# INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, ECONOMICS & MANAGEMENT

IJRCM


A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

*Indexed & Listed at:*

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A.,
Open J-Gage, India [link of the same is duly available at Inflibnet of University Grants Commission (U.G.C.)],
The American Economic Association's electronic bibliography, EconLit, U.S.A.,
Index Copernicus Publishers Panel, Poland with IC Value of 5.09 & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than **4456 Cities** in **177 countries/territories** are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

http://ijrcm.org.in/

# CONTENTS

# CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** ***anytime*** in ***M.S. Word format*** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website (***FOR ONLINE SUBMISSION, CLICK HERE***).

# GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

**DATED: _____**

***THE EDITOR***

IJRCM

Subject: **SUBMISSION OF MANUSCRIPT IN THE AREA OF _____.**

**(e.g. Finance/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)**

**DEAR SIR/MADAM**

Please find my submission of manuscript entitled '_____' for possible publication in one of your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to their inclusion of names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

| | |
|---|---|
| **NAME OF CORRESPONDING AUTHOR** | : |
| Designation | : |
| Institution/College/University with full address & Pin Code | : |
| Residential address with Pin Code | : |
| Mobile Number (s) with country ISD code | : |
| Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No) | : |
| Landline Number (s) with country ISD code | : |
| E-mail Address | : |
| Alternate E-mail Address | : |
| Nationality | : |

**NOTES**:

a) The whole manuscript has to be in ***ONE MS WORD FILE*** only, which will start from the covering letter, inside the manuscript. ***pdf. version is liable to be rejected without any consideration***.

b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail**:

**New Manuscript for Review in the area of** (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

c) There is no need to give any text in the body of mail, except the cases where the author wishes to give any **specific message** w.r.t. to the manuscript.

d) The total size of the file containing the manuscript is expected to be below **1000 KB**.

e) **Abstract alone will not be considered for review** and the author is required to submit the **complete manuscript** in the first instance.

f) ***The journal gives acknowledgement w.r.t. the receipt of every email within twenty four hours*** and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of manuscript, within two days of submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.

g) The author (s) name or details should not appear anywhere on the body of the manuscript, except the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.

2. **MANUSCRIPT TITLE: The title of the paper should be **bold typed**, **centered** and **fully capitalised**.

3. **AUTHOR NAME (S) & AFFILIATIONS: Author (s) **name**, **designation**, **affiliation** (s), **address**, **mobile/landline number** (s), and **email/alternate email address** should be given underneath the title.

4. **ACKNOWLEDGMENTS: Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.

5. **ABSTRACT: Abstract should be in **fully italicized text**, ranging between **150** to **300 words**. The abstract must be informative and explain the background, aims, methods, results & conclusion in a **SINGLE PARA**. ***Abbreviations must be mentioned in full***.

6. **KEYWORDS: Abstract must be followed by a list of keywords, subject to the maximum of **five**. These should be arranged in alphabetic order separated by commas and full stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations.

7. **JEL CODE: Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aeaweb.org/econlit/jelCodes.php, however, mentioning JEL Code is not mandatory.

8. **MANUSCRIPT: Manuscript must be in ***BRITISH ENGLISH*** prepared on a standard A4 size ***PORTRAIT SETTING PAPER***. *It should be free from any errors i.e. **grammatical, spelling** or **punctuation.** It must be thoroughly edited at your end*.

9. **HEADINGS: All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.

10. **SUB-HEADINGS: All the sub-headings must be bold-faced, aligned left and fully capitalised.

11. **MAIN TEXT**:

***THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE***:

**INTRODUCTION**
**REVIEW OF LITERATURE**
**NEED/IMPORTANCE OF THE STUDY**
**STATEMENT OF THE PROBLEM**
**OBJECTIVES**
**HYPOTHESIS (ES)**
**RESEARCH METHODOLOGY**
**RESULTS & DISCUSSION**
**FINDINGS**
**RECOMMENDATIONS/SUGGESTIONS**
**CONCLUSIONS**
**LIMITATIONS**
**SCOPE FOR FURTHER RESEARCH**
**REFERENCES**
**APPENDIX/ANNEXURE**

The manuscript should preferably range from ***2000 to 5000 WORDS***.

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self explained, and **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text*.

13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, horizontally centered with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word should be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section: Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

15. **REFERENCES:** The list of all references should be alphabetically arranged. ***The author (s) should mention only the actually utilised references in the preparation of manuscript*** and they are supposed to follow Harvard Style of Referencing. **Also check to make sure that everything that you are including in the reference section is duly cited in the paper**. The author (s) are supposed to follow the references as per the following:

- All works cited in the text (including sources for tables and figures) should be listed alphabetically.
- Use (**ed.**) for one editor, and (**ed.s)** for multiple editors.
- When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc, in chronologically ascending order.
- Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
- The title of books and journals should be in italics. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
- For titles in a language other than English, provide an English translation in parenthesis.
- ***Headers, footers, endnotes*** *and* ***footnotes*** *should* ***not be used*** *in the document.* However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders after the references.

**PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:**

**BOOKS**

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

**CONTRIBUTIONS TO BOOKS**

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

**JOURNAL AND OTHER ARTICLES**

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

**UNPUBLISHED DISSERTATIONS**

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

**ONLINE RESOURCES**

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

**WEBSITES**

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

# POPULATION AND DEVELOPMENT: A BRIEF REVIEW

*DR. DEBASHIS MALLICK*
*ASST. PROFESSOR OF ECONOMICS*
*DEPARTMENT OF ECONOMICS*
*KRISHNATH COLLEGE*
*BERHAMPORE*

**ABSTRACT**

*Although the concept of "demographic transition" implies that economic development may affect population growth, in the past, economists were concerned primarily with the reverse relation. Since the last quarter of the Twentieth Century, the idea that economic policy may influence population growth in less developed countries has received increasing attention. Some have argued that labour-intensive development strategies may lead parents to want more children. On the other hand, development with growing female education and labour-force participation may provide the pre-conditions for family limitation. Whatever be the causal links between the changing economic and social parameters, such changes are bound to affect deeply a great many people who depend on the rural sector of less developed countries for their livelihood. An attempt has been made here to present a brief review, since the early mercantilist writers, on the relationship between population and development.*

**KEYWORDS**
agricultural growth, economic growth, population growth, technological change.

**JEL CODES**
J11, O11, O33, Q22.

## I. POPULATION-ECONOMY LINKAGE: EARLY WRITINGS

The role of population in development has been considered in various ways, and has been seen to exert both positive and negative impacts on the welfare of a nation. It has often been believed that development of a country is initiated and sustained by the forces generated by the size and nature of growth of its population. Its wealth and military strength being directly dependent on a thriving population, the latter was viewed not only as a useful input for development but also considered as essential. Alternatively, population has been seen as a contributory factor towards human distress: poverty, wars, famines and epidemics. On the other hand, the neo-classical economists relegated population to the background. According to them, population is an exogenous variable in the domain of economics and is determined mainly by non-economic factors. To Jevons, a neo-classical economist, "the doctrine of population forms no part of the direct problem of economics" (Meier, 1984).

In the true sense of the term, a population theory first emerged when the well-known work of Thomas Malthus (1798) was published in the eighteenth century, although some thought had been given to population issues in earlier periods also (Bhende and Kanitkar, 1988). Among the early Mercantilist writers, Niccolo Macchiavelli (1469-1527) was perhaps the first to observe that excessive population would diminish through want and disease. Insofar as he recognised the existence of a relationship between population growth and resource use, he may be considered a precursor of Malthus (Stangeland, 1904). Giovanni Botero (1544-1617), also a mercantilist, believed that population growth is circumscribed by the limited means of subsistence which essentially act as primary checks to continuous growth and forces the growth rate to fall eventually. This effect was strengthened, he believed by secondary checks such as gradual infertility of soil, diseases and epidemics and natural disasters. In spite of this, however, he felt that a large population was the primary source of strength for a country (Stageland, 1904). The latter sentiment was reiterated by Mandeville (1670-1733) who stressed that an increasing population was "the never-failing Nursery of Fleets and Armies".

After 1750 writers began to reject some of the mercantilist ideas and focused on that sector of the economy, neglected so far by the mercantilist. They concerned themselves with agriculture and productivity of land. These authors were primarily French and were known as the Physiocrats. They viewed agriculture and land as the source of all wealth and regarded population as necessarily dependent on food supply (Encyclopaedia Britannica, 1967). However, according to the Physiocrats the best way to avoid pressure of population on food supplies was to increase agricultural output. It was left to the Italian economist Giammaria Ortes (1713-1790) and the English economist Robert Malthus to clearly advocate for the reduction of population growth rate as a solution to the problem.

## II. WAGE-POPULATION MECHANISM: THE CLASSICAL VIEW

The classical school of thought originated with Adam Smith. In the Smithian model, population growth is a function of the growth of national wealth. The growing national wealth keeps the demand for labour high and when there is high demand for labour, the labour receives a liberal reward which enables them to marry early and have a large number of children, many of whom are likely to survive in a regime of high wage rate. The worst thing happens when national wealth is not increasing. According to Smith, "The demand for men, like that for any other commodity, necessarily regulates the production of men, quickens it when it goes on too slowly; and stops it when it advances too fast" (Smith, 1988; original publication 1776).

From the very outset, Smith adheres to the conception of capital or "stock" as consisting of "advances" to workmen to tide them over during the period when production takes place: hence, a connection is laid down between "the demand for those who live by wages" and "the funds which are destined for the payment of wages" (Blaug, 1968). The relationship is not explored but it is used as a basis of the conviction that the growth of capital entails a constantly rising demand for labour. The short-run supply and demand theory involving the size of the labour force and the size of wages fund is combined with a long-run minimum-of-existence theory. Smith is not very clear as to how this adjustment takes place, but a Malthusian wages-population mechanism is implied.

At the heart of Ricardo's (1772-1823) system is his ideas about wages (Blaug, 1968). He defines "natural wages" as the wage, which will keep population stationary in contrast to short run market wages. While money wages rise through time because of the rising price of wheat, the wages-population mechanism will keep real wages constant. But the subsistence is taken to depend on "habit and custom" (Population and Development Review, 1988).

Ricardo observed that a rising price of wheat need not prevent a gradual rise in real wages. Comments on countries like Ireland and Poland with an abundance of fertile land show that Ricardo regarded over population in underdeveloped countries as the result, and not the cause, of backwardness and poverty. Reducing population in such cases, according to him, would merely cause wages to rise and the supply of labour to fall.

Although Malthus (1766-1834) was by no means the first to consider demographic problems, he was certainly the first who successfully put forward a theory of population growth. Ever since, his views have been the starting point of every discussion relating to population problems. Malthus' theory had definite analytical consequences that made it an integral part of classical economics. In fact the Malthusian theory lent support to the subsistence theory of wages by focusing on the rigid dependence of population growth upon food supply. The theory explained poverty in terms of a simple race between population and the means of subsistence and as such it provided the cornerstone for all classical thinking about economic policy (Blaug, 1968).

The Malthusian theory essentially consisted of three propositions : (i) man's biological capacity to procreate exceeds his physical capacity to increase the food supply; (ii) either the preventive or the positive checks are always in operation; and (iii) the ultimate check to reproductive capacity lies in the limitations on the

food supply (Malthus, 1914; original publication1798). In other words, lack of subsistence is an "ultimate" check in the sense that all other checks are only ways in which the scarcity of food manifests itself. This is perhaps even true of the "preventive" checks as Malthus believed that only fear of hunger could provide the motivation for voluntary limitation of numbers.

Malthus did not mention a tendency to diminishing returns in agriculture until the second edition of the Essay (1803). He pointed out that the power to produce food is "obviously limited by the scarcity of land …… [and] by the decreasing proportion of the produce which must necessarily be obtained by the continual additions of capital applied to the land already in cultivation". This was again followed by the proposition that "although the saving of labour and improved system of husbandry may be the means of pushing cultivation upon much poorer lands than could otherwise be worked; yet the increased quantity of the necessities of life so obtained can never be such as to supercede, for any length of time, the operation of the preventive and positive checks to population".

## III. AGRICULTURAL ORGANISATION AND DEMAND FOR CHILDREN

Demographic changes vary from one rural area to another, both within and between countries. Access to land, tools and techniques, and the nature and pattern of family labour use are different in various systems of agriculture, and those differences are likely to affect the fertility decisions in agricultural households. It is, therefore, useful to review the different agricultural production systems in developing countries. In large parts of Africa with tribal tenure system all members of the tribe have access to land, a "common property", for cultivation (Boserup, 1965) and according to custom, more land is assigned to larger families. According to this system, a man can occupy more land by marrying more wives and having more children. Hence, the system may contribute to polygamy and the desire for large families (Boserup, 1970). This has many benefits. A man with many children need not pay for hired labour. Moreover, more children would mean certain support in his old age. By providing social security and prestige, large families would, therefore, be the ideal for most such communities in Africa.

So far as women are concerned, they also gain certain benefits from having many children. On the one hand, children regularly help them in the work they have to perform: as a housewife, as well as an agricultural worker. On the other hand, having no children would mean loss of prestige and the risk of no old-age support. Consequently, women are also motivated to have large number of children whom they regard as their own personal wealth (Caldwell, 1976).

The land tenure system among the European peasant communities in the period before the industrial revolution was quite different from that of the African. The size of the holdings the peasant families possessed had no relation to the number of family members (Boserup, 1981). If a family had more than one male child it was required to subdivide the holding among them. But if such division of holding was not legally sanctioned by the society, some members of the family became tenants or wages labourers and thus there was a loss of social prestige for the family. In such cases, therefore, second and later sons were not considered as "wealth" for the European peasant communities. Moreover, child labour was not as important in Europe as the tasks usually performed by them were not required in European agriculture. Moreover, only landless families needed old-age support. The landowning communities were well-off enough to be able to look after themselves in their old-age or to hire labour to look after the agricultural operations. These considerations led to a norm of smaller families in Europe.

The differences in the techniques used in agricultural production in most of the developing countries are likely to have an influence on fertility in farm households. These techniques and the nature and availability of resources (e.g. access to land, implements and methods, working hours etc.) are different in the various systems of agriculture. These systems may be considered as suitable to different population densities and environment conditions (Boserup, 1965).

Especially, in many developing region where population density is quite high, as in India, agricultural land is fragmented with each agricultural family enjoying only a small parcel of land. In such systems, rising pressure on land exerted by a rapidly growing population induces multi-cropping of land in order to raise agricultural output. Otherwise, this economics have to resort to import of food (Boserup, 1984). Simultaneously, the farmers would have to adopt more intensive techniques of production by eliminating fallow and transforming pastures and forests into cultivable areas. The organisation of agricultural production determines how this process of intensification will influence fertility. Demand for children in rural areas would depend on different elements which include use of child labour. However, child labours do not provide the only or the most important motivation for desiring a large family. Other benefits that can be expected from children involve their role as sources of security, status etc. Therefore, in such situations rural families are likely to want more children.

## IV. TECHNOLOGICAL CHANGE, FOOD SUPPLY AND POPULATION GROWTH

Population growth is linked to technological change in complex ways. One obvious effects of population growth is to reduce the ratio of natural resources to population. But on the other hand more people make it possible to exploit the economies of scale. The former effect, although it has an immediate negative impact on the quality of life, may, however, provide motivation for technological change for better utilization of scarce resources. The latter effect makes it possible to apply methods of production that are indivisible and large scale. These first order changes in their turn would result in further changes in population growth and technological development. Thus, earlier doses of population and technological changes give rise to a continuous dynamic process in to the future.

In other words, there are two important linkages between population density and technological levels. The first is between population size and the amount and quality of infrastructure. A large population could undertake large-scale investment in infrastructural changes including irrigation facilities, which would not be feasible for a smaller population. Therefore, increase in population density by natural increase or by immigration was a pre-condition for use of more advanced technologies. The second link is that between population size and natural resources. The amount of natural resources both per head and sometimes in absolute amounts is reduced with the increase in population density. Therefore, technologies such as extensive subsistence systems can no longer be used when population density exceeds a certain level. Thus, technological change is needed either to economize the use of natural resources or to make it possible to use substitutes for them (Boserup, 1981).

In Europe, agricultural development proceeded by successive stages related to population changes. In the first phase of the demographic transition, marked by accelerating population growth, agriculture was intensified by labour-intensive means, with little, if any, industrial inputs. This phase lasted in Western and Central Europe from the mid-eighteenth to the mid-nineteenth century. This was followed by a second stage, which had two characteristic features. One was increasing reliance upon imports of agricultural products as a supplement to home production. The other feature was the increased use of industrial and scientific inputs. In the third phase, declining birth rates and declining income elasticity for food reduced the demand for food and imports of food and led to accumulation of food surpluses.

Between the appearance of food production and the Christian era, there seems to have been little change in population density or technology in many parts of the world. Again, in some areas, this period brought large technological changes. Population multiplied many times in some areas in the Eastern Hemisphere, and in a few in America, and gradually hunting and gathering were replaced by systems of intensive agriculture (Boserup, 1981). However, the multiplication of population in the ancient world bore no instance to the recent explosive increases. Ancient societies, unlike modern economies, had enough time to adapt to population increases by development or imports of new systems of food supply, and by improvement of the quality of inputs.

Childe (1952) and Wittfogel (1957) have interpreted the changes in ancient societies in terms of invention of new technologies and focused on the quality of agricultural inputs. But they overlooked the increasing intensity of land use in step with population increase. This has been brought into focus by some studies of long-term changes in ancient land use (Adams, 1965; Sanders, 1972; Smith and Young, 1972; Adams and Nissen, 1976; Butzer, 1976). Boserup (1981), discussing about technological change in ancient agriculture, argued that Mesopotamia and several river basins in the Eastern Hemisphere were the areas in which population increase was accompanied by intensification of food supply systems and by improvement of inputs. In the Western Hemisphere population increase was accompanied by intensification of food supply systems, but with little, if any, improvement in the quality of inputs (Sanders, 1972).

This interplay of forces is easily witnessed in Asia, although population growth and density varies widely over the continent. By the 1970's when almost all the countries in East Asia had reached medium technological levels, those in South and South East Asia were still unindustrialized and at low technological levels. Two distinctly different patterns emerged in Asian countries. While countries with medium and high technological development appeared to have high population densities, another group of countries with medium and low population densities were all at very low technological levels and were characterised by low industrialisation (Boserup, 1981).

The population has been growing rapidly in the Third World countries especially in Asia, during the post World War II period. The response to this pressure had been Malthusian in nature. With the increase in world population, the extensive systems of agriculture have been replaced by intensive system in many parts of the world. As a result, not only population, but growth rate of food production has also been increased (Boserup, 1981). According to Binswanger and Ruttan (1978), between 1880 and 1960, population in Europe and Japan increased around one percent per year while during the same period total agricultural output and food production rose by one and a half percent per annum. Another study of FAO (1975) showed that the average rate of increase of food production in the third world countries, during 1952-72, was 2 to 3 percent per year, although there were large variations among the countries. It is interesting to note that the rate of growth of food production was much higher in countries with high population growth rates as in developing countries of Asia, Africa, etc., while in European and American countries with low growth rate of population, food production increased at a much slower rate. A few third world countries, responded to high population growth by raising the rates of growth of food production. This was affected by the introduction of the new agricultural strategy known as the "Green Revolution". However, the countries which made use of these technologies during the period 1952-72 were relatively small. Compared to the earlier periods the increase in food production was impressive, but it was less impressive when compared to the population growth (Boserup, 1981). For this, a large number of these countries (including India in the 1970's) had to resort to imports of food from developed countries enjoying higher agricultural productivity.

One of the reasons why this group of countries from Africa and Asia remained behind others may be the lack of development of rural infrastructure. The Indian experience is a case in point. Although Green Revolution was initiated in India during the later part of 1960's only those regions which already had better infrastructure including irrigation, transport and other facilities since the British Colonial reign were the ones to spearhead the movement of modernisation and expansion of food production in India. The state which played a leading role was Punjab experienced an average increase of nearly seven percent in agricultural output annually (Sinha, n. d.). However, most areas of India were not this fortunate, being characterised by lack of infrastructure. Consequently these areas showed a meagre increase of food production per capita less than one half of one percent annually on the average during 1952-72, resulting in large food imports.

Boyce (1987) investigated empirically the linkages between population growth and agricultural growth via a cross-sectional analysis of West Bengal, an Eastern State of India, and Bangladesh which has a common border with West Bengal. He examined two opposing views in explaining the effect of population growth upon agricultural performance: (1) the first view, neo-Malthusian in nature, which holds that population growth poses a hindrance to the growth of total as well as per capita agricultural output due to the negative impacts on investment, environment and over all agrarian structure; (2) the other view of induced innovation (Hayami and Ruttan, 1971) according to which population growth plays a positive long-run role by inducing technological and institutional change. The results obtained by Boyce indicate that the scenario in West Bengal and Bangladesh do not support the predictions of the neo-Malthusian school. Rather population growth was found to have exerted a positive effect upon agricultural growth thereby supporting the induced innovation hypothesis.

## V. LINKAGES BETWEEN POPULATION CHANGE AND INCOME GROWTH: EMPIRICAL FINDINGS

An obvious consequence of agricultural development is growth in agricultural income. Population growth has been shown to have both beneficial and adverse effects on per capita incomes and it is relatively uncertain so far as its net impact on development is concerned. As empirical evidence based on time series data shows countries in which there was more rapid economic progress were the ones who also experienced faster population growth, thereby suggesting that they tended to be a broad positive association between population growth and economic improvement (Horlacher & Mackellar, 1987). However, analyses based on cross-section data undertaken by Kuznets (1967), Easterlin (1967) and others show that population increase and growth of per capita income was negatively related.

In another cross-country analysis McNicoll (1984) observed that efforts to generate sustained increases in per capita product are hindered by rapid population growth. While calculating correlations between rates of population growth and growth rates of per capita product for 77 developing countries covering the periods 1960-1970 and 1970-1980, Chesnais (1987) found no significant correlation for the earlier period, while a significant negative coefficient was found for the later period. Still other studies (Bairoch, 1981; Rodgers, 1984) done separately for developing countries show that these two variables are apparently unrelated.

Income has been found to often act like a direct constraint on fertility decisions; alternatively it also affect the desire number of children indirectly through changes in tastes, aspirations and sense of self-reliance of the parents. Thus the relation between changes in fertility and income is not simple. In many studies (for example Collver, 1965) birth rates have been directly influenced by business conditions through the Malthusian proposition of marriages being postponed in bad times and occurring in good times. Similar cross-sectional studies showed positive association between fertility and income (Jain, 1939; Stys, 1957; UN, 1961; Driver, 1963; Salaff, 1972). Another analysis for the rural Philippines (Encarnacion, 1972) shows that income exerts a positive effect on fertility at the lower end of the income distribution while at the upper end it has a negative effect. Among many of the possible explanations for the positive association between income and fertility may be because at the lowest end of the income distribution the poor suffer from inadequate nutrition and ill-health because of which the women may find it more difficult to conceive thereby resulting in longer intervals between births. Also rates of miscarriages in pregnancy are higher (Jain, 1969; Jain, et.al, 1970; Baird, 1965). Another interesting explanation of the positive relationship between income and fertility may be because of the changing aspirations of the poor people. As they move away from the subsistence level their growing desire to imitate the lifestyle of the richer sections raise the marginal utility of their income thereby increasing the opportunity cost of children, resulting in lower fertility (Wyon and Gordon, 1971). According to Mueller (n. d.) this explanation works especially when the parents' experience sustained income increases over a period of time as it occurred in the case of farmers in Japan, Taiwan and Indian Punjab. This explanation finds support in another study (Freedman, 1972) with micro level data which showed that actual and expected income changes had a significant positive relation with the consumption aspiration of the Taiwanese population. It was found that there is a large demonstration effect whenever the large farmers' exhibit ostentatious lifestyle following income gains and the poorer farmers are apt to aspire to that lifestyle. If educated modern elite or leading families accept family planning and support the agents of the family planning programme, attitudes among other families in the village may be favourably accepted (Dasgupta, 2000). Anker (1973) found that the presence of higher castes in Indian villages near Baroda raised contraceptive use and reduced desired family size among the lower castes, as compared with residents of villages inhabited exclusively by lower castes.

## VI. AGRICULTURAL GROWTH AND POPULATION CHANGE: DIRECT AND INDIRECT IMPACTS

The neo-Malthusian argument is that population growth affects per-capita agricultural growth negatively. Van de Walle (1983) defines neo-Malthusianism as 'a position arguing that slower population growth can itself accelerate the process of development, and that family planning programmes can, on their own, bring down fertility'. This view has been argued in three ways. The first relates the supply of labour to the supply of capital. Population growth reduces the supply of capital caused by higher levels of consumption for the growing numbers. The second line of argument is that population growth leads to environmental deterioration caused by excessive and unproductive exploitation of the agricultural base as well as diversion of natural resources into immediate consumption needs. The third way is that population growth has been considered to hinder agricultural growth by weakening the agrarian structure caused by increased unemployment and poverty and reduced farm size and uneconomic fragmentation of holdings.

According to another school of thought (led by Schumpeter, Boserup and others), however, population growth is not necessarily detrimental to agricultural growth as it has a positive long-run effect on agricultural growth through the inducement of production-increasing technological change. According to Schumpeter (1947), population growth may sometimes lead to reduction in per capita incomes, but 'at other times, it may have an energizing effect that induces new developments with the result that per capita income rises'. The first systematic application of this perspective to agriculture was by Boserup (1965). She argued that, in the short run, population growth might reduce the average product of labour, but in the long run two other effects act to raise it - first, the compulsion to work harder and longer leads to 'changes in work habits which help to raise overall productivity'; second, the increasing population density 'facilitates the division of labour', allowing new economies of specialization, particularly with the development of transport and education. Colin Clark (1967), who endorsed Boserup's position, identified that rapid population growth is 'the principal motive force' bringing about extensive clearings of uncultivated land, drainage of swamps, and the introduction of improved crops and manures, the events which have been described as "agricultural revolutions". According to

North and Thomas (1973) population growth constitutes 'the predominant parameter shift which induced the institutional innovations which account for the rise of the Western World'. Hirschman has argued that population pressure generates counter-pressure to maintain living standards, and that the resulting activity of the society 'causes an increase in its ability to control its environment and to organize itself for development' (Hirschman, 1958).

On the other hand agricultural growth has been shown to affect patterns of population changes in several studies (Vosti and Lipton, 1991; Ghosh, 1991; Mukhopadhyay, 2001). Especially the introduction of Green Revolution has been shown (Boserup, 1984) to induce many economic and demographic changes in many densely populated areas. It has been pointed out that Green Revolution technique, which is a mixture of labour intensive and modern input using methods, demand higher use of chemical inputs and certain types of mechanisation. At the same time since Green Revolution techniques involve the cultivation of labour intensive commercial crops and various types of land improvements, the demand for labour with considerable skills is likely to rise. As a result Green Revolution raises awareness and aspirations for: (a) investment in the farm, (b) raising of consumption standards and (c) enhancement of human capital levels of children. The introduction of Green Revolution, which necessitates the use of high yielding variety seeds, chemical inputs and machines, induces farmers to direct an ever-larger part of their resources to the purchase of these modern farm inputs. This raises the opportunity cost of children, which are an alternative form of investment for farm families. Secondly, with rising disposable incomes (resulting from higher output) consumption aspirations are raised and this makes farm families more conscious of the economic burden of having many children, thereby depressing the demand for them. Finally, need for skill upgradation of the labour force induces parents to invest more on quality enhancement (more education) for their children rather than in their numbers. Green Revolution may thus create an atmosphere conducive to family limitation. It is observed that farmers in India who are growing high yielding varieties are making larger outlays than others for farm investment, education of children, housing etc. and are also accumulating bank accounts (NCAER, 1970, 1971).

Agricultural technology has been shown to exert both direct and indirect impacts on demographic change in a study by Vosti and Lipton (1991). The authors show that agricultural technology has a highly significant direct impact on demographic transition. In addition, technology was found to have a significant impact on income derivable from annual crop production, which in turn was found to exert an important impact on demographic transition. The empirical results of their analysis strongly support the notion that different rates of agricultural growth – and different mixes of agricultural technology used to generate given rates – do have substantial direct and indirect impacts on the speed of total fertility rate declines in different Indian districts. The results of their study suggest that the demographic impact of modern agricultural technology is by no means uniform across the innovations generated by research for crops and farming practices they ultimately affect. Finally, in their analysis, the impact of modern agricultural technology was found to vary from the fertility-enhancing impacts of agricultural mechanization and crop-specific yield improvements to the fertility-neutral cases of irrigation, fertilizer use and general spread of High Yielding Variety seed technologies and to the fertility retarding impacts of increases in real wages, real incomes, and output concentration ratios.

It has also been shown that agricultural innovations such as the Green Revolution have considerable externalities. A study by Fliegel (1956) shows that rural families exposed to the impact of new technologies is more receptive to other innovations like birth control. Copp (1958) suggests that people who are open to innovations in one area of activity, such as their work, are also receptive in other areas, such as, their family life or health practices.

## VII. CONCLUSION

Malthusian theory considered the emergence of agriculture to be the result of the fortunate invention of food production techniques some ten thousand years ago, and saw the increase of world population in the following period as an adaptation to the increase in the world's carrying capacity obtained by this technological innovation. It was assumed that, before the invention of food production, prehistoric populations lived in a state of permanent semi-starvation, because their fertility was high. According to this view, only the invention of food production saved humanity – for a time – form the plight to chronic malnutrition. As agricultural populations and agricultural methods invaded more and more of the world, a radical improvement in nutrition due to the invention of agriculture was thought to have caused a shift from stagnant population to rapid growth (Childe, 1952).

## REFERENCES


1. Adams, Robert McC. 1965. *Land Behind Baghdad.* Chicago: University of Chicago Press.
2. _____ and Nissen, Hans J. 1976. *The Uruk Countryside*. Chicago: University of Chicago Press.
3. Anker, Richard. 1973. "Socio-Economic Determinants of Reproductive Behavior in Households of Rural Gujarat, India". Ph.D. Dissertation. Ann Arbor, Michigan.
4. Baird, Dugald. 1965 "Variations in Fertility associated with Changes in Health Status". M.C. Sheps and J.C. Ridley (eds.) *Public Health and Population Change.* University of Pittsburgh Press.
5. Bairoch, P. 1981. "Population Growth and Long-Term International Economic Growth". *International Population Congress.* IUSSP, Manila.
6. Bhende, Asha A. and T. Kanitkar. 1988. *Principles of Population Studies.* 4th edition. Bombay: Himalaya Publishing Co.
7. Binswanger, Hans P. and Vernon W. Ruttan. 1978. *Induced Innovation, Technology, Institutions and Development*. Baltimore: John Hopkins.
8. Blaug, Mark. 1968. *Economic Theory in Retrospect,* 2nd edition. London: Heinemann Educational Books.
9. Boserup, E. 1965. *The Conditions of Agricultural Growth: The Economics of Agrarian Change Under Population Pressure*. London: George Allen and Unwin.
10. _____. 1970. *Woman's Role in Economic Development*. New York: St. Martin's.
11. _____. 1981. *Population and Technological Change: A Study of Long Term Trends*. Chicago: University of Chicago Press.
12. _____. 1984. "Technical Change and Human Fertility in Rural Areas of Developing Countries", W. A. Schutjer and C. S. Stokes (ed.), *Rural Development and Human Fertility*. Macmillan Publishing Company.
13. Boyce, J. K. 1987. *Agrarian Impasse in Bengal: Agricultural Growth in Bangladesh and West Bengal 1949-1980*. Oxford University Press.
14. Butzer, Karl W. 1976. *Early Hydraulic Civilization in Egypt.* Chicago: University of Chicago Press.
15. Caldwell, John C. 1976. "Towards a Restatement of Demographic Transition Theory". *Population and Development Review* 2 (3-4), New York.
16. Chesnais, Jean-Claude. 1987. "Population Growth and Development: An Unexplained Boom". *Population Bulletin of the United Nations.*
17. Childe, Gordon V. 1952. *New Light on the Most Ancient East.* London: Routledge and Kegan Paul.
18. Clark, C. 1967. *Population Growth and Land Use*. London: Macmillan.
19. Collver, O. A. 1965. *Birth Rates in Latin American.* Berkeley: Institute of International Studies, University of California.
20. Copp, J.H. 1958. "Toward Generalisation in Farm Practice Research". *Rural Sociology.*
21. Dasgupta, Partha. 2000. "Population and Resources: An Exploration of Reproductive and Environmental Externalities". *Population and Development Review.* 26 (4).
22. Driver, E. D. 1963. *Differential Fertility in Central India*. Princeton.
23. Easterlin, Richard A. 1967. "The effects of Population Growth on the Economic Development of Developing Countries". *The Annals of the American Academy of Political and Social Science*, 369.
24. Encarnacion, J. 1972. "Family Income, Labour Force Participation and Fertility". School of Economics, University of the Philippines (mimeographed).
25. *Encyclopaedia Britannica.* 1967. Vol. 17.
26. Fliegel, F.C. 1956. "A Multiple Correlation Analysis of Factors associated with Adoption of Farm Practices". *Rural Sociology.*
27. Food and Agricultural Organisation (FAO). 1975. "Population, Food Supply and Agricultural Development". United Nations (ed.), *The Population Debate.* 1. New York: United Nations.
28. Freedman, Deborah S. 1972. "Consumption Aspirations as Economic Incentives in a Developing Economy – Taiwan". *Human Behavior in Economic Affairs: Essays in Honour of George Katona.* North Holland Publishing Co.
29. Ghosh, Bahnisikha. 1991. *The Indian Population Problem: A Household Economic Approach*. Sage Publication.

30. Hayami, Y. and V. W. Ruttan. 1971. "Induced Innovation in Agricultural Development", Discussion paper no. 3, May, Center for Economic Research, University of Minnesota, Minneapolis.
31. Hirschman, A. O. 1958. *The Strategy of Economic Development*. New Haven: Yale University Press.
32. Horlacher, David E. and F. Landis Mackellar. 1987. "Population Growth Versus Economic Growth (?)". United Nations Population Division, 10 September.
33. Jain, Anroudh K. 1969. "Socio-economic Correlates of Fecund-ability in a Sample of Taiwanese Women". *Demography*. February.
34. _____ et. al. 1970 "Demographic aspects of lactation and postpartum amenorrhea". *Demography.* May.
35. Jain, S. P. 1939. *Relationship between Fertility and Economic and Social Status.* Lahore: Board of Economic Enquiry.
36. Kuznets, S. 1967. "Population and Economic Growth", *Proceedings of the American Philosophical Society.* June.
37. Malthus, T. R. 1798. *An Essay on the Principle of Population*. J. Jonson, London.
38. _____. 1803. *An Essay on the Principle of Population*, 2nd ed. J. Jonson, London.
39. _____. 1914. *An Essay on the Principle of Population*, 7th ed. (reprint). London: Dent.
40. McNicoll, G. 1984 "Consequences of Rapid Population Growth: An Overview and Assessment". *Population and Development Review,* 10(2).
41. Meier, G.M. 1984. *Emerging from Poverty: The Economics That Really Matters.* New York: Oxford University Press.
42. Mueller, Eva. n. d. "The Impact of Agricultural Change on Demographic Development in the Third World". Leon Tabah (ed.), *Population Growth and Economic Development in the Third World*, Belgium: International Union for the Scientific Study of Population.
43. Mukhopadhyay, Sudhin K. 2001. "Population Growth and Agricultural Development in India", *Population-Development Nexus in India,* (eds.) K. Srinivasan and Michael Vlassoff. New Delhi: Tata-Macgraw-Hill Co. Ltd.
44. National Council of Applied Economic Research (NCAER). 1970. *Additional Rural Income Survey.* Report for the First Round. New Delhi, India.
45. _____. 1971. *Additional Rural Income Survey.* Report for the Second Round. New Delhi, India. Tables 8 and 13.
46. North, D. C. and R. P. Thomas. 1973. *The Rise of Western World: A New Economic History*. Cambridge: Cambridge University Press.
47. *Population and Development Review.* 1988. "Ricardo on Population". (Archives), 14.
48. Rodgers, G. 1984. "Population Growth, Inequality and Poverty in United Nations". *Population, Resources, Environment and Development: Report of an Expert Group on Population, Resources, Environment and Development.* Geneva, 25-29 April, 1983. United Nations, E. 84. XIII. 12.
49. Salaff, Janet W. 1972. "Institutionalised Motivation for Family Limitation in China". *Population Studies.* July.
50. Sanders, William T. 1972. "Population, Agricultural History and Societal Evolution in Mesoamerica". Brian Spooner (ed.) *Population Growth: Anthropological Implications.* Cambridge: MIT Press.
51. Schumpeter, J. 1947. "The Creative Response in Economic History". *FEH*, 7.
52. Sinha, J. N. n. d. "Population and Agriculture". Leon Tabah (ed.) *Population Growth and Economic Development in the Third World.* Vol. 1. Dolhain: Ordina IUSSP.
53. Smith, A. 1988. *An Inquiry into the Nature and Causes of the Wealth of Nations.* Chicago: Encyclopaedia Britannica.
54. Smith, Philip E. L. and Young, T. Cuyler. 1972. "The Evolution of Early Agriculture and Culture in Greater Mesopotamia". Brian Spooner (ed.) *Population Growth: Anthropological Implications.* Cambridge: MIT Press.
55. Stangeland, Charles Emil. 1904. *Pre-Malthusian Doctrines of Population: A Study in the History of Economic Theory.* New York: The Columbia University Press.
56. Stys, W. 1957. "The Influence of Economic Conditions on the Fertility of Peasant Women". *Population Studies,* 11, November.
57. United Nations. 1961. *The Mysore Population Study.* New York.
58. Van de Walle, E. 1983. "Malthus Today". J. Dupaguier (ed.) *Malthus: Past and Present.* London and New York: Academic Press.
59. Vosti, Stephen A. and Michael Lipton. 1991. *Population Change in the Wake of Agricultural Improvement: A District Level Analysis of India, 1961-81*. Final Report Submitted to the Population Sciences Division of the Rockefeller Foundation (Washington, D. C.: International Food Policy Research Institute).
60. Wittfogel, Karl A. 1957. *Oriental Despotism.* New Haven: Yale University Press.
61. Wyon, John B. and John E. Gordon. 1971. *The Khanna Study.* Harvard University Press.

# REQUEST FOR FEEDBACK

**Dear Readers**

At the very outset, International Journal of Research in Commerce, Economics & Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you tosupply your critical comments and suggestions about the material published in this issue as well as on the journal as a whole, on our E-mail**infoijrcm@gmail.com** for further improvements in the interest of research.

If youhave any queries please feel free to contact us on our E-mail infoijrcm@gmail.com.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward an appropriate consideration.

With sincere regards

Thanking you profoundly

**Academically yours**

Sd/-
**Co-ordinator**

# DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

# ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

## *Our Other Journals*