theory is as mischievous an imposter when it claims to be economics proper as is mere crude unanalysed history” (Pesaran, 1991, p. 89)

²² JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

²³ JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

²⁴ JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

²⁵ Stone also notes: “I have no doubt that much can be done to break down the reserve of the business community and to bring together those who possess the facts and those who want to use them for the advancement of knowledge” JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

²⁶ JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

²⁷ JRNS 5/1 letter to Rockefeller Foundation 19 June 1945

The first DAE annual report, written in 1948, reflecting on the first years of operations outlines a similar vision of applied economic in its research policy by noting:

“Through the process of observation of observation and testing it should develop economic theories so that they stand established as applicable to the actual world, and on these foundations it should seek to provide the basis for making reliable predictions.”²⁸

In order to test economics in this manner required considerable work, with a need to formulate clearly structured theories and well specified variables on top of data cleaning and data construction. Stone therefore, in his own words “set up an econometric program which would embrace work on facts, work on theories, and work on econometric and statistics methods needed to analyse the facts in the light of theories” (Pesaran, 1991)²⁹. As Pesaran and Harcourt (2000) note however, Stone maintained a broad form of the subject “econometrics” which is different from its meaning today.

Such views gained support from funders such as the Rockefeller Foundation. As Joseph Willets, the then Director of the Social Sciences at the foundation observed on 18 July 1945:

“[formulating theoretical questions in a testable manner] is a hard task but it is an extremely important one, and I am much glad that your research is looking in that direction. It is so much less burdensome not to have to test our notions against the facts. I am sure your Department of Applied Economics would have important influence on the teaching of students. It always seemed to me that if each of them could learn in their graduate training what a difficult task it was to establish a firm conclusion to even a modest question they would understand better the difference between a theoretical opinion and a tested conclusion.”³⁰

With funding, and a clear vision, there were the key ingredients needed for what turned to be an innovative time at the department. “1945-1955 was a remarkable 10 year period and established the DAE as an international centre for economic research on par with the Cowles Commission (Pesaran and Harcourt, 2000)”. Whilst the impact of the early days of the DAE can be seen in the prominence of the outputs it also made an active contribution to the thriving international academic community of applied economics which emerged in the post war period. The DAE played host to a variety of leading academics such as Richard Ruggles, Professor Leontief³¹, Harold Hotelling, Kenneth Arrow³² and many other prominent names³³. Members of the DAE, notably Richard Stone, were leading figures in such organisations as the National Institute of Economic and Social Research, the International Association for Research in Income and Wealth, the International Statistical Institute, The United Nations Committee of National Income experts and the O.E.E.C.

5. Regicide – Richard Stone steps aside

Richard Stone was asked to take up the new P.D. Leake Chair of Accounting in the University, and, was unable to hold both posts at the same time. In practical terms this meant the need to resign as Director of the Department. Stone had faced increasing opposition from members in the Faculty

²⁸ First annual report pp3

²⁹ It is important to note here that the vision of economics does not fully stress the manner in which work upon “facts” ultimately helps to rewrite theory i.e. data have a purpose beyond empirically falsifying theory.

³⁰ JRNS 5/1 Rockefeller Foundation Correspondence – Stone Archive

³¹ Second annual report

³² Third Annual report

³³ See the annual reports and the Pesaran (1991) interview for further information.

such as Richard Kahn and Joan Robinson it was supposedly felt that the more econometric focus to his research, particularly his demand analysis, was not in the tradition of Keynes (Pesaran and Harcourt, 2000).

On the day that the Committee of Management sat to discuss the appointment to the P.D. Leake Chair (few details of which are recorded in the minutes), a higher item on the agenda was the relationship with the Faculty of Economics. The Faculty of Economics Board had come to question the roles and responsibilities of the Director of the DAE.³⁴ Seemingly members of the Faculty had wanted a different type of empirical research from the research conducted in the department. This appears linked to the 49th meeting of the DAE Committee in which a series of staff appointments and staff renewals secured the following social accounting themed research projects: The Social Accounts of Cambridgeshire, Input-output analysis, Capital formation, Consumers' Behaviour, Regional Social Accounts, Economic Growth and Mathematical Statistics.³⁵

The Directorship remained in dispute for several weeks and months. A solution came about on 18th November 1954 when Professor Robinson wrote a letter providing reassurances that in the event that Stone stepped down from the Directorship there would be some security for the research projects which had created his reputation. It was suggested "that the Leake Professor should have a professional research staff of six." This empowered Stone to conduct research on "the existing projects which you wish to continue under your supervision on that basis are those concerned with demand analysis and input-output... since they are central to your interests and their early termination is neither feasible nor desirable."³⁶

Though this agreement removed Stone from the helm it helped empower his research direction within the centre and ultimately gave the resources and authority to Stone to form the Growth Project. It did however strike a new direction from the research agenda he had implemented to that date. As Pesaran and Harcourt (2000) note 'it is indeed a sad comment on how econometrics was received in Cambridge, and in particular, on a lack of appreciation of Dick's contribution to the subject'. The removal of Stone also marked a lull in the drive to collect and collect data for the purpose of economic recording (as opposed to using data for the purpose of testing theories).

6. The evolution of the post-Stone department

With a change of leadership of the DAE a plurality of research approaches in Applied Economics developed. As Singh (2006) notes despite reservations about econometrics, Brian Reddaway "was a liberal academic in the best sense of the term and let a hundred flowers bloom". It was precisely these contrasting and divergent methodological approaches to applied economics which Singh argues led the department to flourish.

The DAE's methodological pluralism is best seen in the fiftieth anniversary DAE paper series which reviewed the intellectual contributions since the inception of the Department and provided a snapshot of the different visions of applied economics. In this review, Begg and Henry (1998, p. 4) introduce a concept of applied economics operating in the DAE as the:

³⁴ DAE Committee 50th Meeting Minutes 6 February 1954

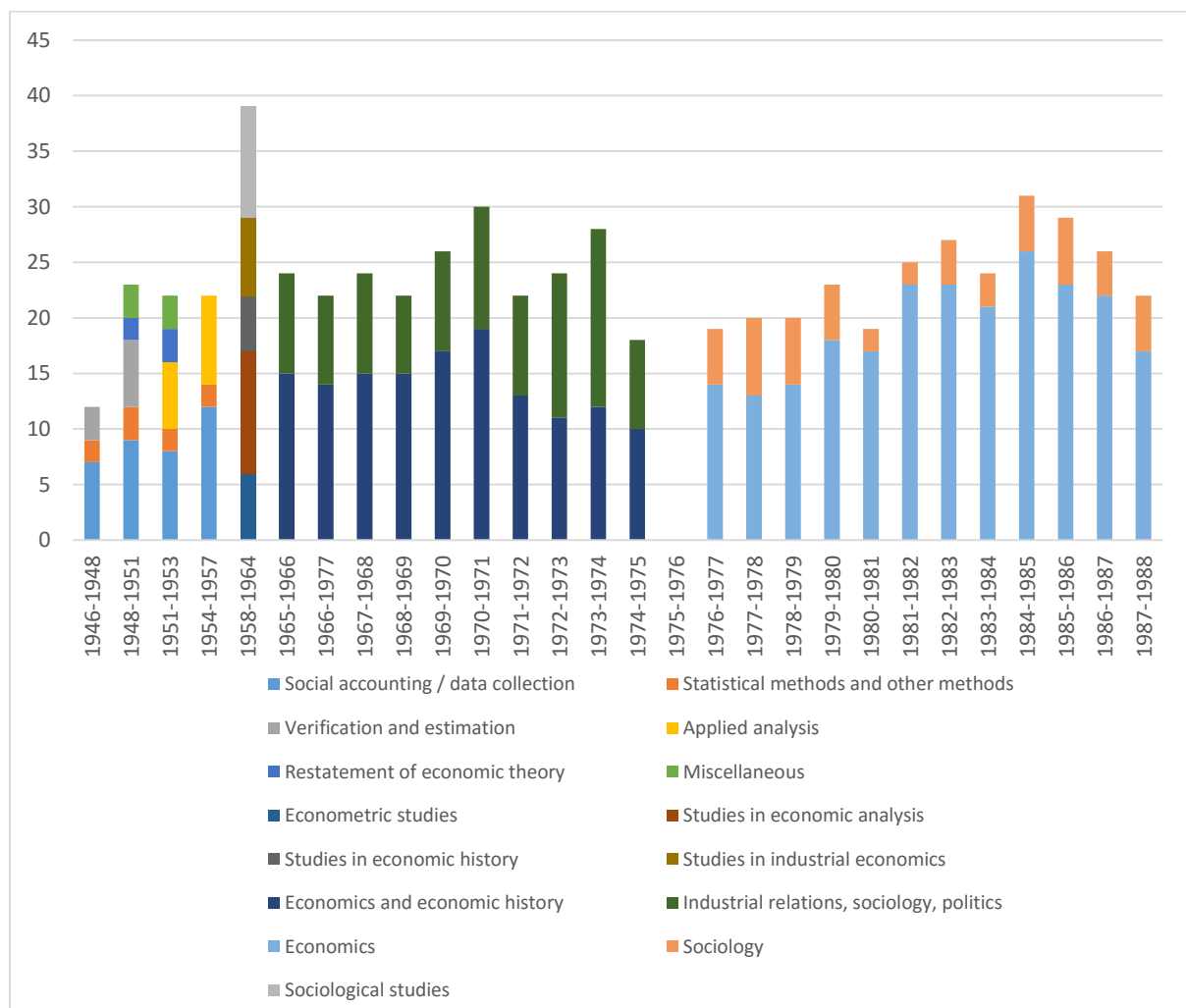
³⁵ DAE Committee 49th Meeting Minutes 1 July 1953.

³⁶ DAE Committee 53rd Meeting Minutes 8 December 1954 - attachments.

“Bringing together of economic theory, measurement and methods of statistical and econometric analysis, and the interpretation of such analytic work to elucidate economic phenomena and to inform economic policy.”

This concept of applied economics as a mix of modelling and forecasting, data and analytic techniques research and, an application of models to inform policy, illustrate not only a diverse mix of activities but also a development from the theory and observation approach of the earlier DAE. Naturally, with the passage of Directors, new and competing visions of applied economics were brought into the department. As Comim (2000) observes Stone favoured resolving measurement problems and using deeply analytical techniques to arrive at precise solutions, Reddaway favoured a less detailed approach which focused more heavily upon contemporary policy issues, whilst Wynne Godley, the third director sought to strike a balance between the two approaches.³⁷ These changing research agendas can be clearly seen in the changing research strands during their tenures.

Figure 1: DAE Annual Report Research Project Categorisations 1946-1988



Source: DAE Annual Report data. Note, the years 1946-1964 are on a multi-period, not an annual basis.

³⁷ Though the different Director’s had their own strands of research it should also be noted, as Kitson (2001) observes that a common thread to much of the work was a scepticism of neo classical economics. This heterodox approach to applied economics was a key element of many researchers at the DAE.

As shown above, though the early days were marked with a separate social accounting and data collection research strand these research lines were later subsumed within the 'economics and economic history' category. Whilst under the Stone Directorship this was viewed as a separate research agenda, separate from the development of methods and verification and estimation, upon the entry of Reddaway as the Director there is a shift towards the measurement of features in the economy such as industry and wider society. Not observable at this level of aggregation is the emergence of the policy group under the Directorship of Wynne Godley.

The forum for these contrasting views was the department building itself and significant in the research environment was the move, with the Faculty of Economics, to the Sidgwick Site. As Johnson (1976) highlights the yesteryear Cambridge of the 1930s saw "the isolation of a career centred on an individual's college" where fellow economists would meet at the Board of Examiners, the Faculty Board, the political economy club or at the annual sherry party. A stark contrast with the DAE where this newly created research hub with multiple people working on a given project, a department cricket team, and more importantly regular coffee and tea time, provided a social venue for researchers. The DAE, all year round, brought together competing visions of economics and sociology³⁸ under one roof for regular discussion.³⁹ The tea room also provided a venue for the ideas of applied economics to be juxtaposed and honed against the views of the Faculty of Economics⁴⁰.

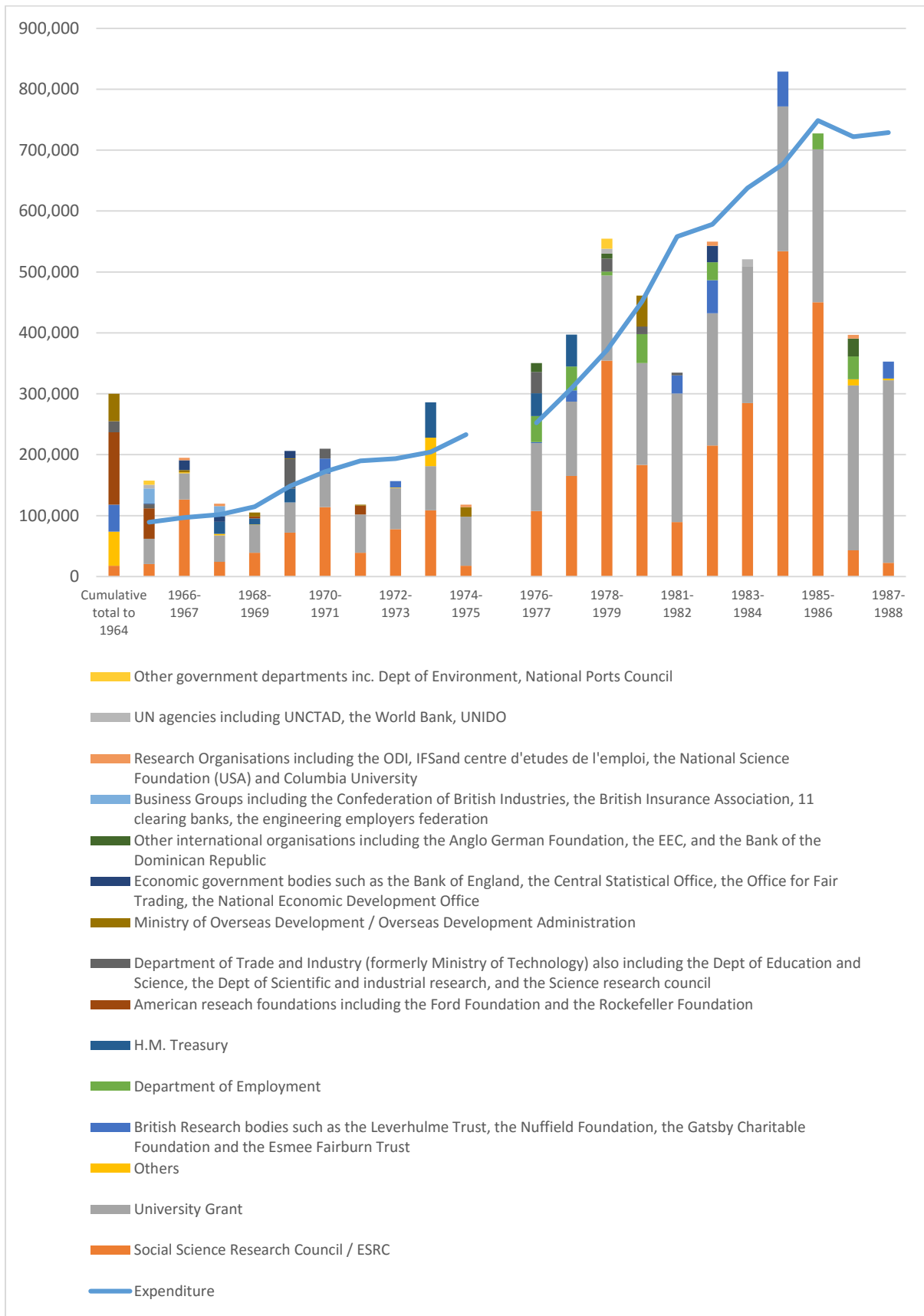
In order to sustain the competing and plural visions of Applied Economics required an expansion of financial resources. This increased funding can be seen in the new funds entering the DAE and the expenditure figures shown in Figure 2.

³⁸ Multiple interviewees were keen to stress the inclusion of the Sociologists and the impact this had upon the department.

³⁹ Interviews 1, 5, 7.

⁴⁰ Multiple interviews

Figure 2: New funds entering the DAE and expenditure in £'s 1964-1988



Source: DAE Annual Report data.

The major financing innovation introduced during the Reddaway Directorship was the creation of a funding reserve fund. Research funds entering the DAE would be held to help provide funding to researchers who were applying for grants when their work (and pay) had finished from the project they were working on. If funding fell through, but the researcher was of promising talent, the DAE could deploy them on other projects until their research grant was successful. This is illustrated in Figure 2 where for some years new cash entering the DAE for future projects were well in excess of the expenditure. This acted like an insurance mechanism, and along with support from experienced grantees with respect to how to apply to research bodies, how to prepare successful grants etc. was a key element of the funding mechanism for research teams in subsequent years.⁴¹

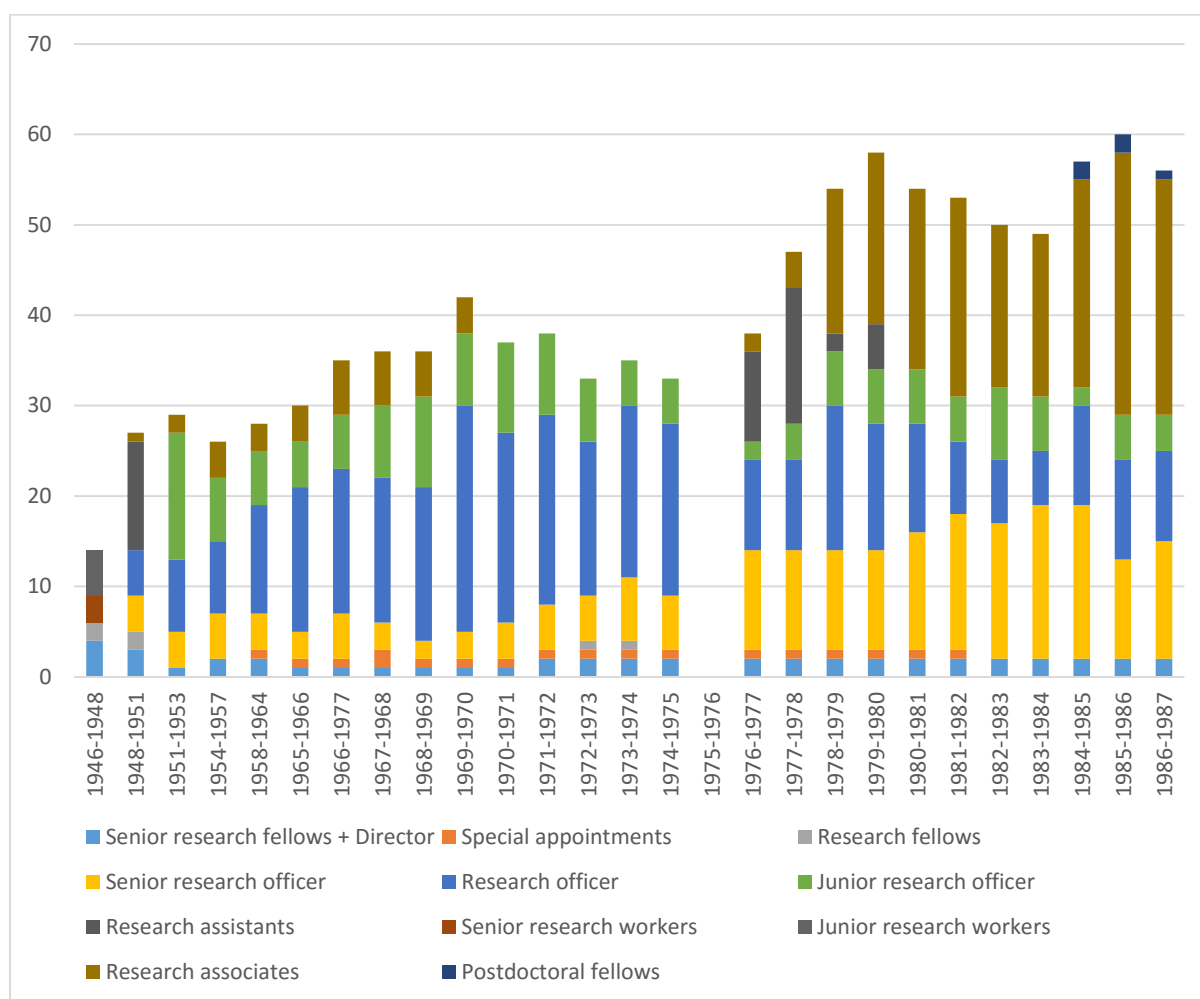
The figure also represents the differing philosophies of the directors and the funding environment of the time. Under the Stone Directorship there was a significant interest by American research organisations to improve the quality of empirical research and this made a significant element of research funding. The early years of the Reddaway Directorship also saw the sourcing of funds from private sector organisations in addition to a diverse range of government departments.⁴² The early years also show a greater reliance upon government funding for research which most likely reflects the strong links that the early staff had developed during their Whitehall wartime experience. Figure 2 also shows that University funding was been well below the level of expenditure for the DAE meaning a heavy reliance upon the ESRC which proved to be problematic when funding reduced.

The largest element of expenditure in the department was the staff both in terms of support staff and research staff. During the years of the DAE staffing levels changed considerably as shown below.

⁴¹ Interviews 8 and 9

⁴² It should be noted however that once Cambridge Econometrics was founded a subscription service enabled the research project to secure funding from business which does not feature in the figures above because Cambridge Econometrics had become a separate entity.

Figure 3: DAE Research Staff 1946-1987



Source: DAE Annual Report data. Note, the years 1946-1964 are on a multi-period, not an annual basis. Further note, the number of “research consultants are missing from the analysis above”

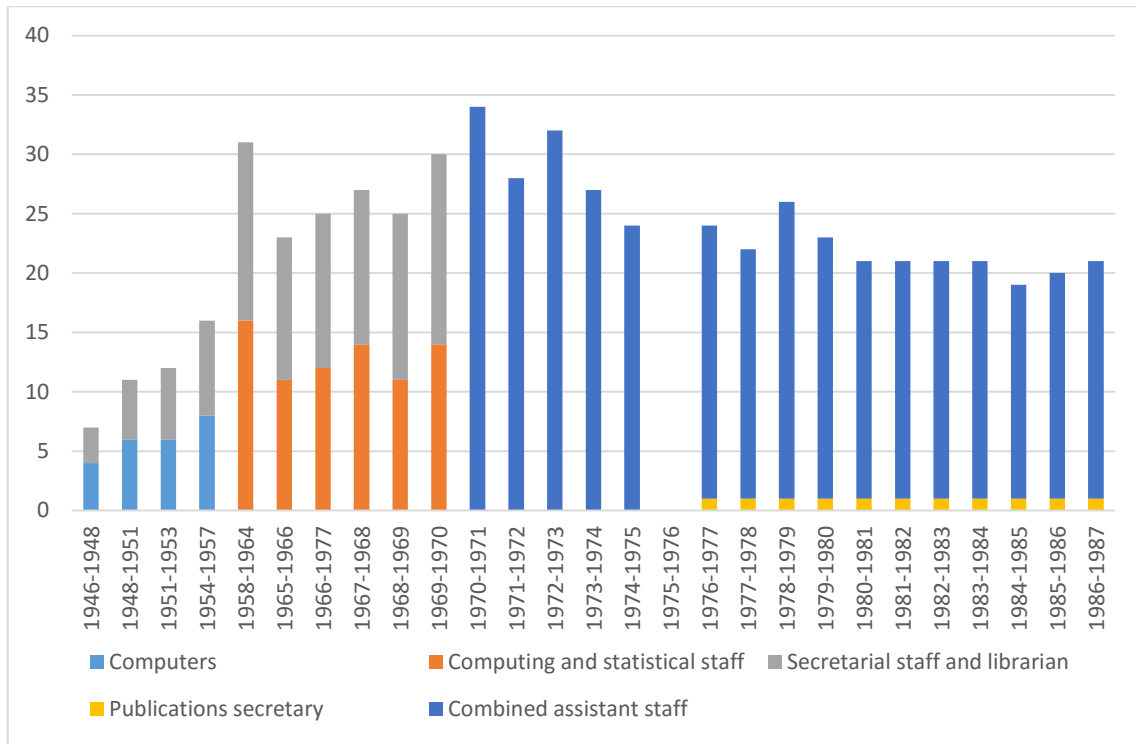
At the early stages of the organisation the Nuffield Foundation provided funding for fellowships (alongside the Rockefeller Foundation) to conduct research into social accounting. These research Fellowships however were soon dwarfed by the number of research officers which then followed. A decision by Brian Reddaway to have research assistants turned into research officers (with better employment conditions) led to a change of position for many researchers. This was helpful in terms of recruitment and used the support of university funding to help finance their fees however in later years this was used as a bone of contention by the University when cost cutting.⁴³

Before the mid-70s the department was characterised by a large number of junior researchers relative to senior researchers, past the mid-seventies there is not only an expansion of the number of senior research officers but also the reporting of research affiliates. In a climate of reduced university research funding there were increasing pressures to understand the return on investment by Universities and funding bodies. Demonstrating the wider impact of the DAE in this manner therefore helped to illustrate the impact of the organisation. Finally, towards the end of the time period through the encouragement of a variety of funding bodies there was inclusion of more post-doc staff (who were deemed to be a cheaper resource).

⁴³ Interviews 1 and 9.

Another important factor in the evolution of the Department was the upgrading of technology used by the researchers. This can be partially illustrated through the types of assistant staff that were hired during this time. In time, all organisations adapt to changing environments, but given the considerable technological shifts which impacted upon (and were driven by the demands of) the work in the economics profession it is important to highlight the substantive impact this had upon the work of the DAE.

Figure 4: Total DAE assistant staff 1946 - 1987



During the early days human ‘computers’ were hired to conduct the calculative work of the Department using a mix of calculating machines such as Marchants, Monroes and Madrases. In the immediate post-war environment many innovative machines developed under the auspices of government were bought up by institutions around the UK. This helped to increase computing research around the UK and Cambridge was one beneficiary of this machinery.⁴⁴

But by the turn of the mid-50s use was made of the Department of Mathematics’ EDSAC and by the mid-60s the DAE had purchased its own Hollerith card punching and verifying machine⁴⁵. As time evolved increasing use was made of the University computing facilities such as those in the Astronomy laboratory. By the mid-1970s increasingly visual display units were being purchased. Increased computing power not only enabled increasingly technical calculations but mean improved data storage with faster turnaround of calculations. This increased computational power helped to facilitate the increasingly complex computational requirements of systems such as the multisectoral dynamic growth project which had over 4,000 equations.

With the purchase of visual display units and local computers there was an increasing decentralisation of computing power. Local computer facilities enabled a greater level of specialisation and individualist working capability. Rolling forward to the present, the computing power of even a small

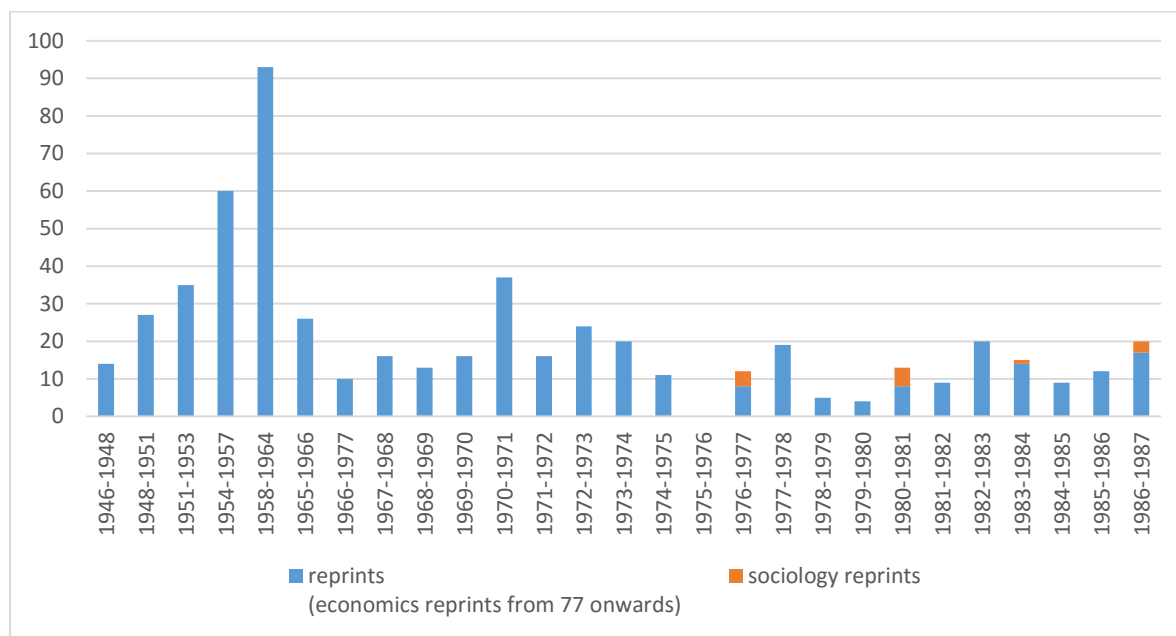
⁴⁴ Stone archive

⁴⁵ For further information please visit (Slater, 2004)

personal computer or laptop enables a more decentralised and dispersed economic analysis than was ever even possibly imaginable at the turn of the 1950s. This considerable change in the operating environment of the DAE naturally impacted the type of the research that was conducted.

The facilities, funding, researchers and new technologies all combined to help generate the research output of the DAE. One such example of this can be seen in Figure 5. The DAE reprint series was founded at the end of 1946 and took influential published papers which were then sent to other academic bodies and researchers in the UK and around the world.⁴⁶

Figure 5: Number of DAE reprints 1946-1987



Source: DAE Annual Report data. Note, the years 1946-1964 are on a multi-period basis and are not annual figures.

This high level analysis clearly illustrates the enduring impact of the series and also the cumulative development of economic knowledge which was generated in the department. These reprints not only tracked the outputs of the bright minds of the DAE but had a global impact as shown by the multiple copies of DAE reprints visible far afield in the archive of Colin Clark in Australia and the influence this had upon his work⁴⁷.

The weakness however, of such summary measures as “number of reprints” is the grouping incommensurable items together which understates the genuine impact of a given piece of research. Notably, Richard Stone’s pioneering work developing the national accounts is one such data point. The summary output approach also suggests that the whole organisation worked as one cohesive structure when in fact there were multiple projects on the go simultaneously with separate teams. In order to therefore better understand the impact of the research of the DAE consideration needs to be given to these teams. Two such teams were the Cambridge Growth Project and the Policy Group.

⁴⁶ First Annual report

⁴⁷ Colin Clark Archive, Fryer Library, UQFL87, Box 14, Folder 2, ‘UK’.

7. Two major outputs from the DAE⁴⁸

In 1960 Richard Stone along with Alan Brown started what became known as the Cambridge Growth Project. The aim was to understand how the British Economy would evolve until 1970. It would incorporate a social accounting matrix using large aggregate level identities across 253 accounts organised into 15 sets or classes. It would then use estimates of behavioural and technological relationships across production, consumption and capital accumulation domestically and internationally. Either by simultaneous equations or iterative process, the computer would then arrive at an estimate of the economy for a given set of assumptions⁴⁹.

Many adaptations were made to the model subsequently to incorporate a variety of new dimensions of analysis such as improved trade analysis and a more sophisticated treatment of dynamic effects (Barker et al., 2003). This detailed model provided disaggregated analysis of medium term likely effects upon the economy. In 1978 Cambridge Econometrics was founded to enable greater commercial access to the outputs of the model.⁵⁰

By the time Cambridge Econometrics took over the Cambridge Growth model in 1987 it was a sophisticated inter-temporal model which incorporated 5,686 variables in 4,492 equations (Barker et al., 2003). Despite the changed attitudes in funding bodies such as the SSRC towards the value of multi-sector modelling to this day the model still provides commercial services to businesses and government alike on the medium term prospects of the economy.

The Cambridge Economic Policy Group followed a different trajectory. Starting in October 1970 under the direction of the then Director Wynne Godley, the group aimed to “improve the information and analysis needed for economic policy”⁵¹. Instead of focusing upon short term demand issues the group aimed to address “policy which influence long term characteristics of the economy, such as its growth and its regional, industrial, and sectoral composition.”⁵²

The Group developed a macroeconomic model which accounted for term in a “stock-flow consistent manner” (Papadimitriou, 2012). In addition to an annual ‘policy review’ publication which addressing the issues of day⁵³ the group also engaged in discussions in the newspapers enhancing public debate. Ultimately this critical engagement with the policies of the government of the day led to recriminations and is argued by many to be the reason for the removal of research funding (Papadimitriou, 2012). Nowadays, the research direction of the Policy group continues in the work of researchers at the Judge Business School and in consultancy spin-offs linked to the DAE such as the PACEC (Public and Corporate Economic Consultants) and APPLICA (a European based economic and social consultancy).

⁴⁸ For a much richer analysis of a wider range of work conducted by the DAE such as work on takeovers, social accounting matrices, economic history and policy models please consult Begg and Henry (1998).

⁴⁹ Fifth Annual Report

⁵⁰ For further details, please visit http://www.camecon.com/AboutUs/origins_ethos.aspx (accessed 08/07/16)

⁵¹ Eleventh Annual Report

⁵² Eleventh Annual report.

⁵³ Multiple annual reports

8. A more accurate impact assessment

There are other such enduring legacies which can be found from the DAE⁵⁴ but as Strathern (2000) highlights there are limits to the effectiveness of audit exercises in academia. Funding bodies are starting to recognise this as shown in the HEFCE (Wilsdon et al., 2015) and through moves by the ESRC to attempt to measure impact⁵⁵. While funding bodies still endorse accountability metrics there is increasing recognition of the need to move beyond simple metrics such as journal publications and to capture wider impact. What however is missing from these new accountability metrics is the researchers themselves once they have left the organisation. If we adapt our frame of reference for the DAE from a “research centre” to a “research and training centre” it enables a more accurate description of the DAE’s impact.

The culture of the DAE had a unique intellectual heritage that made it a fertile ground for the development of new ideas and also the training of new researchers. Leading lights such as Stone acted as inspirations and engaged socially with their researchers.⁵⁶ Though come the 80s their influence and engagement had started to decline⁵⁷, the generation of “the greats” had seen active war service which brought an intensity to their work which was remembered by many researchers of the time⁵⁸. As one DAE interviewee observed they were “from a generation of people who wanted to reconstruct Europe. They had been young enthusiastic people in a chaotic time”⁵⁹.

The DAE also provided an employment structure to early career researchers to help advance their skills, something missing from the contemporary academic jobs market. With research funds being used to help retain talented individuals, it gave bright researchers relative job security when entering the early stages of their careers. Work in the DAE also provided access to the wider Cambridge Economics scene exposing researchers to raging debates over the nature of neo-classical economics, the capital controversy and other issues.

A brief survey of the alumni of the DAE illustrates a network of highly influential and successful academics and practitioners that have impact many aspect of economic public life⁶⁰. One such example is Angus Deaton, whose work on consumption functions launched a career which moved into the area of individual consumption choices and their implication for health and inequality. In order to recognise the training centre aspect of the DAE more attention should be given to these, and other researchers.

⁵⁴ For example, the Centre for Business Research at the Judge Business School which started life at the DAE.

⁵⁵ As shown at <http://www.esrc.ac.uk/research/evaluation-and-impact/what-is-impact/> (accessed 08/01/2016)

⁵⁶ Interview 8

⁵⁷ Interview 9

⁵⁸ Multiple interviews.

⁵⁹ Interview 6

⁶⁰ It should be noted that there is a risk of “post hoc ergo propter hoc” to the logic of this position. A hugely talented individual would have succeeded wherever they went, and the success of the DAE may be symptomatic of self-selection bias. In some cases, individuals were not long in the department. But to ignore the effect of long exposure to this environment had upon researchers would be to ignore an important causal variable particularly if we attempt to recognise continuities in their research from the DAE onwards. There is an “additionality” which needs to be accounted for.

9. Conclusion

There are many enduring and tangible impacts from the Department of Applied Economics. In addition to the volumes of work produced during the time of the DAE there are also multiple consultancy organisations which still continue the work of the Growth Project and the Policy Group for example. When this is evaluated against the aspirations of Richard Stone - as expressed in the Rockefeller Correspondence – and the visions of other founding economists from the 1930s, there are impacts and a legacy that would garner their support. The work of empiricists at the DAE, and elsewhere, have had a marked impact upon the economics field but have done so with a public-facing agenda which stopped researchers from becoming locked in the ivory tower of abstract theorising.

But the focus on groups, publications and other tangible immediate measures leads us to overlook pedagogical impact of the training centre. In his correspondence with the Rockefeller Foundation Stone had stressed this element as he lived through the failings of the economics profession when wartime needs called. The strong, fond memories expressed by all interviewees is symptomatic of a research culture which had a lasting upon all those who worked there. The stellar careers of many alumni who passed through the organisation attests to the fact that it has benefited those who worked there, and they in turn have used their data-savvy talents in other fields. This network of highly skilled researchers which passed through the department should therefore be recognised as a real tangible outcome also.

What cannot be overlooked however is closure of the department in 2004. This, to an extent, will challenge the potential for a longer term impact from the DAE moving forward. Though alumni of the organisation still conduct research in the manner of their training and in turn influence the next generations they interact with, it is worth noting that the training given to economists today is markedly different from that in the past.⁶¹ So on the one hand, whilst founding members would be proud of the achievements of the department on the other hand they would likely express concerns about whether the vibrant and engaged culture of the DAE will be seen in the future.

⁶¹ Brian Reddaway, Singh (2009) recalls, would ask detailed policy questions calling on students to retrieve information from the Blue Books in order to exercise judgement and arrive at an answer to complex policy problems.

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Interviews

Interview 1

Interview 2

Interview 3

Interview 4

Interview 5

Interview 6

Interview 7

Interview 8

Interview 9