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Causes and Implications of Declining Economics Major:

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Three major factors contribute to this phenomenon: less than appropriate product for an increasingly diverse clientele, the introduction of more attractive and business, commerce and industry-oriented programs such as finance, accounting and commerce, and business majors geared to the needs of the real world, and the use of less experienced teaching staff in lower undergraduate courses.

It is argued that stemming the tide against the economics discipline would require a significant rethink of development of products more vocational and real world-oriented, market segmentation for different clientele types, and marshalling of more experienced and capable teaching staff for lower undergraduate levels.

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A Focus on Australia

1 INTRODUCTION

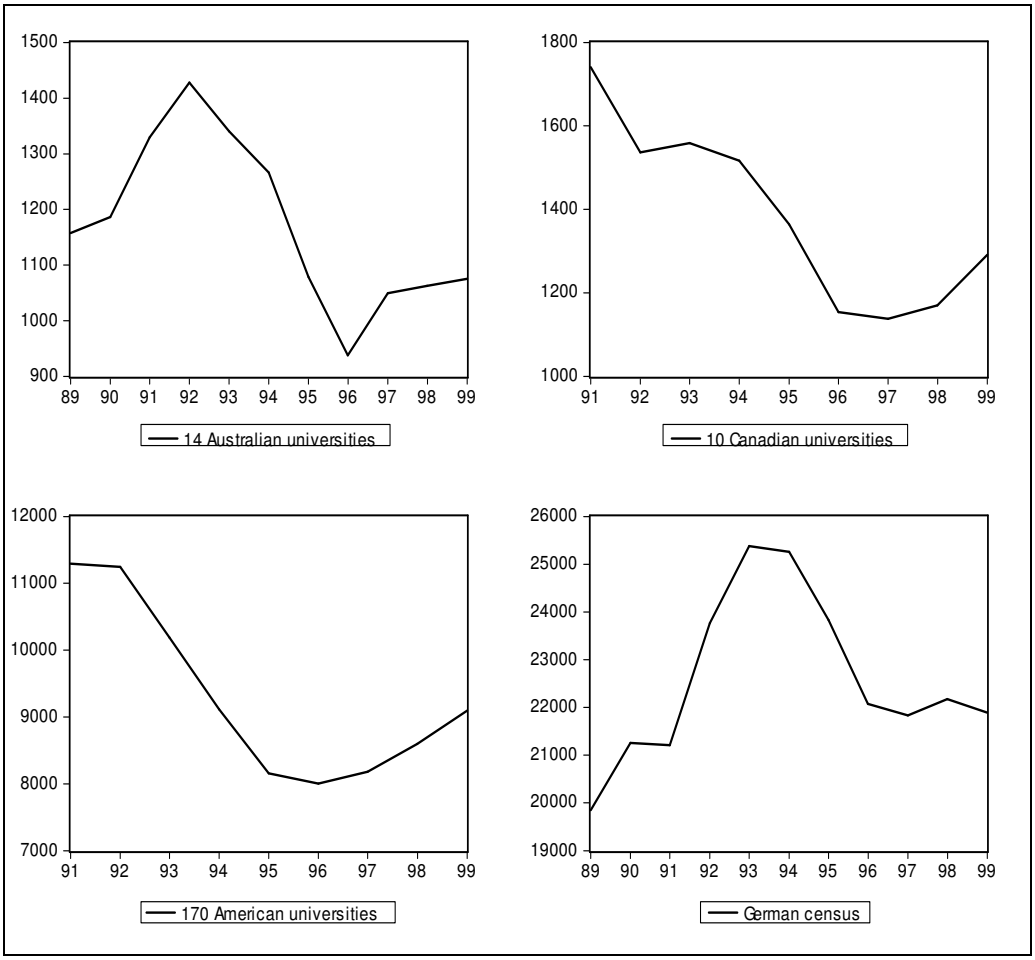
There is a general consensus among economists that the number of enrolments in economics is in a state of steady decline globally over a period of nearly two decades. Building on the previous studies and some relevant time series data, the main objective of this study is to shed further light on the causes and implications of declining popularity of economics major among students in Australia. It is useful to note that "thirty years ago economics saw itself as the emperor of the social sciences and believed that it was on the verge of subsuming all other disciplines under its mantle. Today it is so seriously in decline that many academic economists feel like members of an endangered species" Keen (2001, p.15). This paper presents a number of solutions to address the problem of declining economics enrolments in Australia.

At the outset it is very important to see how acute the problem is. There are many descriptive and empirical studies that have examined this critical issue in the US, Australia and Europe. Particularly since 1990. For instance, Siegfried and Scott (1994) report the US bachelor's degrees awarded in economics between 1977-78 and 1992-93 at 5-year intervals covering 105 colleges and universities. Their study indicates that the number of degrees in absolute terms was growing between 1977-78 and 1987-1988, albeit at a decelerating rate. However, since the late 1980s there has been a sizeable fall in both the total number of economics graduates and percentage of economics graduates among women. The number of the US economics bachelor's degrees awarded declined on average 2.1 per cent per annum between 1987 and 1992. It was also argued that economics major was not only less popular among students in

general but also the incidence of declining demand for economics major was more pronounced among women (Siegfried and Scott, 1994, p.284) and Siegfried (2000, p.284).

However, in a recent study Siegfried (2000, p.296) reports that in the US context there is a recovery under way in undergraduate economics majors 'that began in 1996-97 has now persisted for three years and shows signs of accelerating'. He further argues that 'one third of the precipitous 30 per cent drop in degrees awarded to women from 1990-91 through 1995-96 now has been restored' (p.296). Siegfried (2000) also reports a systematic increase in the percentage of women graduating with economics major recovering to 32 per cent in 1998-99 from a dismal 25 per cent in 1993-94. Similarly another cross-country study by Siegfried and Round (2001) indicates that the declining trend in economics major in three countries (USA, Australia, and Canada) may have been reversed and an overall recovery might have been underway. Figure 1 portrays the time path of undergraduate degrees awarded in economics major in the USA, Germany, Canada and Australia. While the relevant information embodied in Figure 1 shows a turnaround for USA, Canada, and Australia since 1996-97, the numbers in the 1998-99 are far below those a decade earlier. In case of Germany, there does not seem be any reversal of the declining trend. Instead, there is neither an increase nor a decrease in numbers in the second half of the 1990s. One might also note that while the German data are based on census, the US, Canadian and Australian data are based on samples and as such are relatively less representative.

Figure 1: Undergraduate degrees in economics- Australia, Canada, the US, and Germany



Source: Siegfried and Round (2001).

Furthermore, very recent evidence from France suggests *signes d'alarme* in the teaching of economics. As Kirman (2001, p.7) puts it:

> In the last few months, many pages of *Le Monde* have been occupied with a debate on a subject, which in other countries does not ever reach the newspapers. The basic issue is how economics is taught, whether the way in which it is taught is appropriate and to what extent mathematics is over- or under-used in the discipline. … The whole story started with a number of students at the Ecole Normale Supérieure, considered to the elite of French students, who in a petition protested against the way in which economics was taught in France. Of course, this has echoes of similar debates in the US and in the UK. … Firstly it is considered to be a subject of national interest, which is important in itself. Secondly, the protesters see this as a problem to be resolved within France. Thirdly, it comes at a time when the number of students enrolled in economics is close to an all-time low. The original movement has given rise to a web page, http://www.btiinternet.con/~pae.

Therefore, the optimism surrounding this recent recovery might be premature and as such must be treated with caution particularly in Australia as more recent studies such as Azzalini and Hopkins (2002) and Keneley and Hellier (2001) indicate the problem of declining enrolments is still an ongoing issue.

Against the background of the preceding discussion, this paper proceeds first of all with an examination of the state of economics discipline in Australia during the last decade or so. This is followed by an explanation of the observed pattern employing analytical tools of the theory of consumer behaviour. Some strategies for stemming the downward spiral are discussed next.

2 THE STATE OF PLAY IN AUSTRALIA

The preceding discussion indicated that the general trend in the number of bachelor's degrees in economics in Australia was consistent with the global trend during the decade to 1999. This section examines in some detail the Australian picture during the same period using some econometric tests.

As mentioned earlier, Siegfried and Round (2001) in their survey collected relatively consistent data on the number of bachelor's degrees awarded in economics in Australia, Canada, Germany and the US over the 1989-99 period. The time series data on Australia cover 14 universities namely: James Cook, Queensland, Murdoch, Western Australia, Flinders, Tasmania, Australian National University, Macquarie, New England, Newcastle, New South Wales, Wollongong, La Trobe, and Royal Melbourne Institute of Technology. Note that there are some big names such as

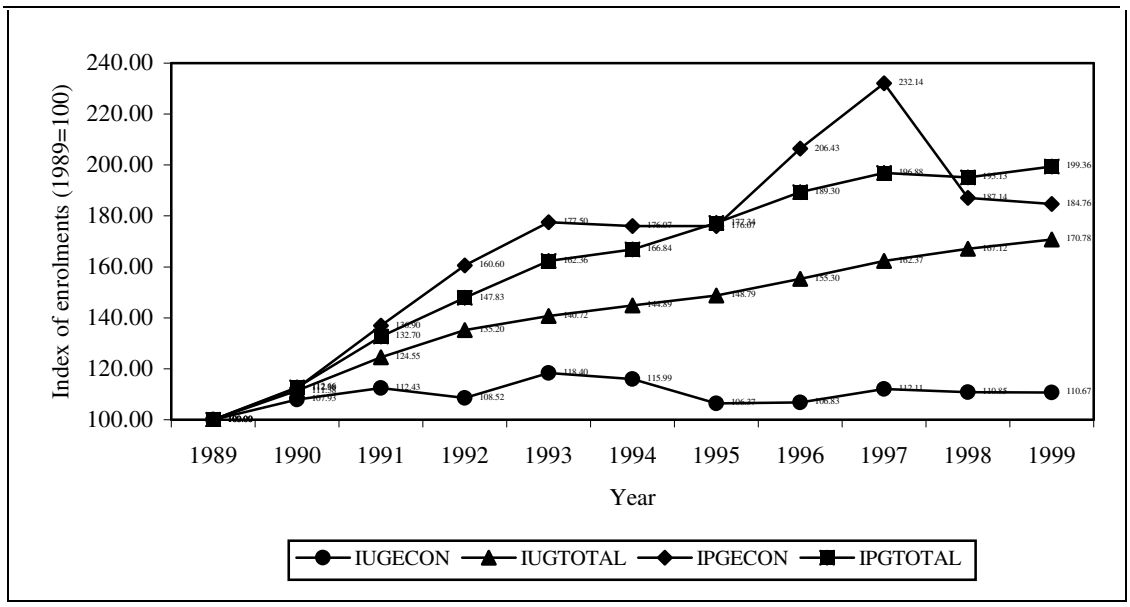
Adelaide, Melbourne, Monash and Sydney are missing from the Siegfried-Round list of the Australian universities.

In contrast to the Siegfried-Round study (2001) which uses data on only 14 out of a total of about 40 Australian universities, the present study examines trends in both undergraduate and postgraduate level enrolments in economics major employing aggregate data on all the Australian universities.

Based on data from Millmow (2000) Figure 2 portrays the overall trends in the number of total enrolments in undergraduate and postgraduate economics degrees major vis-à-vis total undergraduate and postgraduate enrolments during the 1989-99 period. Indices of the relevant series are constructed with the respective 1989 figures as the bases.

Figure 2 reveals that relative to 1989, the year 1999 has witnessed: (1) an increase of 71 per cent in the overall undergraduate enrolment index (IUGTOTAL), while undergraduate economics enrolment (IUGECON) has increased only by about 11 per cent; (2) little difference between overall postgraduate and postgraduate enrolments in economics and for most part of the period the line portraying the economics postgraduate enrolment (IPGECON) stays above the one showing the total postgraduate enrolment (IPGTOTAL). However, economics postgraduate enrolments have trended downwards toward the end of the 1990s.

Figure 2: Trends in enrolments in undergraduate and postgraduate economics and total enrolment in each category, Australia 1989-99



Source: Based on Millmow (2000).

The time patterns come into sharper focus if one estimates the compound growth rates of the relevant variables. Let Ratio 1 be the ratio of undergraduate economics students to total undergraduate students; and Ratio 2 be the ratio of postgraduate economics students to total postgraduate students; and Ratio 3 being the ratio of economics in total business enrolments.

Table 1 presents the estimated equations for Ratio 1, Ratio 2 and Ratio 3 using time series data from 1989-2000 and applying a semi-logarithmic trend equation. The coefficients of the time variable represent the instantaneous growth rate while taking its anti-log gives the compound growth rate. It should be noted that the estimated trend equations reported in Table 3 pass all the reported diagnostic tests.

Table 1 Regression equations explaining the ratio of economics students to total number of students using various classifications, 1989-2000

Variable	Estimated growth rate β (per cent)	Empirical results
Ratio 1 (Undergraduate economics to total undergraduate)	-4.51	$Ln(RATIO_{1t}) = -3.7 - 0.0451T_t$ (-195.6*) (-15.4*) $\bar{R}^2 = 0.954$ F(1,10)=238* Diagnostic tests: DW=1.91 AR 1- 1 F(1,9) = 0.009 [0.93] ARCH 1 F(1,8) = 0.570[0.47] Normality Chi^2(2)= 1.94 [0.38] White Xi^2 F(2,7)=0.629 [0.56] RESET F(1,9)= 1.89 [0.20]
Ratio 2 (Postgraduate economics to total postgraduate)	-0.20	$Ln(RATIO_{2t}) = -4.38 - 0.002T_t$ (-117.3*) (-0.36) $\bar{R}^2 = -0.086$ F(1,10)=0.127 Diagnostic tests: DW=1.64 AR 1- 1 F(1, 9) = 0.24 [0.64] ARCH 1 F(1, 8) = 0.02 [0.90] Normality Chi^2(2)= 1.16 [0.56] White Xi^2 F(2,7) = 0.69 [0.53] RESET F(1,9) = 2.85 [0.13]
Ratio 3 (Economics to total business enrolments)	-4.60	$Ln(RATIO_{3t}) = 2.27 - 0.046T_t + 0.311AR(1)$ (53.1) (-9.7*) (2.2) $\bar{R}^2 = 0.921$ F=(1,10)=59* Diagnostic tests: DW=2.04 ARCH 1 F(1, 7) = 0.25 [0.63] Normality $Chi^2(2)$= 5.01 [0.08] White Xi^2 F(2, 6) = 0.20 [0.83]

Notes: (a) Figures in parentheses are t ratios. (b) * indicates the corresponding null hypothesis is rejected at the 5% level of significance. (c) The 2000 figures are the authors' estimates.

Source: Based on information contained in Figure 2.

According to the regression results presented in Table 1, the ratio of the undergraduate economics enrolments to total undergraduate students (Ratio 1) exhibited a persistent dwindling trend during the 1989-2000 period with an average compound annual growth of negative 4.5 per cent. During the same period, the share of postgraduate economics enrolments to total number of postgraduate students (Ratio 2) registered only an

insignificant compound annual growth rate of –0.20 per cent which is not statistically different from zero. Therefore, the problem pertains to the conspicuous relative declining number of undergraduate economics students not postgraduate students. Table 1 also indicates that the ratio of economics students to total number of enrolments in business, administration, and economics (Ratio 3) has recorded an annual compound growth of 4.6 per cent. Thus, it can be concluded that the share of economics in: a) total number of undergraduate enrolments (in general); and b) total number of business students (in particular) has substantially fallen since 1989.

While Figures 2 and 3 and Table 1 show the general trend in enrolments in undergraduate and postgraduate economics and total enrolment in each category, Figure 4 highlights the trend in economics enrolments as a percentage of total business enrolments. As can be seen, the share of economics in 1999 is less than two-thirds of what it was in 1989. Except for 1993 the importance of economics in business economics has been on a continuous slide. The growth rates presented in Table 1 clearly typifies the steady marginalisation of economics as a discipline and the ascendancy of business and related disciplines.

The declining share of economics enrolments in total bachelor's degree students clearly indicates that economics is no longer a popular field of study among students in Australia. This paper argues that the most important contributing factor to this phenomenon relates to the fact that an undergraduate business degree (such as finance, accounting and commerce) is now regarded as a very attractive substitute for economics. It is hypothesized that if there is an undergraduate degree in these business-oriented courses within an institution or another institution in the same

locality, due to this substitution process, the number of economics students will fall. A comprehensive study in the US context (Siegfried and Wilkinson 1982) clearly supports this view.

On the other hand, Figure 5 shows that the percentage share of bachelor's degrees awarded in the aggregated category of business (including administration, business and economics) in total awarded bachelor's degrees in Australia exhibits an upward trend over the same period particularly since 1994. In order to measure the relationship between the number of business students and the number of economics students, one may estimate a simple log-linear equation in a ratio form.

Table 2 presents the regression results for an equation specifying the ratio of economics students to total number of undergraduate students (or Ratio 1 being the dependent variable) as a function of Ratio 4 (the ratio of business enrolments (excluding economics students) to total number of undergraduate students and a time trend variable. Both the explanatory variables in this equation are highly significant and it passes each and every diagnostic test reported in Table 2. Consistent with the regression results for Ratio 1 presented in Table 1, the estimated coefficient for time trend in Table 2 also indicates that Ratio 1 declined approximately 4.4 per cent per annum from 1989 to 2000. Furthermore, the estimated coefficient for Ratio 4 can be interpreted as an elasticity measuring, *ceteris paribus*, the responsiveness of Ratio 1 to a percentage change in Ratio 4. The estimated regression in Table 2 clearly reveals that if Ratio 4 increases by say 10 per cent, Ratio 1 will rise only by 4.3 per cent. There are several factors that make the magnitude of this elasticity less than unity by reducing the demand for economics degree such as: 1) the use of inexperienced

teaching staff in the first year economics subjects, 2) the Bandwagon effect among students, 3) increasing availability of market oriented disciplines such as management, marketing, human resource management, finance and accounting , 4) unpopularity of economics in the secondary school curriculum network effects among students Millmow (1995), 5) offering out of date and irrelevant subject content to current issues (AVCC, 1992). In Section 4 we elaborate more on this issue especially in relation to the three specific types of demand curves which necessitate developing more custom designed products for each category.

Since the estimated elasticity in Table 4 is less than unity, one can argue that a large proportion of business students are now less inclined to undertake a degree in economics. On the basis of these results it can be concluded that instead of undertaking a bachelor degree in economics, students prefer to study relatively easier and more vocationally oriented disciplines with "greater employability" such as finance, accounting, management, and commerce.

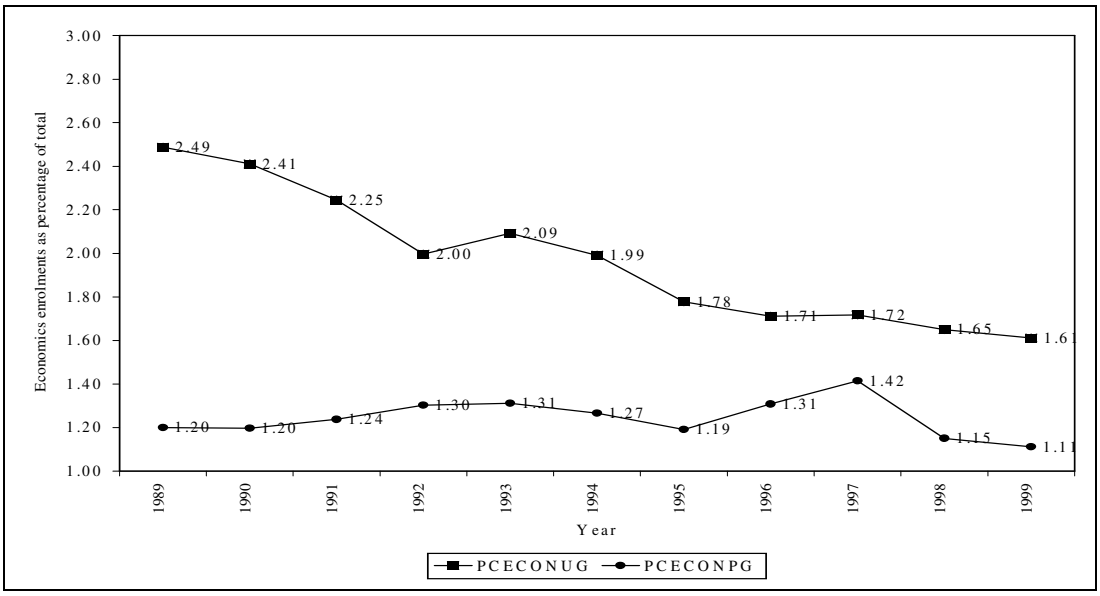
Table 2 Regression equation explaining the ratio of economics students to total number of students, 1989-2000

Variable	Estimated growth rate β (per cent)	Empirical results
Ratio 1 (Undergraduate economics to total undergraduate)	-4.40	$Ln(RATIO_{1t}) = -3.09 + 0.43*Ln(RATIO_{4t}) - 0.044Tt$ (-11.8^{*}) (2.4^{*}) (-15.4^{*}) $\bar{R}^2 = 0.956$ $F(2,9)=119^{*}$ Diagnostic tests: DW=2.12 AR 1- 1 F(1,8) = 0.12 [0.74] ARCH 1 F(1, 7) = 0.78 [0.41] Normality Chi^2(2)= 0.59 [0.74] White Xi^2 F(4, 4) = 2.31 [0.22] RESET F(1,8) = 0.47 [0.51]

Notes: (a) Figures in parentheses are t ratios. (b) * indicates the corresponding null hypothesis is rejected at the 5% level of significance. (c) The 2000 figures are the authors' estimates.

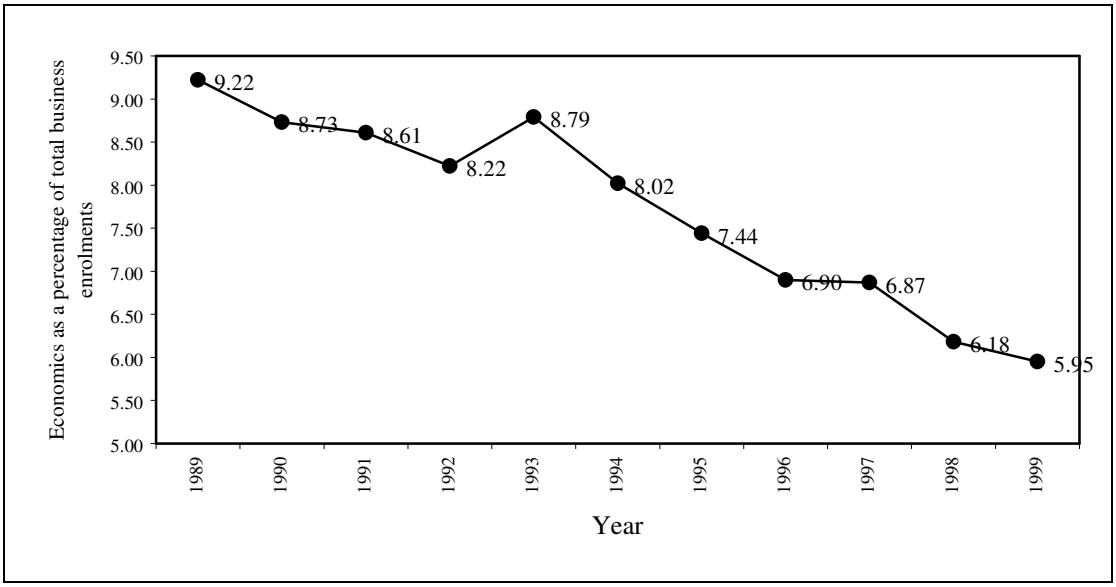
Source: Based on information contained in Figure 2.

Figure 3: Trends in economics enrolment as a percentage of total enrolment, Australia 1989-99



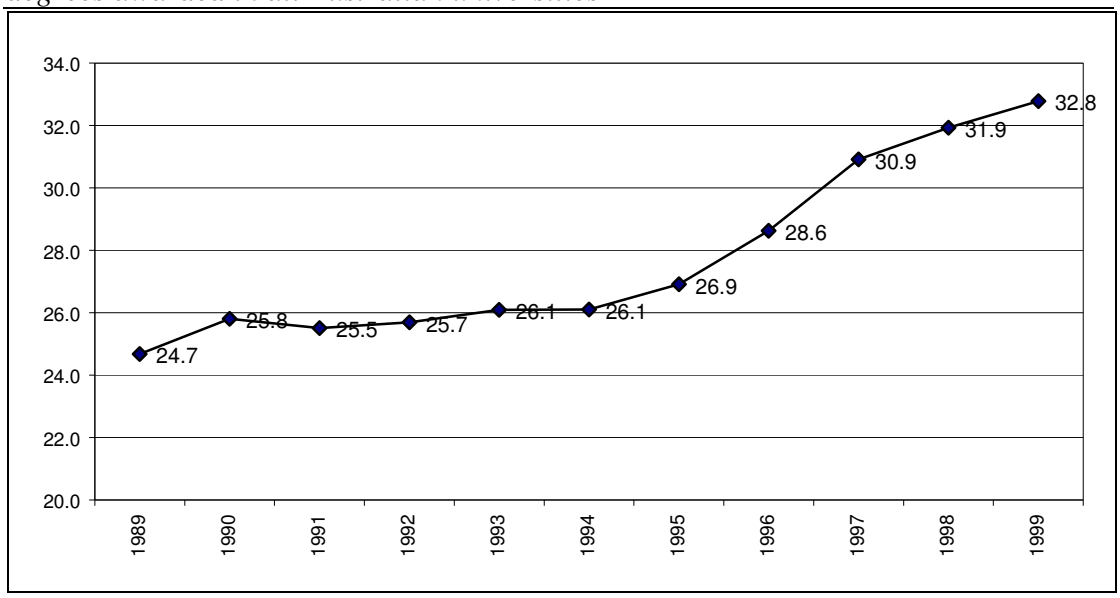
Source: Based on Millmow (2000).

Figure 4: Trend in economics enrolments as a percentage of total business enrolments



Source: Based on Worthington and Higgs (2001).

Figure 5: Percentage share of undergraduate business degrees in total bachelor's degrees awarded in all Australian universities



Source: Based on data from DEETYA (2001)

3 EXPLAINING THE OBSERVED PATTERN: APPLYING THE THEORY OF CONUSMER BEHAVIOUR

The observed pattern of the downward spiral in economics can be explained using aspects of the theory of consumer behaviours. This is illustrated in Figure 6.

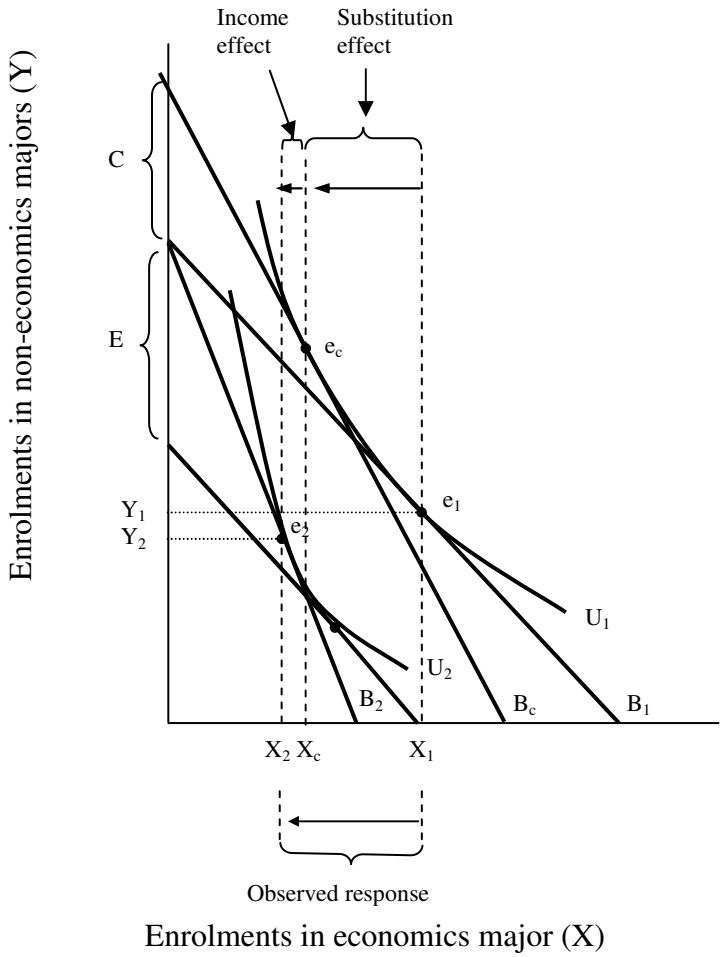
Consider the indifference curve U_1 that represents combinations of economics major (X) and non-economics majors (Y). B_1 represents the budget line, which at the point of tangency e_1 with the indifference curve U_1 represents the initial equilibrium. Assume that economics is a normal good. Now suppose that the price of economics has increased relative to non-economics majors. This can be conceptualized as the relative ease of the learning process of the competing programs.

The observed response to a 'price increase' is a reduction in enrolment in economics from X_1 to X_2 of which the substitution effect accounts for the decline from X_1 to X_C (represented by the movement from e_1 to e_c) while the income effect accounts X_C to X_2 (represented by the movement from e_c to e_2). The distance C is the compensating

variation while the distance E represents the equivalent variation. The income effect could be conceived as the students' perception of economics being less real world oriented than courses in business and related discipline(s) that seemingly enhance job prospects. The substitution effect results from the students' perception of a 'user-friendly' learning process of the rival degree programs. In other words, the relatively expensive learning process in economics implies a substitution away from it.

The decline in the demand for economics major explained above implicitly assumes that individual students make their choice independent of others including peers and acquaintees. Reality, however, differs from this orthodox view. In the real world, an individual's demand for a good is influenced by demands of other people. Following Tisdell (1972, p.118) the demand for an academic program or course by the ith individual (x_i), *ceteris paribus*, can be expressed as a function of its perceived price (p) and his/her estimate of the quantity of the good demanded by the market as a whole (X*). Thus: $x_i = f_i(p, X^*)$.

Figure 6: Substitution and income effects lead to declining economics major enrolments.



Source: Adapted from Katz and Rosen (1991, pp.101-106).

According to Tisdell (1972, p.118):

> This view is reinforced by the nature of advertisements, which are designed to increase the sales of products. An inspection will reveal that many of these stress the importance of consumption of the product by *others*. Consumption by a special group may be selected for mention or inferred or the total volume of sales may be indicated. One can reasonably conclude that these factors influence demand and empirical study might reveal that the major part of consumer's expenditure is influenced by these factors.

This is known as network externality (Pindyck and Rubinfeld 2001, p.127). Network externalities can be positive or negative depending on whether $\partial x_i/\partial X^* >$ or < 0. Thus a positive network externality exists if the quantity demanded of a good demanded by

an individual varies directly with the growth in the purchases of others. If the quantity demanded varies inversely with the growth in the quantity demanded by others, Bandwagon effect (Liebenstein 1948) will typify a positive network externality in which an individual consumer considers acquisition of a good *inter alia* because others do or have done so.

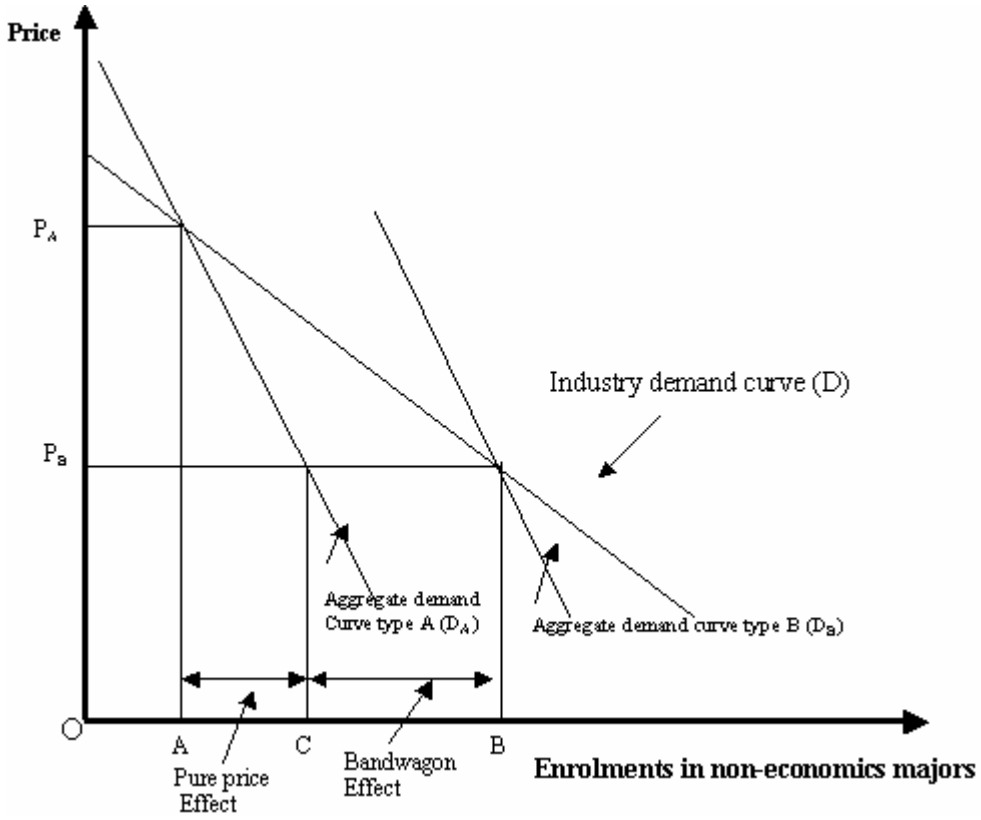
The phenomenal trend away from economics major and a trend toward say business and related majors can, to a significant extent, be explained using the concept of positive network externality. This is illustrated in Figure 7. Consider the industry demand curve D for non-economics majors drawn on the assumption that all expectations are realized. Assume also that all the students are of the bandwagon-type and all consumers are in equilibrium. If all students believe that X = A, the demand curve will be presented by D_A. If on the other hand X = B, where B>A, the D_B will be the new resulting demand curve. It can be clearly seen that the bandwagon effect *causes* the demand to increase from A to B as a result of a fall in price from P_A to P_B. Thus on the whole, both as a result of the price effect (composed of income and substitution effects) and the bandwagon effect, the demand for rival programs/courses has experienced a considerable growth and has led to a resultant decline in enrolments in economics major.

The empirical applicability of the theory of consumer behaviour to understand the ongoing problem of declining enrolments in economics is beyond the scope of this study and requires a substantial collection of primary data and future research. However there are a number of authors who have already indicated that the theory of consumer behaviour can explain the declining enrolments in economics major. For

example this phenomenon is supported by evidence on the ground of reality. Over a period of a decade or so it has been observed (by one of the authors, Mohammad Alauddin) at The University of Queensland that:

- Students in business or related disciplines can relate much more to the real world than in typical economics courses/programs. For instance, they can identify easily with sales/business plans of Woolworths as a real world issue. The business courses as they perceive are replete with examples from the real world than are available in a typical economics course.

Figure 7: Pure price effect and bandwagon effect of non-economics major



Notes: Due to a bandwagon effect there is a growth in the demand for non-economics majors. As the perceived price of the good falls from P_A to P_B the bandwagon effect causes the demand curve to shift from type A to type B. The total quantity increases from A to B of which the pure price accounts for AC while the bandwagon effect accounts for CB. *Source:* Adapted from Tisdell (1972, pp.117-19).

- A typical economics course is perceived to require effort level (time measured) at least one and half times the one for a typical business course for the same grade.

The above observations are based on random discussions with a small number of students each year. This view is consistent with that of a study by Lewis and Norris

(1997). Based on responses from 35 Heads of Schools/Departments (of Economics) throughout Australia, Lewis and Norris (1997, pp.9-10) identified eleven factors contributing to the precipitous decline in enrolments in economics major. These ranged from business studies being 'seen as more career focused than economics' on topping the list with an average score of 4.6 [on an ordinal scale of 1 (not important) to 5 (important)] to 'economists are blamed for the recession of 1990-91' with an average score of 1.7.

The seven factors with average scores in excess of the median score of 3, according to Lewis and Norris (1997) are set out in Table 3. Of the seven factors listed, the first two and the 7th relate directly to the competitive edge of business studies over economics in terms of its perceived vocational orientation, pragmatic approach and job prospects. On the other hand, the nature of economics itself in terms of its being 'boring', 'hard', 'too rigorous and/or abstract', and 'mathematicised' is rendered relatively less popular.

There is no denying the fact that economics itself as a discipline has a feature of its own that puts some constraint on hands-on or readymade solution to all real world issues which the changing environment might be demanding of those teaching economics at the university level (Alauddin and Tisdell 2000). The constraint endogenous to the discipline itself is epitomised by the following observation from Keynes:

> … The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions (Keynes 1922, p.v).

However, in recent times the most commonly held view that is espoused is the extraordinary rise of business studies. As Millmow (1995, p. 96) put it:

> In many ways the rise and rise of business courses at the expense of economics is because the new glamour disciplines of marketing, HRM and management are glorified by the university sales folk and command a good media profile. Economics, by contrast has a tawdry, shop worn look that part reflects the seemingly killjoy aspects of the economists' tasks.

Table 3: Perception of Heads of Schools/Departments of the declining enrolments in economics degrees

Rank (1=Highest)	Perceived cause	Average score (on a sale of 1-5)
1	Business studies are seen as more career focused than economics	4.6
2	Business studies degrees are seen as leading to higher paid jobs	3.9
3	Economics is seen as too rigorous and/or abstract	3.8
4	School students are taking 'easier courses in such as business studies and legal studies rather than economics	3.5
5	Students are increasingly less well prepared than in mathematics	3.4
6	Economics is perceived as 'boring'	3.3
7	Students are seeking a more rounded and pragmatic approach than that perceived to be offered by economics	3.1

Source: Adapted from Lewis and Norris (1997, pp.9-10).

Thus economics is portrayed as unexciting and lacking relevance. The most recurring criticism against economics is that it is not real world oriented especially compared to its rivals in business and relevant disciplines. On closer inspection, however, this turns out to be a complex issue in a world where there remains a strong demand for graduates with strong analytical and quantitative skills.

The theory of consumer behaviour may provide a useful theoretical and conceptual framework to understand the ongoing problem of declining enrolments in economics. Obviously one should collect primary data to investigate the validity of the underlying assumptions. The primary objective of this paper is not to embark on an empirical

verification of the applicability of the theory of consumer behaviour to this issue but the indicate that it could be provide a useful conceptual framework. Empirical verification requires future research employing substantial primary data.

4 STRATEGIES TO STEM THE DOWNWARD TREND

The extraordinary growth of business notwithstanding, the present study argues that the tide against economics discipline can be stemmed and perhaps can be reversed. This would require strategic initiatives embodying a significant rethink of (1) development of products more vocational and real world-oriented, (2) market identification for different clientele type, (3) marshalling of more experienced and capable teaching staff for lower to intermediate level undergraduate classes and postgraduate classes. These warrant some elaboration:

Product Development

It is widely recognised that most economics schools supply products to a class as though it is a homogenous population. In reality, however, the student clientele in any category especially in the lower to intermediate undergraduate classes and postgraduate levels are much more diverse than are commonly recognised.

With a diverse range of students in terms of *inter alia* cultural and language background, ability and aptitude, career goals and aspirations, one of the most pressing issues is knowing (a) the material type to present and (b) where to pitch the material. As safety-first strategy one might be inclined to present a homogenous product and pitch the materials somewhere in the ‘middle’ using very clear, well-structured examples and applications of methods of principles.

While the above strategy is rational in conception and might be highly popular if communicated well, it could potentially alienate students at both ends. For instance, the students at the bottom end might feel that the materials may not have enough practical examples, which can help them relate the classroom 'theory' to real world issues. On the other hand, the top-end students with more prior knowledge and/or greater ability, with the materials and resources and motivation to go further to explore the concepts at the deeper level than the 'process' and practical application of methods. If these needs remain unresolved, the students at both ends might feel, isolated, alienated and disenfranchised. This can potentially earn two types of unfavourable externalities: 'economics is too hard, abstract and not-real world oriented' and 'economics caters only for the mediocre students' or 'there is not enough challenge in economics courses'. Both types of externalities can engender disaffection with economics with attendant adverse effect on the enrolment. It is well documented that to-date economists may have chosen 'standards' rather than 'popularity' in view of the trends (Bloch and Stromback 2002, p.2).

One way to address the issues at both ends, is to investigate in the first week of the course just what prior knowledge the students have. This will identify the range of ability/knowledge and particularly 'at risk' students. Then some methods of helping these students can be put in place before they get too far into the course and potentially fall far behind in their learning. The above underscores the crucial importance of assessing individual needs, which involves accommodating student preferences (Bloch and Stromback 2002; Azzalini and Hopkins 2002; Norris and Lewis 1997; Abelson 1996).

Market Identification

Closely related to the issue of product development is the question of market identification. Potentially there might be three types of market based on theory-application mix (say 2/3:1/3; 50:50 and 1/3:2/3, Alauddin 1999).

- Some students may have a demand curve for an economics course or programme, which may be highly 'price' responsive or highly elastic. The price may be the perceived degree of difficulty overcoming which requires greater time-measured effort. First year undergraduate and first year postgraduate courses typically contain students who have less preference for theory. So if a course is more theory oriented then these students might feel alienated and disenfranchised. For many of these students introductory undergraduate or postgraduate courses in economics might be terminal courses.
- The demand curve for some students may be characterised by an intermediate range of elasticity neither very elastic nor very inelastic with the absolute value of demand elasticity around unity. This is likely to represent demand for students who prefer a roughly 50:50 theory application mix.
- There may yet be a third category of students whose demand is highly inelastic who might prefer high theoretical content. These might be students who prefer to pursue higher-level economics courses.

An approximate idea of the three types of demand curves and identification of the student clientele are crucial for developing products for each category.

Marshalling Teaching Staff

DeBerry (1998) in his survey of six course sections in three educational institutions tried several innovative teaching techniques to motivate his students. He found that many students prefer lecture as a very effective tool to other teaching techniques that are now known as "innovative pedagogues". He redesigned his courses to involve students to do more individual reading, group analysis, and participate in class discussion and deliver presentations. However, students were dissatisfied with these innovative teaching techniques. In the students' view lecture-based learning was considered as the most preferred mode.

Therefore, based on DeBerry's study, the use of new teaching techniques and "innovative pedagogues" may not solve the problem. In another study, Finegan and Siegfried (1998), based on data from 117 classes in introductory economics taught at 34 different colleges in the US, examined if students taught by regular faculty with a Ph.D. degree learn more than students taught by regular faculty with only an M.A. degree. Their results indicated that there was not a significant relationship between instructor's degree and student assessments of amount learned or instructor effectiveness. However, Finegan and Siegfried (1998) did not consider an important factor in their analysis - teaching experience. Obviously a very experienced instructor with a Master degree may perform as good as an instructor with a PhD degree. The present paper considers that the instructor's degree, teaching experience and above all the contents critically impact on the teaching and learning outcomes.

Economists should revise the contents of their courses to make them more attractive and applicable to the real world problems. Siegfried and Round (1994) in their survey

of the Australian undergraduate economics degree found that students were very dissatisfied about their lecturers in giving course advice and their instruction in problem solving. First year economics subjects should be regarded as "marketing tools" to reverse the perception of students towards economics in the long run. Many universities ask newly appointed lecturers to lecture in first year undergraduate or postgraduate courses. Casual tutors with little or no teaching experience or understanding of the individual needs often work as teaching assistants to undertake the important task of tutoring students with diverse backgrounds and interests.

Senior academic staff should be more involved in lecturing or even tutoring first-year economics subjects. As long as majority of senior staff at Australian universities teach or supervise small numbers of postgraduate students, and casual and least experienced staff teach first-year subjects the ongoing trend cannot be reversed. To some extent one of the reasons for the declining number of enrolments in economics could pertain to the supply side or the (declining) number of Australian universities offering an economics degree. However, the focus in this paper was more on the demand side as the study of the supply side of the problem, though very important, warrants a separate comprehensive study, which is beyond the scope of this paper.

The above initiatives by no means constitute an exhaustive list of remedies to stem the tide against the economics discipline. This study considers that building enrolment is important for which recognition of students' interests is crucial. Given this scenario 'the previously uninterested students are the ones that must be attracted. We need to understand the selection process in choosing and persisting in courses, as well as in measuring learning' (Becker 1997, p.1366). In underlining the importance of teaching, Becker (2000, pp.117-18) rightly argues that:

Whether students will take more course in economics or choose to major in the field because of improved teaching is hard to say, but, at least, improved teaching is unlikely to hurt enrollments! More broadly, a few courses in economics, and perhaps only an introductory course, are often the only interaction that the college graduates of tomorrow will have with the economics profession. Because they are the only opportunities that academic economists will have to educate the citizens and voters of tomorrow, they deserve our best efforts.

5 CONCLUDING REMARKS

The objective of this paper sought to analyse the causes and implications of declining economics major in Australia. Based on the review of the literature and the relevant Australian time series data, it is argued that economics continues to be less attractive to students in relative terms. The main reason as to why students are less inclined to undertake an undergraduate degree in economics pertains to the successful performance of "rival business courses" and partly because of the nature of economics as a discipline itself.

The observed pattern of the downward spiral in economics can also be explained by using aspects of the theory of consumer behaviour: *i.e*. the income and substitution effects. The income effect could be conceived as the students' of economics being less real world oriented than courses in business and related discipline(s), which seemingly enhance their job prospects. The substitution effect results from the students' perception of a 'user-friendly' learning process of the rival degree programs. This means that the relatively expensive learning process in economics implies a substitution away from it.

Previous studies provide some evidence that the use of new teaching techniques and "innovative pedagogues" may not solve the problem. Economists need to seriously consider revising the contents of their courses to make them more applicable to the real world problems. First year economics subjects can be used as "marketing tools" to reverse the perception of students towards economics in the long run. Most universities ask novice lecturers and casual tutors with little teaching experience to undertake such a crucial task. In our views, the number of students in economics will continue to decrease unless economics courses are appropriately revised in terms of both contents and the use of more senior staff involvement in their teaching.

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