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A SESQUI-DIFFERENCE EVALUATION OF
BOB GREGORY

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The Value of Peripatetic Economists: A Sesqui-Difference Evaluation of Bob Gregory
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ABSTRACT

I ask generally whether a country can benefit from the temporary importation of human capital, and specifically whether a program that attracts large groups of academic visitors to a distant country benefits it by generating additional scholarly research on local issues. Using the list of visitors to the ANU Research School's Economics Program, I estimate this impact from responses to a survey in which visitors described their research before and after their visit and designated as a "control person" another economist who had a similar career but had not visited. The matching of the control may be viewed as being along both observable and (to the researcher) unobservable characteristics of the "treated" and control individuals. The results show a highly significant ceteris paribus impact of such visits on the visitor's subsequent research. Valuing this extra research based on the scholarly citations it received and the effects of citations on salaries shows a substantial monetary impact of visiting economists. Less tangible additional impacts in terms of research style also clearly result.

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I. Introduction

In 1991 Bob Gregory invited me to spend two months at the RSSS at ANU. I had visited Australia for a month in 1987 (at Latrobe University), so this was my second professional visit. The stay affected some of my subsequent research in a variety of ways. It occurred to me that it might be interesting to evaluate the effects of others' visits on their research and to ask the broader question whether it pays for a thinly populated distant country to import human capital on a temporary basis. This study might thus be viewed in the broader context as belonging to the literature on international flows of human capital. Unlike most such flows, however, the ones being discussed here are both temporary and completely voluntary. In that sense they are somewhat like the flows of temporary migrant labor (*braceros*) from Mexico to the United States from 1942 to 1964, except for being much higher up the distribution of skills. Unlike most of the studies in that literature (but see Wise, 1974), I am interested in discovering whether the receiving country—Australia—derived any benefits from the expenses it incurred in obtaining the labor of these imported economists.

Thinking about these issues reminded me of one of the most well known incidents in classic American literature, in Mark Twain's *Tom Sawyer* (Twain, 1876, Chapter 2), from which I quote extensively:

Tom appeared on the sidewalk with a bucket of whitewash and a long-handled brush. He surveyed the fence, and all gladness left him and a deep melancholy settled down upon his spirit. Thirty yards of board fence nine feet high. Life to him seemed hollow, and existence but a burden....

Ben Rogers hove into sight presently -- the very boy, of all boys, whose ridicule he had been dreading. Tom went on whitewashing -- paid no attention.... Ben stared a moment and then said: "Hi-YI! YOU'RE up a stump, ain't you!"

No answer. Tom surveyed his last touch with the eye of an artist, then he gave his brush another gentle sweep and surveyed the result, as before.

“Say -- I'm going in a-swimming, I am. Don't you wish you could? But of course you'd druther WORK -- wouldn't you? Course you would!”

Tom contemplated the boy a bit, and said: “What do you call work?”

"Why, ain't THAT work?"

Tom resumed his whitewashing, and answered carelessly: "Well, maybe it is, and maybe it ain't. All I know, is, it suits Tom Sawyer."

"Oh come, now, you don't mean to let on that you LIKE it?"

The brush continued to move. “Like it? Well, I don't see why I oughtn't to like it. Does a boy get a chance to whitewash a fence every day?”

That put the thing in a new light. Ben stopped nibbling his apple. Tom swept his brush daintily back and forth -- stepped back to note the effect -- added a touch here and there -- criticized the effect again -- Ben watching every move and getting more and more interested, more and more absorbed. Presently he said: "Say, Tom, let ME whitewash a little."

Tom gave up the brush with reluctance in his face, but alacrity in his heart... .. the retired artist sat on a barrel in the shade close by, dangled his legs, munched his apple, and planned the slaughter of more innocents. There was no lack of material; boys happened along every little while; they came to jeer, but remained to whitewash.

I know that none of the visitors came to jeer (and I will explore the reasons they did come). I am also fully aware that Bob did not induce them to come so that he could remain idle—he has been “whitewashing the fence” more vigorously than any other applied economist in Australia. What I am asking is whether, by inducing foreign economists to spend some time, perhaps even time that they may initially have viewed as holiday, Bob Gregory has enabled his country to benefit directly in the form of useful research that has contributed to scholarship about Australia, to a greater understanding of the country and its

economy, and perhaps too to Australian social and economic policy and to worldwide recognition of Australia as a major locus of scholarly endeavor.¹

Toward this end in what follows I therefore first conduct an evaluation of the impact of the Research School of the Social Sciences' (RSSS) program of visitors to its Economics Program on their subsequent research. In doing so I create what I believe is a slight variant on standard evaluation techniques, one that may be useful to other researchers. After evaluating the impact of their visits on visitors to the program (the average treatment effect on the treated), I then ask the more difficult question of what the scholarly impact of any, possibly additional research may have been.

II. Evaluating the Impact of the Visitors Program on Subsequent Scholarship

A. An Evaluation Mechanism

The purpose is to measure how their visits to the ANU RSSS Economics Program affected the scholarship of the many non-Australian economists who have visited there over the years. With that in mind I began by obtaining a complete list of visitors to the Program from the years 1987-2003. I defined the relevant set as those who spent at least two weeks professionally at the RSSS during this period. I include each person only once and assume that the first time that he/she is observed during this period was his/her first visit to the RSSS. I exclude New Zealanders and one in each pair of partners where the partners wrote scholarly articles together before coming to the RSSS. (The reason for this latter exclusion is to avoid double counting the impact of the Program. To the extent that the Program had synergistic effects on partners' scholarship on Australia, as the evidence suggests it did, this exclusion biases downward my estimate of its impact.)

¹With the exception of Kulendran and Wilson (2000) the relationship between international travel and international trade has not been studied; and nobody appears to have examined the relationship between international travel and local research and development.

The timing of the visits of the 78 visitors included in the sample is shown in the left-hand panel of Table 1. There has been a clear secular increase in the annual rate of visiting of people who had not previously spent any extended period at the RSSS. Indeed, since 1999 the annual rate has almost doubled. As the right-hand panel of Table 1 shows, although the visitors have come from universities (and a few from outside academe) in 13 different countries, a large plurality (44 percent) has come from the United States. The United Kingdom has been a distant second in supplying visitors, followed fairly closely by Canada. Given the presence of the various sources on the international scene in economic research, the national distribution of visitors seems fairly representative (with an unsurprising English-language bias).

The list of visitors also covers a very wide range of age cohorts. Included on the list as first-timers are young scholars in their first three years after receiving their doctorates and other first-timers who have been professional economists for over 30 years. The list also contains a number of fairly distinguished names, including among the 78 visitors 7 current or future Econometric Society Fellows and 3 people who later became President of the Society of Labor Economists.

The evaluation question that I seek to answer is whether having made an extended visit to the RSSS resulted in an individual generating scholarly research on Australia that would not otherwise have been produced. In terms of notation I seek to estimate:

$$(1) p = \Pr\{Y=1 \mid V^+=1; X\},$$

where Y is Australia-relevant scholarship, V^+ is an indicator of time after the visit, and X is a

set of characteristics of a scholar that might make him/her more or less likely to work on Australia-relevant topics.²

To the end of estimating p I sent (emailed in most cases, air mailed in only three of the 78 cases) a questionnaire in which I attempted to elicit from the potential respondents the nature of their Australia-related scholarship before and after their visit to RSSS. The central part of the questionnaire is reproduced in the first part of the Appendix. In its first section I try to discover whether the person had done research on an Australian topic or used Australian data before the first visit, and whether he/she did so afterward. If an Australian topic, or Australian data, were worked on, the subject was asked to list bibliographical information on any paper(s) produced.³

Choosing to travel 10,000 or more kilometers to spend time in a foreign land is hardly an experimental treatment assigned randomly among some individuals in a large set of economists. Even if we can obtain a vector of observable characteristics that might have made some individuals more likely than others to work on Australian issues, unobservable characteristics may be correlated with this propensity. Although they may not have done any work on Australia before their visits, those economists who are the potential respondents to this survey may well have been scholars who had some previously unexpressed interest in Australia that they intended to develop into a research project during an extended visit. While I cannot measure the extent of this motivation, I did obtain some evidence on it by

²I code Y=0 if the research paper used Australian data as one of many data sets, e.g., OECD data, Luxemburg Income Study data, *inter alia*.

³While dates of the sample members' visits were necessarily left truncated, problems that this may have generated were obviated because the subjects voluntarily referred to research done prior to their initial visit to ANU, which in several cases was before 1987.

asking in the second part of the questionnaire about the respondents' motivations underlying their visits.

The responses to the second part of the questionnaire are interesting (and amusing), and they show the mixed rationales for such visits to Australia and perhaps, *mutatis mutandis*, for academic visits and collaboration more generally. Some of the reasons were purely personal, having to do with the attractions of Australia (and perhaps even Canberra) more generally:

I had a sabbatical and decided it was a great place to visit for the year with my young family.

[I visited] to avail myself of a sabbatical opportunity, to accompany my wife [and to take advantage of] its good reputation as a nice place.

I had never been to Australia and had an opportunity to go there.

Others (typically younger visitors) listed only intellectual reasons for their visits:

I used it as a base for interviews in Canberra.

I was looking for a place where I could do research in a friendly and highly rated research environment with people interested in labor issues.

[I wanted] to get some work done in an environment with different influences and to start some work on Australian data.

[I was attracted by the] reputation of ANU and [the] very accommodating response from Bob Gregory.

Still others admitted mixed motives, both personal and professional, a mixture that appears to motivate peripatetic economists more generally (see Hamermesh and Oster, 2002):

There were several reasons. First, it was a great opportunity for us and our children to see a completely new part of the world. Second, [...] and I had recently begun to do research on international differences in labor market institutions and outcomes. Australia presents a fascinating set of institutions, and we were very interested to learn more about them.

I found the possibility of making a monthlong visit of interest, given the reputation of the place and the good experiences of others who had visited. I guess that the winters in [...] made visiting in January/February attractive, and this is not irrelevant.

[I wanted] to visit Bob and see kangaroos; also, to learn about Australian labor issues.

As several of the comments indicate, some of the subjects did visit Australia with the idea aforesought of conducting some research, or at least obtaining some information on Australia. How should we interpret those motives in light of our goal of measuring the impact of the average visitor's scholarly travels on his/her research? This problem of endogeneity underscores the impossibility of viewing an RSSS visit as a randomly assigned treatment.

A truly experimental treatment would not have as large an impact as the “average treatment effect on the treated”—the individuals who chose to visit (Wooldridge, 2002, Chapter 18). Since, however, our purpose is to gauge the impact of the visitors program, the more relevant question is whether those who had previously become interested in Australian issues but not yet produced Australia-related research could have conducted their research without having visited. Given the open-ended responses in the second and third sets of quotes above (and their frequency among the responses that were received), it seems fair to argue that the individuals could not have generated Australia-related research without a scholarly visit.

I cannot adjust for a *change* in people's research focus that might have led them to visit the RSSS. I can, however, adjust for any long-term interest in Australian topics that might have characterized their pre-visit research and that should not be ignored in measuring p . To do this I use the responses to the first item in the questionnaire to form the single difference:

$$(2) \quad \Delta = \Pr\{Y=1 \mid V^+=1; X\} - \Pr\{Y=1 \mid V^-=0; X\},$$

where V^- is an indicator of time before the visitor's initial stay at the RSSS. Δ thus measures the treatment effect on the treated, assuming either that the visit was exogenous or that, even though endogenous, the outcome of interest would not be observed without the visit.

It is entirely possible that economists with the same X as the visitors would be working on Australian topics and data even in the absence of a visit. In other words, perhaps the particular focus did not characterize the visitors' research before their visit, but would have been observable in their work at some point afterward. Obviously we cannot infer the importance of this counterfactual from information on the visitors alone. Instead, we need to observe people who are as similar as possible, both along observable and unobservable dimensions, to the visitors. We need a sample of "controls" whose characteristics X are like those of the visitors *and* for whom any random fluctuations in the outcome Y are likely to be the same as those of the visitors.

The standard approach is to identify a sample of individuals whose demographic and economic characteristics match those of the treatment group along a number of dimensions that can be controlled in a multivariate framework (e.g., as in Gruber and Madrian, 1994), but who did not or could not receive the treatment. It would be fairly straightforward to pick economists who work in the same sub-field as the subjects, are of roughly the same age cohort, and who come from the same region of the world, i.e., who match the subjects along some small vector X . That standard approach ignores the possible failure of a "control group" that is chosen in that manner to reflect the characteristics of the subjects that I, the econometrician, cannot capture.

To mitigate problems arising from a failure to match treatments and controls along unobservable dimensions, the third section of the questionnaire asked each subject to designate another economist who might be a suitable control. This approach is not error-free; but by allowing a match based on criteria that may be more readily observed by the “treated” economists than by the econometrician, it may well be better than having matches chosen by the econometrician based on his/her own observations.⁴ The controls are included to account for the possibility that the subjects might have produced Australia-related research during the period after their visit even if they had not visited.

I sent a second questionnaire (see the Appendix) to those individuals who were designated as matches by the subjects. Each control was asked whether he/she had spent any significant professional time in Australia, and whether he/she had worked on Australian data or an Australian topic. Any control who replied that he/she had spent some time professionally in Australia was replaced by a matched person whom I chose based on my knowledge of his/her characteristics and those of the subject. A similar choice was made for those subjects who failed to supply a matched person, and for those designated matches who never replied to this second questionnaire.

The result of this questionnaire was the outcome measure:

$$(3) \quad p' = \Pr\{Y=1 \mid V=0; X\},$$

where $V = 0$ indicates the absence of an Australian visit at any time during the control economist’s professional career. Unlike in the modern literature of program evaluation, where we use controls’ behavior before and after the experimental subjects received the

⁴This approach to designating members of a control group does not appear to be elsewhere in the economics literature. Bound’s (1989) approach to finding controls for receipt/non-receipt of disability benefits, however, is somewhat similar, in that both the controls and treated had sufficient medical problems as to qualify for benefits (problems that were not themselves observable by the econometrician).

treatment to isolate the treatment effect, here there is no before or after for the controls (since they never visited Australia). For them the time when the experimental subjects received the treatment is irrelevant. Thus we cannot use the standard double-difference method to account for the effect of the passage of time on the subjects' behavior (conditional on theirs and the controls' observable characteristics). Instead, using (2) and (3) I form the *sesqui-difference*:

$$(4) \quad \Delta^{1.5} = \Delta - p' = \{\Pr\{Y=1 \mid V^+=1; X\} - \Pr\{Y=1 \mid V^-=0; X\}\} - \Pr\{Y=1 \mid V=0; X\}.$$

The statistic in (4) measures the average treatment effect, as it adjusts for what observationally (to the subjects) identical economists have produced over their careers. It thus measures (again, conditional on the caveats about the likely non-random assignment to the treatment) the probability that someone who chose to visit the RSSS for an extended period generated research on Australia that he/she would not have produced in the absence of the visit. The estimated $\Delta^{1.5}$ is probably a lower bound to the true effect, as the inability to adjust Δ for the control group members' positives early in their career (to subtract from p' the probability that the controls might have worked on Australia before the times when they might have visited) means that we over-adjust Δ .

B. Estimates of the Visits' Impact on Scholarly Output

Of the 78 visiting economists, 71 (91 percent) returned the questionnaire.⁵ The top part of Table 2 describes the statistics on this sample. Of the respondents 33 stated that they wrote research papers about Australian issues or used Australian data after their initial RSSS visit. Two people said they had done so before the visit (one of whom had spent previously

⁵For a mail survey this is a phenomenally high response rate. Partly the success may be due to my affinity with the subjects, many of whom I know personally (see Hamermesh and Donald, 2004). Partly too it may stem from my including as the "Subject Line" of the email questionnaire the statement "Favor Involving Bob Gregory."

spent a year at another Australian academic institution), yielding $\Delta = 0.437$. If we view the 78 visitors as a random sample of all economists who might have visited the RSSS, we can calculate the standard error of Δ as 0.062, indicating that the visits did significantly alter the behavior of the visitors. Making the most negative assumption—that the 7 non-respondents failed to respond because they had not worked on Australian data at any point in their careers—we can expand the denominator used to calculate p and Δ to the full list of 78 visitors. Even with this conservative assumption, we still estimate that $\Delta = 0.397$, with a standard error of 0.059. The few unit non-responses do not alter our conclusions.

Of the 47 out of 71 subjects who listed a specific name or names of matched controls, I was able to obtain responses from 37 controls. I chose the remaining 34 controls based on their similarities along the characteristics X discussed above. Out of the entire list of 71 controls, only 2 indicated that they had done any research on Australia.⁶ This yields an estimate of $\Delta^{1.5} = 0.408$ with a standard error of 0.065, significantly positive at the 99 percent level of confidence. Even if we assign zeroes to all the non-respondents, the sesqui-difference is 0.372 (s.e. = 0.061), still easily significant at the 99 percent level of confidence.

In sum, the evidence makes it clear that this visitors program did attract people who did much more research on Australia afterward than before and more such research than otherwise similar economists who chose not to make a professional visit to Australia. As noted above, we cannot say that the visit caused the researchers to decide to study Australian issues or use Australian data. We can be fairly sure, however, that without the visit they would have been unable to do so.

⁶One of the two controls included as $Y = 1$ stated that he was born in Australia, had never spent time there professionally, but recently completed a paper using Australian data.

III. Evaluating the Scholarly Impact of the Program-Induced Research

Like the proverbial tree falling in the empty forest, these academic visits to the RSSS and the research they generated could well have had no impact other than providing a welcome holiday for the many visitors who, as we saw in the previous Section, wished to spend time in Australia for purely or at least partly personal reasons. One can imagine and hope, however, that the visits had some academic payoff for the visitors, and more important, albeit less directly, for the development of economics in Australia, and still less directly (see Hamermesh *et al*, 1977) for the refinement of Australian economic policy. I am really asking Stigler's (1976) titular question, "*Do Economists Matter?*" To answer the question in this particular case I take a two-pronged approach: First, I try to quantify the scholarly impacts of the research generated as a result of the RSSS visitors program and to place a monetary value on it. Second, I then provide some qualitative indications of the program's effects on both the visitors and on Australia.

The 33 economists who responded to the questionnaire that they had written articles or books after their RSSS visit listed 73 publications—working papers, journal articles, articles in collected volumes, and books—that were related to Australia.⁷ Without actually valuing the visitors' output, one can think about the extra scholarship generated for Australia by considering the opportunity cost of the funds in other equally productive scholarly research in economics. The extra publications represent essentially one Australia-related piece per visit. If the country had devoted the resources used in the visitors' program to funding additional Australian economic researchers, would those Australians have produced

⁷This excludes articles that were based on Australian data that are readily accessible from abroad and that constituted a tiny fraction of the focus of the article. Indeed, one subject listed many well-published papers as resulting from his visit; yet perusing them showed that Australia barely figured in the analysis. Accordingly, I ignore them here and, indeed, in Section II treated that subject as not having generated Australia-related research.

73 additional scholarly books/papers? Would their research have generated the same amount of scholarly attention, as measured by citations, as the visitors' work?

A. Citations and the Monetary Value of the Incremental Research

Using the on-line *Citation Index* (the complete *Index*, covering the sciences, humanities and social sciences) I obtained lifetime (of the publication) citation counts for each of the publications. I present the frequency distribution of citations of these publications in the top panel of Table 3. This research has generated 136 total citations thus far. This is a fairly sizeable total and indicates that the visitors program has made a substantial scholarly contribution. (Of course, it pales compared to Bob Gregory's direct contribution measured in this way—625 citations between 1975 and 2005.) The mean citation per publication is 1.86 (s.d. = 4.26); but, as with all distributions of citations, this one is highly skewed, with one of the 73 publications accounting for 18 percent of all the citations received and a Top 4 concentration ratio of exactly 50 percent. Over half of the publications have not, or at least not yet been cited, again a fairly common occurrence.

To examine the determinants of citations in more detail, and as preparation for imputing a monetary value to this research, I related the number of citations a publication has received to its age (years since publication) and an indicator of whether the study appeared in an internationally recognized journal or working paper series. The average publication in this sample had been in print for six years, and 23 percent of the publications were in international journals or working paper series.

The first two columns of the bottom panel of Table 3 show least-squares estimates of two versions of an equation describing the determinants of the publications' citations. The estimates indicate that publishing in an international journal or series substantially increases

the subsequent scholarly impact of the research. Similarly, and not surprisingly, since if nothing else it is essentially impossible (and increasingly difficult—see Ellison, 2002) for a study to appear in print that cites some other research in at least the first year after the latter is completed, a study that has been in print longer will have accumulated more citations. As the estimates in the second column show, however, the rate of accumulation of additional citations slows (as in Quandt, 1976), with the total implicitly (and impossibly) decreasing after 14 years (a duration that is exceeded by four of the 73 publications).

While all of the estimates of the determinants of citations are statistically significant, they really make little sense: Total citations cannot be negative, as they implicitly are for recent publications in non-international outlets; and the dependent variable decidedly fails to satisfy the assumptions underlying the derivation of least-squares estimators. To circumvent these problems, in the third column I present Poisson estimates of the parameters describing the determinants of this integer count variable. This re-estimation solves most of the statistical problems inherent in the least-squares estimates; and it leaves unaltered the conclusion that publications in international outlets have larger impacts than others, and that the total impact of a publication rises at a decreasing rate.

As the top panel of Table 3 makes clear, there is a huge dispersion in the cumulative citations to these publications, a dispersion that may exceed that implied under the restrictive assumptions of Poisson regression estimation. To account for this possibility, and to examine whether relaxing the assumption about the dispersion of the counts alters our inferences, I re-estimated the equation using a negative binomial estimator and list the results in the fourth column of the bottom panel. While the Poisson assumptions about the

distribution of the outcome are strongly rejected, the parameter estimates under the relaxed assumptions about the distribution of citations differ little from those in Column (3).

We can conclude from this analysis that the publications generated by the visitors program have produced some subsequent scholarly attention. The cumulative interest in the publications has risen at a decreasing rate after their appearance. Those that appeared in international outlets have had a much wider scholarly impact than others. We can use this and other information to attempt to provide a lower bound to the monetary value of the extra research generated by the Program.

Placing a quantitative valuation on the scholarly impact of the program-induced publications is extremely difficult; and any valuation should be taken with substantial numbers of grains of salt. Thus I view the exercise in the remainder of this part of the section as quite speculative. In attempting to attach a monetary value to the citations that are generated, the first step is to infer the extra number of citations generated from among the eventual total to the publications produced by the visitors (beyond what visitors would have produced absent the program).

While the program-generated papers have been cited 136 times thus far, the more recent of these are early in their existence in stimulating additional research. Using the life-cycle of papers' citation-generating abilities, as indicated by the quadratic in Column (2) of Table 3, I inflate each publication's citations to estimate what its total citations will be when they achieve their maximum.⁸ Since most of the publications are very recent, and since the estimates imply that it takes 14 years for the total to reach its maximum, the projected lifetime citations to these publications is much higher—298.

⁸Let α_1 be the coefficient on Years and α_2 be the coefficient on Years². Then the calculation is:
$$\text{CITES}_i^* = \text{CITES}_i + \alpha_1[14 - \text{Years}_i] + \alpha_2 [14 - \text{Years}_i]^2.$$

The projected number of citations must, however, be adjusted downward in two ways. First, we need to account for the fact that many of the papers that the respondents to the survey listed were coauthored with Australians. I adjust the citations to a publication in proportion to the fractional representation of Australians among its authors. Thus if the respondent coauthored with two Australians, I count only one-third of the citations as attributable to the respondent and to the visitors program. This reduces the number of projected lifetime citations to 210. This strict proportional attribution is consistent with evidence that, at least in salary determination, credit is in exact inverse proportion to the number of authors (Sauer, 1988).

The second adjustment accounts for the point made in Section II, namely that some of this research is not extra beyond what would have occurred without the visits. How to prorate the 210 adjusted citations is unclear; but taking a conservative approach, I note that 2 of the 33 subjects who responded that they wrote on Australia after the visit also wrote before, as did 2 of the controls at some point before or after the subject visited Canberra. I thus multiply the 210 adjusted citations further by $29/33$ to obtain adjusted projected total citations of 185 attributable to the program.

Obtaining the monetary value of these additional citations requires some even more heroic assumptions. Perhaps the least objectionable is that the social benefits of the additional publications are at least as large as their private benefits (to the authors). The private benefits—the salaries of the academic authors—are affected by the scholarly recognition that their research receives. In this particular instance the incremental private benefits are produced by the incremental scholarly recognition that they obtain through the program-generated scholarly research that they produce. I thus use evidence that links

citations to salaries to place a monetary value on the extra research that the visitors program produced. I assume that these private benefits also measure the value to society of the program. Whether “society” here includes the entire world, or only Australia, is not clear, although implicitly I am assuming that Australia reaps the entire gain.

One recent study (Moore *et al*, 2002) shows that the average (American) full professor in a sample of nine Ph.D.-granting economics departments had 147 citations in his/her career and was paid almost US\$73,000, while associate professors in the same departments had lifetime 29 citations and were paid US \$52,000. This implies that the additional 118 lifetime citations raised annual salary by US\$21,000. Extrapolating linearly, it implies that the additional 185 adjusted projected total citations attributable to the Program raised the annual salaries of the authors by US\$32,924 ($\$21,000 \times 185 / 118$). Over an assumed 25-year career as a full professor, this totals an extra US\$823,000.

An alternative approach uses the estimates by Hamermesh *et al* (1982). In that study the response of salaries to citations is quadratic; but valuing the effects at an average of 10 citations per year shows that an extra citation in a year yielded \$426 (1979 US dollars) additional salary. By this calculation the value of the 185 extra citations attributable to the Program is \$78,810 1979 U.S. dollars. Since that estimate is based on salaries in 1979, I inflate by the average growth in nominal compensation of full-time employees in the U.S. between 1979 and 2003 to obtain an estimate of a total private benefit of US\$226,638.

The range in the estimates is huge--US\$226,000 to US\$823,000. At the current exchange rate between Australian and U.S. dollars the range is A\$288,000 to A\$1,048,000. Even the lower estimate indicates a substantial impact. Without knowing how much each of the 78 visitors has cost the Program (and ultimately the Australian taxpayer), one cannot

know whether this part of the estimated gains justifies the expenditure. But it does seem that the extra scholarly output has generated private benefits; and if we make the standard assumption that the social benefits are at least that large, we may conclude that the peripatetic economists have generated substantial monetary value.

B. Qualitative Indicators of the Visitors' Value

It is clear from the calculations based on the analysis of the questionnaire responses and the citations to specific publications that the visitors program did engender additional scholarship on which the academic market places a value. I believe, however, that the quantitative measures that I have produced understate the value of the program in a number of ways that cannot be measured. Obviously any extended visit enables a scholar to “recharge the batteries”—to escape from routine and think about new issues, or think in new ways about old issues. That would be true of any academic visit. The question is whether a visit to the RSSS produced unmeasurable benefits beyond those that would be produced by any time away from a researcher’s home base.

The only way to infer the nature of these benefits is to examine the visitors’ responses about their experiences at the RSSS Economics Program (Question II.2 in the first questionnaire in the Appendix). I focus mostly on those visitors who indicated that their visit did not result in specific Australia-related research. While any benefits that these scholars derived from their visit thus could not directly have helped Australia, one might argue that they imply substantial indirect help, insofar as they create a positive image in the visitors’ home country of Australia as a place for serious scholarly research.

Some scholars' contact with the high-quality researchers at the RSSS led them to alter the style of research they conducted in ways that they viewed as positive. Thus one researcher noted:

Nothing so tangible (yet), but I really did get quite a lot from it. Mainly [I came to] the realization that, for a little bit more investment in each project I was working on, I could place my work in better quality journals.

Others claimed that their visit did not benefit them at all, but did help third parties:

The very short visit didn't do a lot for me professionally. However, I met [...] and I got him together with [...], who he was interested in meeting. They have gone on to do a lot of work together, so I think that they got a lot out of my visit professionally, through my role as matchmaker.

Numerous respondents who did not publish Australia-related research mentioned that their visit enabled them to derive scholarly benefits from interactions with permanent RSSS researchers. One junior researcher noted:

Easily one of the most productive visits ever -- great colleagues who are keen to read, comment, discuss papers, and great resources. I finished 3 papers during my first visit, and another 2 during the second one.

A very senior econometrician wrote:

I have written many papers with [...], an Australian statistician whom I first met on my initial visit to RSSS. The continuing (to this day) collaboration [is what I got out of the visit].

Finally, a junior researcher located in a relatively isolated academic environment observed:

I have one collaboration with [...], whom I met when he was a staff member at RSSS. It is still my only experience of working in another environment. I will never forget the discovery of this research culture that is basically the world standard.

It is not only the permanent staff whose behavior confers benefits on a visitor. Being the sole visitor in an academic environment can be isolating and forbidding; but the large number of people who visit the Economics Program simultaneously (see Table 1) guarantees

an absence of isolation. Indeed, interactions with other visitors—the intellectual economies of scale made possible by a large visitors program—are themselves a major source of scholarly benefits. One senior visitor noted that such an interaction sharply altered his career:

Prior to my visit (I was there in 1989) my research focus was applied time series econometrics and tests of distributional assumptions. During my visit I met up with [...] (also visiting there at the time) who suggested that some of the distribution material I was working on had applications in It resulted in a complete refocus and change of research area for me.

Yet another benefit is produced by visitors' interactions with government officials in Canberra, meetings that are facilitated by Economics Program researchers. One American interested in social programs observed:

I met with several program groups at FaCS. Those visits were critical to my thinking about welfare reform, mostly because, as a result of these extensive discussions, I was able to view welfare from a more international perspective.

A senior economist commented:

RSSS provided plenty of access to people in the Australian federal government.

These contacts (and descriptions of similar contacts by a number of other respondents) suggest that the visits are a means by which Australian policy choices can influence policy-related research, and perhaps even policy development, far beyond the country, even if they generate no explicitly Australia-related research. Presumably too the work of the visitors during their stays in Canberra encouraged policy makers to generate new policy ideas or perspectives that would otherwise not have arisen.

Perhaps most of all, the standards set by Bob Gregory himself alter visitors' behavior in beneficial ways that are often only observable years later and that are sometimes so subtle

as to resist specific description. A feeling for these effects can nonetheless be garnered from some of the respondents' comments. One junior economist observed:

Bob's great gift is a tremendous instinct for what is important. When you talk to him about work you pretty soon realize that this is a big question for him. As a junior staff member one is typically over-obsessed with the details and cannot see the big picture. Bob makes you look at this, and I think this is both pretty rare in the profession, and [that] relatively few of those who have that instinct have the time to spend talking about your work. I feel very strongly that Bob made me try to focus on the big issues and see the broader picture of my work. For someone starting out in the profession what could be a greater gift?

These unmeasurables are best summarized:

I was also impressed by Bob's No-BS approach to economics. No matter what research I was talking about, Bob wanted it expressed in plain English, and then offered some serious economic insight into the problem. He usually accompanied the insight with an Australian example or anecdote. The profession is going to sorely miss generalists like Bob who love economics and who aren't shy to comment on even the most high tech research, applying the "who cares" litmus test.

IV. Conclusions and Implications

Of course academic visits are fun—it is great to get away from one's home base and to realize that one is an honored prophet elsewhere even if not in one's home institution. The evidence from this analysis of one specific, albeit quite large visitors program demonstrates that academic visits do more than this—they generate additional research that is directly relevant to the distant land that funds part of the cost of the visit. As such, academic visits appear from these results to be a fairly inexpensive way of inducing research by scholars who would not otherwise have worked on issues relevant to that distant land.

The value of such visits would seem especially great to a distant, thinly populated country. Every country generates large amounts of data specific to its people and economy. In a huge industrialized nation, such as the United States, there is no dearth of scholars

mining the data—in such a country the margin of interesting research has been extended quite far. In a thinly populated country the supply of indigenous researchers is much smaller relative to the available data and questions, and many interesting issues escape inquiry simply because of the limited supply of potential researchers. By funding an extensive research program for visitors such a country can import intellectual capital that has been generated elsewhere and redirect its focus onto the country's concerns. Those intellectual labor-market intermediaries who foster these imports can thus produce a large value-added for their country.

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APPENDIX. Email Questionnaires

TO “TREATMENTS”

I. Please answer two very specific questions.

1. Had you worked on any Australian topic, or used any Australian data in your research, BEFORE your initial visit to RSSS?
2. Have you worked on any Australian topic, or used any Australian data in your research, SINCE your initial visit to RSSS? Please list any papers, published or unpublished, that fall into these categories, even if they did not directly result from your visit.

II. Please answer two open-ended questions.

1. Why did you make your first visit to RSSS?
2. What did you get out of it professionally, i.e., new collaborations, furthering existing collaborations, or whatever?

III. Finally, could you give me the name of one of your contemporaries: 1) Who works in a research area close to your own; 2) Whose publication record is fairly close to your own; and 3) Who, to the best of your knowledge, has NOT spent time in Australia.

TO “CONTROLS”

I wonder if you could email me the answers to three very short questions:

Have you ever spent two weeks or more in Australia in a professional capacity as an economist?

1. If YES, had you worked on Australian data, or some particularly Australian topic, before you went?

Please list the paper(s) you are referring to here.

If YES, did you work on Australian data, or some particularly Australian topic, after your first visit?

Please list the paper(s) you are referring to here.

2. If NO, have you ever worked on Australian data, or some particularly Australian topic?

Please list the paper(s) you are referring to here.

Table 1. The Distributions of RSSS Economics Visitors by Year and by Country*

Time Period	Number	Country	Number
1987-1989	15	Austria	1
1990-1994	13	Canada	13
1995-1999	23	Germany	2
2000-2003	27	Denmark	2
TOTAL	78	France	1
		Italy	1
		Israel	1
		Japan	1
		Netherlands	2
		Portugal	1
		Sweden	1
		United Kingdom	18
		United States	34
		TOTAL	78

*Visitors who visited together and wrote together before and after the visit are treated as a single observation throughout. Australian-born or educated visitors are excluded, as are non-Australians who visited with a partner with whom they had previously coauthored.

Table 2. Impact Evaluation of RSSS Economic Visitors, 1987-2003*

Direct survey responses, N = 71

$$\Delta = 0.437$$
$$(0.062)$$

Of which 37 matched designated

“control” persons are included in the calculation of:

$$\Delta^{1.5} = 0.408$$
$$(0.065)$$

Direct responses plus zeroes, N = 78

$$\Delta = 0.397$$
$$(0.059)$$

Of which 37 matched designated

“control” persons are included in the calculation of:

$$\Delta^{1.5} = 0.372$$
$$(0.061)$$

Total First-time Visitors 78

*Standard errors in parentheses.

Table 3. Statistics and Determinants of Citations to Visit-Generated Research

A. Frequency Distribution of Citations (N = 73 Publications)

Citations Frequency

0	42
1	12
2	8
3	2
5	2
6	2
12	1
13	1
14	1
17	1
24	1

B. Determinants of Citation Rates

	Least-squares Estimates		Poisson Estimates	Negative Binomial Estimates
Ind. Var.:				
International	3.066 (1.109)	2.981 (1.104)	1.529 (0.187)	1.409 (0.493)
Years in Print	0.332 (0.100)	0.731 (0.308)	0.608 (0.084)	0.571 (0.178)
(Years in Print) ²		-0.026 (0.019)	-0.023 (0.005)	-0.023 (0.011)
Constant	-0.827 (0.833)	-1.661 (1.028)	-2.759 (0.399)	-2.486 (0.666)
R ² or Pseudo- R ²	0.181	0.203	0.341	0.104