

**UNIVERSITY FINANCES: A CASE STUDY OF
ALIGARH MUSLIM UNIVERSITY**

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DECLARATION

I, Nooria Rehman, declare that the dissertation entitled "University Finances: A Case Study of Aligarh Muslim University" is submitted in partial fulfilment for the award of the degree of Master of Philosophy of Jawaharlal Nehru University. This dissertation has not been previously submitted for any degree of this or any other University and is my original work.

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Abbreviations:

AIU:	Association of India Universities.
AMU:	Aligarh Muslim University.
API:	Academic Performance Indicator.
BA:	Bachelor of Arts.
BHU:	Banaras Hindu University.
BUMS:	Bachelor of Unani Medicine and Surgery.
CSIR	Council for Scientific & Industrial Research
DST:	Department of Science and Technology.
DU:	Delhi University.
EPF:	Education Production Function.
GoI:	Government of India.
IARI:	Indian Agricultural Research Institute.
ICHR:	Indian Council of Historical Research.
ICSSR:	Indian Council of Social Science Research.
ICT:	Information and Communication Technology.
IEA:	Indian Economic Association.
IHE:	Institution of Higher Education.
ISI:	Institute for Scientific Information.
JNU:	Jawaharlal Nehru University.
JRF:	Junior Research Fellowship.
M.A:	Master of Arts.
MAO:	Mohammedan Anglo Oriental College.
MANF:	Maulana Azad National Fellowship.
MHRD:	Ministry of Human Resource Development.
MPhil:	Master of Philosophy.
NAAC:	National Assessment and Accreditation Council.
NBHM:	National, Board for Higher Mathematics.

NET:	National Eligibility Test.
NRHM:	National Rural Health Mission.
NRSC:	Non-Resident Student's Centre.
OBC:	Other Backward Class.
PBAS:	Performance Based Appraisal System.
PhD:	Doctor of Philosophy.
RGNF:	Rajeev Gandhi National Fellowship.
SC:	Scheduled Caste.
SERB:	Science and Engineering Research Board.
SERC:	Science and Engineering Research Council.
SAP:	Special Assistance Programme.
SPSS:	Statistical Package for Social Science.
SSCI:	Social Science Citation Index.
SSI:	Science Citation Index.
STATA:	Statistics and Data.
ST:	Schedule Tribe.
UGC:	University Grants Commission.
UNICEF:	United Nations International Children's Emergency Fund.
UOH:	University of Hyderabad.
UPCST:	Uttar Pradesh Council of Science & Technology.

Chapter 1

INTRODUCTION

Higher education in the world is faced with inexplicable dilemma on the part of government as well as the society. It is affected directly and indirectly by the changes observed in the global economy. The direct effects are evident in those developing countries whose education systems have been shaped by the lending policies of the World Bank and demand of structural adjustment policy (SAP). Indirect effects are visible in the developed countries as a result of overall decline in the funding levels (Dale, 1997). Thus with the changing landscape, new reforms are witnessed in higher education system. Until recently, governance policy focussed largely on relationships between institutions and the state. However shift in the structure of governance is marked with the advent of structural adjustment policies in 1990s. This shift has been termed as 'from government to governance' (Jongbloed, 2008). Governance activities refer to funding, regulation and provision of higher education (Dale, 1997). The relationship among the three activities is complex and overlapping, it is therefore important to pay close attention in order to assess their effects. In the context of present study, governance reforms are discussed with a view to contribute from certain perspective in the financing and functioning of the higher education institutions.

1.1 Review of Higher Education Reforms

The universities, around the World, are going through financial crisis of various degrees, for quite some time and it is believed that the crisis will continue unabated for at least some time in the near future (Tilak, 1988). The rising enrolments, resource crunch and the inability of the government to provide adequate resources necessitates a reform in the policies and practices of financing and management of higher education system so as to realise larger national goals.

In the present scenario, finance and management of higher education is going through the following reforms. They are divided into following themes as under (a) Expansion and diversification-of enrolments, participation rates and number and type of institutions; (b) Fiscal pressure-assessed with the help of declining per student

expenditure, low-paid (under-paid) faculty, lack of infrastructure etc; (c). Markets-the dominance of markets orientations and solutions and the search for non-governmental revenues; (d) the demand for greater accountability-on part of institutions, faculty and on the behalf of students, parents and those who pay; (e) the demand for greater quality and efficiency-need for more rigour, more relevance and more learning (Johnstone, 1998).

Higher education is faced with constant pressure following the expansion and diversification of programmes in the light of changing socio-economic conditions. The orientation of this issue is driven by demands of the growing population and to the needs of increasingly technologically sophisticated economy (Johnstone, 1998). Another prominent issue faced by the higher education since 1990s is the financial distress, the World Bank clearly stated in a declaration in 1994 that higher education is “...in crisis throughout the world”¹ Following are the characteristics affecting the austerity. The first is rising enrolment pressure, especially in the developing countries where growing population of secondary school leavers have the low participation in higher education. Second is increasing cost per student. Third reason for higher education austerity is increasing shortage of funds as resources have to be employed in other competing uses such as health, infrastructure, basic education etc. Fourth reason for the grim state of higher education is essentially political. Thus, as a result of rising inefficiencies and rigidities there has been a shift observed in the policies towards market solutions (Johnstone, 1998).

With the advent of neo-liberal ideology the market philosophy is also creeping in the higher education. It is marked with reduced state’s allocation of resources, increased student’s fee level, introduction of self financing courses, promoting educational loans through development of credit market, and decentralized management of public education and encouraged expansion of non governmental institutions. Another issue in the modern world pertaining to finance and management of higher education is the accountability. Following the financial constraints, universities are expected to be accountable in various ways to the government, students, parents and general public. Accountability is difficult to achieve because it is hard to measure the benefits. Nonetheless, it helps in laying guidelines for better measure of output and

¹ The world Bank (1994) Higher Education: Lessons of Experience, p.1 (in Johnstone)

performance of the universities. Some studies also argue that public funded institutions are given very little autonomy of incentive to respond to labour markets or students demand (Johnstone, 1998). The issue of quality and efficiency also affects the finance and management reforms of higher education institutions. The World Bank report *Lessons of Experience* identifies the impact of overcrowding on the quality of higher education. As a result of this, the World Bank has focussed on reforms concerning the improvement in the qualification of teaching staff, quality of their instruction, improvement in the student selection and assessment, appropriateness of the curriculum and the extent and quality of the facilities such as libraries, computers and equipments (Johnstone, 1998).

In the light of ongoing reforms in higher education system the study attempts to review the impact of some of these on the functioning of the Universities. As stated by Enders (2004) “Universities are objects as well as subjects of “Internationalisation” or “Globalisation”, they are affected by and at the same time influence these processes’. Therefore the following section discusses how the functioning of a modern University is undergoing a change as a result of overall reform in the macro level policies.

1.2 Appraisal of University Governance Reforms

There has been an influence of changing governance structure on the functioning of the Universities. Therefore it is crucial to study governance in the wake of challenges faced by the higher education institutions in the public sector (Chattopadhyay, 2012). University governance reforms are much a reflection of the New Public Management Reforms that broadly focus on increasing efficiency in public organisations. As discussed earlier the orientation of the reforms is towards efficiency, accountability and autonomy in the universities, though it is not clearly defined how the principle of efficiency is achieved in the universities (Eyring and Christensen, 2010). Governance structures also affect the management and performance of public higher education institutions. Knott and Payne (2003) developed a classification to study the direct effect of governance structure on tuition and fee structure and indirect effect on performance outcomes, including grants and publications. The studies have advocated that relation between governance structure and institutional quality remains vague. Some studies believe that autonomy (decision making, financial, constitutional)

affects the quality in the higher education institutions (Eykamp 1995). Some studies find no relation between autonomy (financial and academic) and quality of the institution. They assert that size and wealth of the state and the institution has an impact on the quality of the institution (Volkwein and Malik 1997, Volkwein, 1986 and 1989). Thus theoretical explanation of the potential effects of governance structures helps in addressing the reforms concerning higher education.

The rationale behind the changing notion in the universities is primarily based on public funding, reflecting inadequacy of funds or farfetchedness of the government to allocate funds as a result of changing dynamics (Eyring and Christensen, 2010.) Earlier government was the prime funding agency, however with the change in the reforms universities have to look for sources other than public funds. In recent times researchers have witnessed a rapid change in the university behaviour as a result of changing source of revenue (Raines and Leathers, 2003) The reforms have also stressed on raising the fee level in the universities albeit within government constraints. A modern university is observing a shift from low formal autonomy and high real autonomy to a situation of high formal autonomy and low actual autonomy (Eyring and Christensen, 2010). Thus these reforms mark the evolution of the modern universities in the changing scenario (Raines and Leathers, 2003).

After discussing the reforms in the higher education system, the subsequent segment would discuss the different funding arrangements pertaining to public higher education.

1.3 Process and Mechanism of Funding in the Universities

Funding is a central issue for higher education institutions; it's not only the resources that are crucial for the institutions, but also the funding mechanisms and the allocation criteria which play a vital role in the functioning of the higher education institutions (Lepori, *et.al.* 2007). For the government, funding is the major steering mechanism for higher education and the funding system is closely linked to the policies at the national level (Barr, 2004; Jongbloed, 2004). Therefore discussion on different funding arrangements would help in informing the funding policies of higher institutions. The main question which helps in determining the funding mechanisms is that what is funded by the government and how is it funded (Jongbloed and Koleman, 2000). First question talks about the funding base of the higher education systems,

i.e., how the government allocates the resources in a university, is it the output or performance or rather the inputs which is important for allocating the funds. Second question involves 'the issue of market orientation in the funding arrangements', i.e., who eventually decides the flow of funds to the universities (Jongbloed, 2004). In order to answer these questions, modes of funding should be defined in the present context. According to the conventional models the mode of funding was input-based whereby the quantum of funding was based on the negotiations on budgetary items such as salaries, student enrolments, standard unit costs etc. However the major problem with this mechanism is that it fosters inefficiency as the process of delivery and the output of the university is not considered (Chattopadhyay, 2012). This will result in inefficiency in the use of resources and will in turn hamper the functioning of the university. Therefore, in order to ensure accountability to society, output-based budgeting based on the performance has been observed where the release of funds is dependent on the performance of stakeholders and the outcome of the institution in the form of university graduates and research production.

However, in India and in many other developing countries negotiated funding mechanism is practised, where a negotiated budget is allocated without considering the objective, internal efficiency or performance of the university (Salmi, 1991). This type of funding allocation can act as a serious impediment in the performance of the university. If university's allocation of resources is not associated with the performance or objective of the university, it severely affects the efficiency and distribution of the resource utilisation and distribution. Thus, as discussed above, performance based funding is desirable to deliver and curb the wastage of resources by ensuring the accountability and incentivising the actors (Chattopadhyay, 2012).

1.4 The Indian Higher Education: An overview

Development of higher education has been adversely affected by number of factors such as financial constraints, inefficiency in resource use, lack of accountability etc, and these inadequacies are likely to impinge upon the efforts of human resources in the foreseeable future. In the backdrop of this grim scenario, the following section discusses the critical aspect of development of higher education in the post independence era. This will help us in tracing the change observed in the pattern and growth of higher education in the country.

Higher education has witnessed expansion and diversification of programmes in the light of changing socio-economic conditions. Overtime there has been a substantial growth in the level of expenditure since independence. The total outlay on higher education has increased from 3.84 crore in 1950-51 to 16210 crore² in 2013-14. Despite of such enormous increase the total expenditure on higher education accounts only for approximately 1 percent of GDP.

The number of universities has increased 34 times from 20 in 1950 to 677 in 2014 and number of colleges has increased by 74 times from 500 in 1950 to 37,204 in 2013³. Regardless of such efforts the gross enrolment ratio in higher education is 20.4 percent (GoI, AISHE 2013) which is well below the world average of 26 percent⁴. Although India has achieved much of it, more remains to be accomplished.

The pattern of expenditure on higher education in the Plan period also helps in underlining the changing trend. It initiated with insignificant 9 percent of the total expenditure in the first Plan. The fourth Plan witnessed the all time high of 25 percent after which a declining trend was visible in the following years. In the eighth Plan it again declined to 9 percent. In the Ninth Plan the outlay declined to all time low of 8 percent. As a result of overall decline in the allocation, the impact is noticeable on the higher education institutions.

Of the total expenditure it has been found that bulk of the expenditure is made on the revenue account- especially in paying off the salaries of the staff members, very less proportion of expenditure is made on the infrastructural development and qualitative improvement of the university education (Azad, 2008). Some of the studies also stress on the wastage of resources in the form of underutilisation of infrastructure or other resources (ibid.).

This demonstrates that Indian higher education is also undergoing a phase of transformation. Impact of overall change in the governance structure is experienced in policy and practices of the higher education system. Improbability of the government and declining support is apparent from the cut in the overall allocation of resources to higher education; in the revised budget estimate of 2014-15 funds have been slashed from Rs 16900 crore to Rs 13000 crore, and a slump is also witnessed in the

² http://Planningcommission.nic.in/Plans/annualPlan/annual_Plan13_14.pdf

³ <http://mhrd.gov.in/university-and-higher-education>

⁴ http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/XIIFYP_SocialSector.pdf

allocation to RUSA from Rs 2200 crore in the original budget to Rs 397 crore⁵. Thus the following scenario calls for the adoption of policy measures which focuses on utilising the given resources effectively. In regard to this, there is also a need to strengthen the institutional governance and management as a way to improve institutional efficiency and effectiveness.

1.5 Institutional Capacity and Resource Allocation in Universities

Strengthening the institutional capacity to deliver outcomes is also associated with fund allocation mechanism at the macro level. Declining level of funding and increasing competition entails enhancement in the performance and accountability of the institution. Public institutions have to be accountable to different stakeholders and have to perform according to their expectations. They are required to do more (be more efficient) and do it better (be effective) (Agarwal, 2009). With the transformation of governance structure in higher education, new management practices and entrepreneurial culture is witnessed in the universities. The impact of the governance reforms are reflected in the following three approaches; New Public Management, Entrepreneurialism and Academic Capitalism (ibid.). Under New Public Management market principles are infused in the education sector in order to ensure efficiency in resource use and increase productivity, accountability and control (Chattopadhyay, 2012). Entrepreneurialism aims at making different units of the university more autonomous in the pursuit of alternative sources of funding. Academic capitalism means shift of higher education from social institution to industry. One can observe the combinations of these approaches implemented by the institutions who are adapting themselves to changing circumstances (Agarwal, 2006).

Agarwal, (2009) advocates that by simplifying the internal procedures of the university on a continued basis, institutional governance can be improved. There is an interest in strengthening the institutional governance and management as a way of improving institutional efficiency and effectiveness.

⁵ <http://www.hindustantimes.com/india-news/govt-cuts-funds-for-higher-education-iits-worst-hit/article1-1306928.aspx>

Therefore, there is a need for increased funding for higher education, most of which has to come from government and apart from increased funding there is a need to make the fund allocation mechanism objective so that it is outcome based and performance based. The increased outlay will have little impact on increasing access or improving quality of higher education system unless they are accompanied with wider institutional reforms (Agarwal, 2009).

In brief, in the light of the above context of higher education reforms, the present study will attempt to study management and utilisation of resources at the institutional level. With scarce resources left at the disposal of policy makers, institutions of higher education need to raise their funding from alternative sources. Since income generation from internal resources forms an insignificant proportion of university income, it cannot be sufficient enough to make up for decline in the level of government funding. There is a need that available government funding at the institutional level must be utilized effectively. Therefore to understand the management and utilization of resources the present study will review the crucial aspects of university finances in a Central University.

1.6 Scheme of Chapterisation

The study primarily deals with financing of a University. The present chapter, Chapter 1 sets the background of the study and discusses how the financing of higher education institution undergoing a change. This is followed by Chapter 2, where the review of literature discusses how the conventional economic analogies are drawn in higher education and how they are contextualised. This chapter also elaborates on the fund allocation mechanism prevailing in India, followed by some literature evidences. After identifying the gaps from the literature Chapter 3 talks about the rationale of the present study followed by the objectives and the research questions. In order to comprehend the finances of Central University, Chapter 4 examines the finances of Aligarh Muslim University, analysis of sources income and spending patterns of the University is attempted to understand their pattern, and how over the period of time it is undergoing a change due to changing scenario. Chapter 5 attempts to study the research culture of Aligarh Muslim University with the help of analysing the research

output of the University and in this chapter a small case study of Department of Economics is conducted so as to understand the research culture as well as to comprehend the problem encountered by the faculty members in pursuing academics. This is followed by Chapter 6, which concludes the study by discussing the main findings.

CHAPTER 2

Literature Evidence: Efficiency, Financing, and Resource Allocation in Higher Education.

2.1 Introduction

In the literature of economics of education, financing of education occupies a substantial position; literature specific to the utilisation of resources still remain in relative obscurity. The Indian experience is no exception to this. Though various issues pertaining to financing of higher education have been discussed in the literature, literature specific to the financing of the central university and the problem undertaken in the present study find rare mention in the contemporary literature.

The previous chapter laid down the context of governance reforms which helps in informing the functioning of the higher education institution. The present chapter reviews the financing of higher education with the view to study the resource management and utilisation at the institutional level. Over the time a number of policy decisions have led to a massive expansion and diversification of the higher education institutions, in terms of rising enrolments, resource crunch and improbability on part of the government to provide adequate resources. Therefore, the system is not only in need of generous funding but also needs effective management of the given resources at the institutional level.

The scope of the present review is divided into two broad themes; the first broad theme would discuss the concept of education production function in higher education in which it will understand the concept of inputs and output in the realm of higher education. It is well understood though that application of production function and input-output analysis in education is neither feasible nor desirable. However the discussion on the above concepts will help in realising the importance of educational inputs on educational attainment and will inform the policy debates concerning funding and reallocation of inputs at the institutional level (Chattopadhyay, 2012).

The second theme of the study would discuss the funding of universities in the Indian context. The review contemplates to explore the alternative sources of income and spending in the university. Though majority of funds are received from the University Grants Commission (UGC) and state government but there are non-governmental sources such as fee income from students, internal resources of the university which generate additional income for the university. Thus, with rising enrolments and stagnant budgets universities have to look for non-governmental sources in order to fulfil the commitments of the university. The study therefore examines how the financial resources are managed and utilized in the university given its objectives.

Higher education has always been important priority in public agenda and now it is becoming crucial for the development of the modern societies. It is lauded as a crucial factor of survival for it provides people with “an opportunity to reflect on the critical, social, economic, cultural, moral and spiritual issues facing humanity” (GoI, 1986). It is also considered as an effective tool for producing skilled manpower and inculcating scientific temper in the society. The Punnayya Committee (1994) has recommended that it is the institutions of higher learning that cater hopes for attaining cutting edge technology in the country. In addition, it is one of the best ways of achieving social mobility for the deprived sections of the society (Azad, 2008). Before proceeding further it is inevitable to discuss the root of all the debates. All the debate in higher education initiates with the discussion on nature of higher education as a good.

2.2 Discussing Higher Education as a ‘Good’

Classification of higher education as ‘good’ has been a matter of contention in the policy discourse (Chattopadhyay, 2012). In theory, private good characteristics of rivalry and excludability are satisfied in higher education. It can be observed that often eligibility requirements are needed to be complied with for admission to institutes of higher learning and credential certificates are given to those who pass the examination and comply with the norms of the institutions for being considered as the successful candidates. Therefore principle of rivalry and exclusion both are applicable in higher education. On the other hand, higher education or training for skill development is not exactly akin to a private service either, which can be bought and sold in the market. Paying for the service does not entitle the student for the degree. It has to be earned or acquired (Majumdar 1983). Higher education also has public good

characteristic by the fact that it emits positive externalities either directly or indirectly. Thus considering public and private good characteristics, higher education is classified as Quasi-public good which is a private good which generates externalities (Musgrave and Musgrave, 1989).

With the identification of higher education a ‘good’ and keeping in view the governance reforms that have shaped the structure of higher education system, the study proceeds further with discussing the literature revolving around the topic.

An educational institute is engaged in the delivery of education as a service and helps in the formation of human capital. The delivery of service is supposed to be guided by an input-output relation in the form of production function. The production function claims that there exists a technical relationship between different combinations of input and output produced. If the concept of production function is to be analysed in the context of education, then it is important to conceptualise the concept of productivity, efficiency, cost and revenue albeit differently in the present context (Chattopadhyay, 2012). However, before discussing these concepts in the context of education, it is important to discuss that whether functioning of the higher education institution is akin to that of firms and the concepts of efficiency and productivity are applicable to education institutions (ibid.).

2.3. The Non-Profit Organisation Nature of a University

Educational institution is unlike firms because its objective function is not profit maximisation⁶. For non-profits, non-distribution constraint also makes the goal of profit maximisation ambiguous; Winston (1999) illustrates the ‘university as church’ against ‘university as a car dealer’. This implies that the framework of University is unlike any economic organisation, and it aims to realise its objectives rather than profits. The objective function of the university is explained using different terms such as Massy (2004) incorporates the value function in the for-profit objective function of traditional micro-economic theory. Cloffelter (1996) explained the objective function in terms of ‘excellence’ that an educational institution wants to achieve and Marginson (2009a) considers ‘status competition’ as the chief objective function of the university.

⁶ Objective function is the function that it is desired to maximize or minimize. In the context of university, what drives an institution to strive for the best?

The non-profit behaviour of the university is defined where the value function of the university is subjectively maximised by adjusting the outputs and output prices of the university with respect to market, production and financial constraints (Massy,2004)⁷. The value function of a university can be written as: $MC=MR+MV$, where marginal value is defined in the terms of additional contribution made to achieve the mission of the institution in dollar equivalent terms. However, specification of the value function in not-for-profit organisation is not so clear, whether a university has one or more value functions is ambiguous (Chattopadhyay, 2012). Cloffelter (1996) argues that in higher education, managers appear motivated by what he calls "the pursuit of excellence", a general goal which in practice means maintaining or improving the quality of the educational services they supply and the equity with which they are provided (Bowen and Breneman, 1993). Similarly Marginson (2009a:208) considers 'status competition' as the chief objective of the university. He argues that top ranking university commands respects, because of the top quality of education and research it produces. 'Non-profit universities are as prestige maximisers, performance maximisers and revenue maximisers' (Marginson 2009a). The competition for rank adds altogether a different dimension to the objective function of the university.

2.4 Education Production Function (EPF)

The delivery of service in an educational institute is guided by an input-output relation in the form of production function. The production function claims that there exists a technical relationship between different combinations of input and output produced in an educational institution. This is attributed as the second paradigm in the sub-discipline of economics of education (Marginson, 1997). In this context production-function analogy is used, where educational institute and a factory are considered analogous. This is also a third proposition of human capital theory (Majumdar, 1983).

The concept of education production function has been largely discussed in the context of school education where it is defined as a relationship between school and students inputs and measure of school output (Boweles, 1970). Understanding

⁷Value function represents the mission of the institution. The demand function of the producer and the supply function of the factors of production represent the market constraints. Transformation of input into output is done by using the production function. Financial constraint in not for profit organisation is defined as total revenue minus total cost equals zero.

production function in the realm of higher education needs an enquiry in the present context. Following the same lines, in higher education also EPF is a relationship between students as inputs and value addition in students or degree as an output. Though education production function has not been discussed widely in higher education, Attiyeh and Lumsden (1974) contextualise the EPF in higher education. The study asserts that as universities are unlike any conventional firms or industries, they lack the characteristics associated with the firms operating in the competitive markets. Universities are also short of many other forces which serve in industries to promote efficient utilisation. It is only possible to assume that universities are operating in a competitive market and earning profit when it is feasible to internalise the externalities (via tax-subsidy scheme). In another study, Monk (1989, p.32) explains how an Education Production Function (EPF) can be of great help to the administrator of the university in order to understand the functioning; if the administrator is capable of calculating the EPF then the systematic transformation of inputs into output can take place. But if the EPF does not exist then there is no room for the administrator to improve the productivity of the university or college.

Therefore in education production function, the student as raw materials are considered as a necessary input and the graduates are the output, but in this approach Majumdar (1983) includes an important dimension that students are also the investment decision makers, whereas, in the case of factory, the input differs from the output and the decision maker is the entrepreneur. With this, analogy of factory and the educational institution is completely broken down. In the present context therefore conceptualisation of education production function, shed light on the concept of productivity, efficiency, cost and revenue in higher education so that they are helpful in informing debates and offer policy directions.

2.4.1 The Nature of Costs in Higher Education

While discussing education production function, it is important to discuss the aspect of cost reduction and quality improvement in higher education. As higher education has been developed in different set up, where output is produced in a non-profit organisation and prices are paid well below the marginal cost and average cost is covered by the government through subsidy (Attiyeh and Lumsden, 1974). As a

result, studies have insisted that application of cost reducing and quality improvement techniques in higher education is an ambitious exercise.

In general, higher education has been subject to rising cost and productivity since eighties in majority of countries. In the present scenario, it is very well understood that higher education budget faces acute burden of rising at the rate which is more than the income growth (Levin, 1991). The operating costs per student in higher education institutions (public and private) are rising at a very high rate. Therefore it is very essential to understand how the productivity can be increased in higher education given the problem of rising costs, rising enrolments and depleting resources.

William Baumol (1967) has proposed a theory to explain theoretically the concept of rising costs in the non-progressive sector; he used one of the examples as higher education to explain the rising cost is inevitable in the non-progressive sector. He asserts that the sector is suffering from 'cost disease'. Baumol (1967) views education as 'non-progressive sector' where the sector is not benefitted from technology and innovation, capital accumulation and economies of scale. Baumol (1967) also argues that higher education sector is attributed as labour-intensive sector where approximately 80 per cent of its budget is allocated on the human capital. He also argues that there are only limited possibilities to alter the mix of human capital and other capital in education sector (Levin, 1991).

Conversely, Baumol describes that there is another sector which is a progressive sector of the economy, where the mix inputs in terms of labour and capital can be altered in response to rising labour costs. When productivity rises in this sector, it in turn leads to rise in wages. Thus, as a result rising costs in the progressive sector would be 'imported' to non-progressive sector; education sector, but education sector is unable to adopt labour saving techniques unlike other sector, which leads to eventual rise in the cost of the education sector.

Thus, it can be concluded that more the higher education sector is adding to the productivity of the other sectors of the economy, greater is the burden on the costs of higher education. So it is clear from the above explanation that cost in education sector will rise, one has to now understand how mix of resources (financial, human and others) can be altered at the institutional level in accordance with the objectives (mission) of the institutions. Not much can be modified in the way resources are

utilised in the institutions given the constraints, but one can try to understand how the resources in every institution is utilised with respect to its objectives.

After discussing EPF in higher education and aspect of cost reduction and quality improvement in higher education, it is essential to identify inputs and outputs in the sphere of higher education.

2.4.2 Output in Higher Education

Following the line of investigation in economics of higher education it is very difficult to evaluate the prices of the components produced by the universities. Unless proper techniques are devised to calculate these variables, quantification of the efficiency of universities will remain a big challenge. Economists now have recognised the multi-dimensional characteristics of higher education. However until very recently the uni-dimensional cost and production analysis were used in institutes of higher education, and the student's enrolment was considered as the only output of the IHEs, ignoring its multi-dimensional characteristics Cohn *et al*, (1989). Later multi-dimensional characteristics of IHEs were recognised but it could not comply with the proper analysis of multi-product cost concepts with respect to economies of scale, (Brinkman (1981), Southwick (1969), Verry and Davies (1976) and Verry and Layard (1975)) (Baumol *et al*. (1982) in (Cohn *et.al*, 1989). Higher education institutes⁸ are complex organisations where multiple goals and objectives have to be achieved simultaneously and it is very difficult to identify and prioritise them accordingly (Cohn *et. al*, 1989). However, essentially what universities seek to achieve is a mix of teaching and research, thereby encompassing the larger academic activity. Nevertheless, Bear (1974), Attiyeh (1974) and Archibald (1974) provided a list of outputs produced by a university. They can be classified into three broad categories: i) Educational output which leads to formation of human capital, having both a yield appropriable by the individual in whom the capital inheres and a stream of benefits to society as a whole. ii) Informational output: in screening model, the output is information about the relative abilities of students. iii) Research output: increment in stock of knowledge which contributes towards economy's productivity.

⁸ The term universities, institutes of higher education and higher education institutes can be used interchangeably as per the usage in the sentence.

a) Educational Output

Measurement of educational outcome is extremely important. In the absence of any units of measurement, the valuation problem is of a serious nature. As Woodhall and Blaug (1965) observe:

“The first problem in considering the education industry is to define output”. One of the peculiar features of universities is that they represent a vast multiproduct industry, providing teaching and research in a wide range of subjects at many different levels. The final product is intangible, and at first sight, incapable of being quantified”.

This implies that simply a ‘degree’ is considered as an end product. Existing works on education have used a wide variety of measures of output⁹. Bear (1974) argues that ‘human capital is a “black box” and the measurement of the contents of the box can be only in terms of one or more “outputs” that flow from it’. He devised the indirect way of quantifying human capital; he takes test score achieved in the examination and grade–point average in the degree as the surrogate measure of human capital. Both these measures have the property that they may not be proportional to the human capital that is inherited in the student. Despite of this shortcoming, Bear (1974) concludes ‘the degree with an associated grade point average as the appropriate quantity measure of the outputs of human capital produced by the university.

In addition to degree as the end product, there are private returns derived from the human capital in the form of pecuniary and non-pecuniary benefits that are accrued to the individual. Pecuniary benefits consist of additional wage and salary earned. Non pecuniary benefits can be defined as the ability to admire the culture, to enjoy leisure, to read variety of books etc (Bear, 1974). Thus, degree, pecuniary and non-pecuniary benefits are the simple measure to identify educational output.

b) Informational Output

A ‘degree’ from an educational institution not only reflects investment in human capital: it also acts as a screening device (Arrow (1973); Layard and Psacharopoulos (1974); Riley (1975, 1979); Spence (1974, 1976); Stiglitz (1975, and Wolpin (1977)). Education or degree or what is often referred to as credentials act as a screening device, because it signals the employees to distinguish between high and low productive workers (Chattopadhyay, 2012). Education plays a very important role in

⁹Output measured in terms of test scores, grade point, number of credit hours, student’s degree etc.

sorting out the individuals of different qualities. Educational institutions play a primary role in sorting the individuals, though there are other agencies also, such as employment agencies which sort the individuals, but that is followed subsequently, once the educational institutions have done the screening.

c) Research Output

The third type of output is the research output. Research is discovery and dissemination of 'new' knowledge. Measuring research output is also debatable. Ideally various components of research output should be considered while measuring research output such as, M.Phil. / PhDs, publications, research reports, patents, public lectures and other related work of one's research. Since it is difficult to measure the output including all the components, Brinkman (1981) in his study employed the total amount spent by an institution of higher education on the sponsored research.

Another study by Bear (1974) suggests that the published pages may be a unit by which the quantity of disseminated knowledge is measured. But this may not be a sufficient condition, as there is no particular method of valuing stock of knowledge, or increment to it. One of the methods of valuing research output is to patent the idea or research. Valuation of the research output is questionable as the impact of the disseminated knowledge on the society is not measurable. Hence market mechanism may not be an appropriate method to ascertain research output. This creates a problem for resource allocation between teaching and research output. Attiyeh (1974) argues that the cost of neglecting research through reallocation of budgetary resource from research to teaching may be counterproductive particularly for a university. Massy (2004:28) draws attention to a similar type of problem where research is increasingly getting prioritized at the cost of teaching. Academic ratchet refers to steady irreversible shift of faculty allegiance away from the goals of a given institution, toward those of an academic speciality (Zemsky and Massy 1990:22 quoted in Massy 2004).

Thus, the simple measure of research output in the higher education institutions can be the amount of M.Phil. / PhD, publication of faculty and students in journals and in form of books, sponsored projects undertaken by the departments, conferences, workshops etc. All these can help in crude analysis of the research output in the university. *An elaborated discussion on research output is undertaken in chapter 5.*

2.4.3. Discussing the Inputs in the Universities

One of the important educational inputs is 'time' as argued by Becker (1964). There could be two components of time spent-student time and faculty time. For students, time spent would vary with their IQs, preparation time and the opportunity cost. Faculty time is to be valued at the prevailing salary level. However, a problem with teacher's salary is that it is administered as decided by the government. Hence, they do not reflect scarcity as a price of a product reflects in a free market.

Winston (1999) asserts that higher education uses customer input technology where a customer that is the student is considered an important input in the production process. In educational production function; peer quality is also an input to college's production and one that cannot be bought from anyone other than its own customers. Peer quality is an input that costs and has no substitutes. In the process the students educate both themselves and the peers. Though inputs of faculty's matters too, but the quality of the education any student gets from college depends on the quality of the education that the educational institution delivers (ibid.)

Since the Central and State Universities are mainly financed by the government, pertinent questions revolve broadly around equity and efficiency issues. As the present study examines the sources and spending in the University and attempts to understand the pattern of allocation and utilisation of resources, it is crucial to perceive the concept of efficiency in higher education institutions.

2.5. Revisiting the broader aspect of Efficiency in Higher Education

With the rising enrolments, depleting resources and changing socio economic conditions of the higher education system, it becomes important to discuss efficiency as a concept in the realm of higher education. Efficiency in an institution can be assessed at two levels external efficiency and internal efficiency. External efficiency is referred to as functioning of the institutions in line with meeting the objectives which the society confers upon it in the form of social, cultural and economic objectives. Internal efficiency entails the recourse utilisation within the organisation with respect to its objectives. An institution is said to achieve internal efficiency if it happens to utilise its resources in accordance with its objectives (Sadlak, 1978:215). Both internal and external efficiency are important for the university, but internal

efficiency is relatively more important because it is linked with the objective of the university it intends to achieve for itself (Reeson, 1990; Woodhall, 1987). For the functioning of the educational institution Attiyeh (1974) also elaborates on internal efficiency, he argues that it is crucial to understand that whether resources are deployed efficiently or not at the institutional level otherwise understanding of economic perspective of education would remain incomplete and inadequate as the resource allocation in the institution would help us to understand the concept of internal efficiency. Researchers have also adopted an approach which examines the internal efficiency of a university. (Massy, 2004) defines internal efficiency of the university *as producing the right bundle of outputs given the needs and wants of stakeholders, and then minimising production cost for the given bundle*. In context of the university and higher education ‘right bundle of goods’ comprises of the goods which are not valued by the individual but by the society as a whole. From the above discussion, it can be concluded that, though study of internal efficiency is important from the institutional perspective, the external efficiency also matters as the higher education institutions are situated within the domain of the society. Thus, internal efficiency of the university should encompass both public as well as private goods (ibid). Massy (1974) asserts that though it is assumed that a market delivers internal efficiency than the government control of the universities, however in today’s environment, markets alone cannot produce satisfactory results. Rising inequities, increasing exploitation on gullible students, deteriorating standards and skewed growth necessitates government intervention. The limitation of market forces in higher education needs to be understood and a regulatory system has to be developed to overcome these limitations. Apparently, internal efficiency can be called as the productivity of the education system. However, the subsequent section minutely examines the distinction between productivity and efficiency.

2.6. Dilemma: Productivity and Efficiency

Productivity and efficiency are not synonymous. There is a difference between the two. Efficiency implies optimum combination of inputs that is required to produce a given output i.e. producing output at least cost. It is measured at any one point in time. Productivity on the other hand is measured over a period of time (Blaug, 1969). Therefore an activity that is conducted inefficiently at a point in time enjoys

productivity improvement as time passes. What we can say is that decline in productivity is a certain sign of inefficiency and the failure of an industry to improve its productivity may result in rising costs. In order to break the analogy between the process of education and firm, Majumdar (1983), proposed the concept of unit costs as the efficiency indicator. The usual proxy of unit cost in education can be cost per student. The concept of unit cost is difficult to be applied in the education process because in order to define cost it is important to have defined output so that the optimization principle can be applied. As long as the output of the university is difficult to specify, concept of unit cost as the indicator of efficiency cannot be applied. Later in one of the studies Ansari (1997) calculates unit costs for the Universities; where the concept of unit cost is denoted by the amount of recurrent expenditure spent per student in a given year. He asserts that costs can be calculated for educational system as a whole, or for certain levels of education, for particular institution or for particular programme of study. Staff student ratio is another indicator of measuring productivity of teaching. Improvement in staff student ratio implies a decline in productivity. Smaller classes improve quality of teaching as classroom interactions may be more and faculty time given to a student on an average may not fall. However, measurement of productivity is meaningless unless input and output are measured in terms of constant quality (Blaug, 1969). Some are however convinced that quality of university teaching has been rising as subjects now are taught in ways unimaginable 10 years ago, the subject(s) itself is evolving and better textbooks are constantly being made available. But if we are serious in measuring university's productivity, we need to standardize the quality of student as well as teachers time. Group effect plays an important role on the quality of education. To produce five good sports cars, it would not be necessary to produce them in a larger group with fifteen other cars. But to produce five good physicists it may be necessary to put them in a class of twenty or so. This is not only necessary to keep up and improve upon but would also help them to learn from one another (Majumdar 1983).

Thus, it can be concluded that the above framework tries to conceptualise the functioning of the university and higher education with the help of Education Production Function, Input-Output analysis and discussion on efficiency-productivity dilemma. It is indeed strenuous to undertake the empirical analysis of the above framework. Nonetheless, the government is initiating methods to reduce cost and

increase efficiency by using different methods of funding. The understanding of the above concepts can benefit policy formulations at the macro level.

2.7. Institutional Impediments in Resource Allocation

Rising enrolment pressure, declining per capita expenditure on students and diminishing financial resources in most of the third world countries including India, led to the dire need of managing and utilising the resources in a more efficient manner. It has also been observed that there is high level of wastage of resources in the higher education systems, thereby leading to disproportionate allocation of resources. Therefore, to cut down the level of wastage, universities should take measures to improve the internal efficiency (Salmi, 1991). Another study emphasises on efficient utilisation of the resources so that additional resources are generated within the institution (Varghese, 2000). Sanyal (1995) argued 'Improving the efficiency of educational institutions cannot be effected through policy reforms at the national level; it needs changes at the institutional level'. In the same lines, Varghese (2000) also advocates that an attempt is needed to save the resources by improving the efficiency or mobilise the resources from non-governmental means to generate additional resources to be allocated.

One of the ways to ensure proper utilisation of resources at the institutional level is through budgeting. Budget of the university is an important component because it serves as Plan of action for the year and focuses on overall objectives of the university (Husain, 2003). Another way of achieving efficiency in the available use is to strengthen the management practices in higher education institutes (Salmi, 1991). Thus, effective internal management of financial resources serves as one of the instant ways to cope up with the problems of financial crisis.

The following segment delves into the funding arrangements of universities and attempts to study the debates concerning the sources of income and spending in the Universities.

2.8. Funding Arrangements in Universities in India

In India, higher education is primarily funded by departments of higher education, ministries, and several agencies. Higher education can be divided into four major strands: general higher education, technical education, medical education and

agricultural education. Each of them is funded separately. At the national level, general education is mainly funded through a buffer body, namely UGC, while technical education is funded by department of higher education. Medical and agricultural education is funded by Ministry of Health and Ministry of Agriculture respectively. As the scope of the present study is to examine the financing of a central university, therefore it is important to discuss the role of UGC, the sole funding agency for the university education.

2.9. Reviewing University Grants Commission

In the midst of understanding the funding and functioning of a central university, it is crucial to understand the role of University Grant Commission (UGC). It is an autonomous and statutory body created by the centre in order to perform its responsibility with respect to higher education which has been explicitly laid down in the constitution¹⁰.

In the latter half of the nineteenth century, a need was increasingly felt to establish an organisation which can help in disbursement of central government grants to the Universities. After some years, Calcutta University Commission (1917-19), also known as Sadler Commission “suggested the creation of a body which could function as an agency to collect and disseminate information about universities and maintain a liaison with foreign universities apart from its regular duty of disbursing government grants” (Dash, 1998). This led to the formulation of University Grant Committee in 1945 to cater to the needs of solely three “Central universities”, Aligarh Muslim University (AMU), Banaras Hindu University (BHU) and Delhi University (DU). Later in 1947, the membership of the committee was increased and it was entitled to deal with all the universities.

After the independence, University Education Commission was set up in 1948, under the chairmanship of Dr. S Radhakrishnan, “to report on Indian university education and suggest improvements and extensions that might be desirable to suit the present and future needs and aspirations of the country”. It also suggested that University

¹⁰ Entry 66 of the Union List in the Seventh Schedule of the Constitution of India mentions that the Central government is responsible for "co-ordination and determination of standards in institutions of higher education or research and scientific and technical institutions."

Grant Committee should be reformed in line with University Grants Commission in the United Kingdom (UK). Followed by this, in 1952, Government of India decided that all the issues pertaining to the funding of higher education in Central and other Universities should be directed towards University Grant Commission. UGC started functioning formally from December 29, 1953. However, it acquired the status of a statutory body by the act of parliament in 1956. Section 12 of the UGC Act 1956 advocates 'in consultation with the Universities or other bodies concerned, all such steps as it may think fit for the promotion and co-ordination of University education and for the determination and maintenance of standards of teaching, examination and research in Universities' (UGC Act, 1956:10).

UGC is a buffer body, which allocates funds to higher education institutions via MHRD. The prime function of the UGC is to allocate and disburse funds to higher education institutions and inquire into the financial requirement of universities. However, in the light of financial constraints and rising higher education institutions, UGC perhaps fails to address the role it is expected to perform. Apparently, it is only the central universities which are getting the major chunk of funds from UGC, though they also seem to be inadequate with the increasing number of central universities.

2.10. Allocation of Funds in the Central Universities

In India, funds are allocated and disbursed in the same manner in all the Central Universities. The budget of the Central University is divided into two parts: Plan budget or development budget and Non Plan budget or maintenance budget. "In actual practice, the difference is more procedural than real, although conceptually the Plan budget provides for growth, diversification and innovation while the Non Plan budget takes care of sustenance of the ongoing system. All activities of recurring nature taken up during a five year Plan period are classified as Non-Plan or maintenance activities after the Plan is over" (UGC, 1993, p.21). Thus, after every Plan period, Plan expenditure becomes a part of Non Plan expenditure, thereby adding burden on the Non Plan expenditure in the subsequent five years. As a result, in most of the established central universities, major proportion of funds is allocated in meeting the maintenance expenditure or Non Plan Expenditure. Following Segment discusses the alternative sources of income and nature of spending in a Central University.

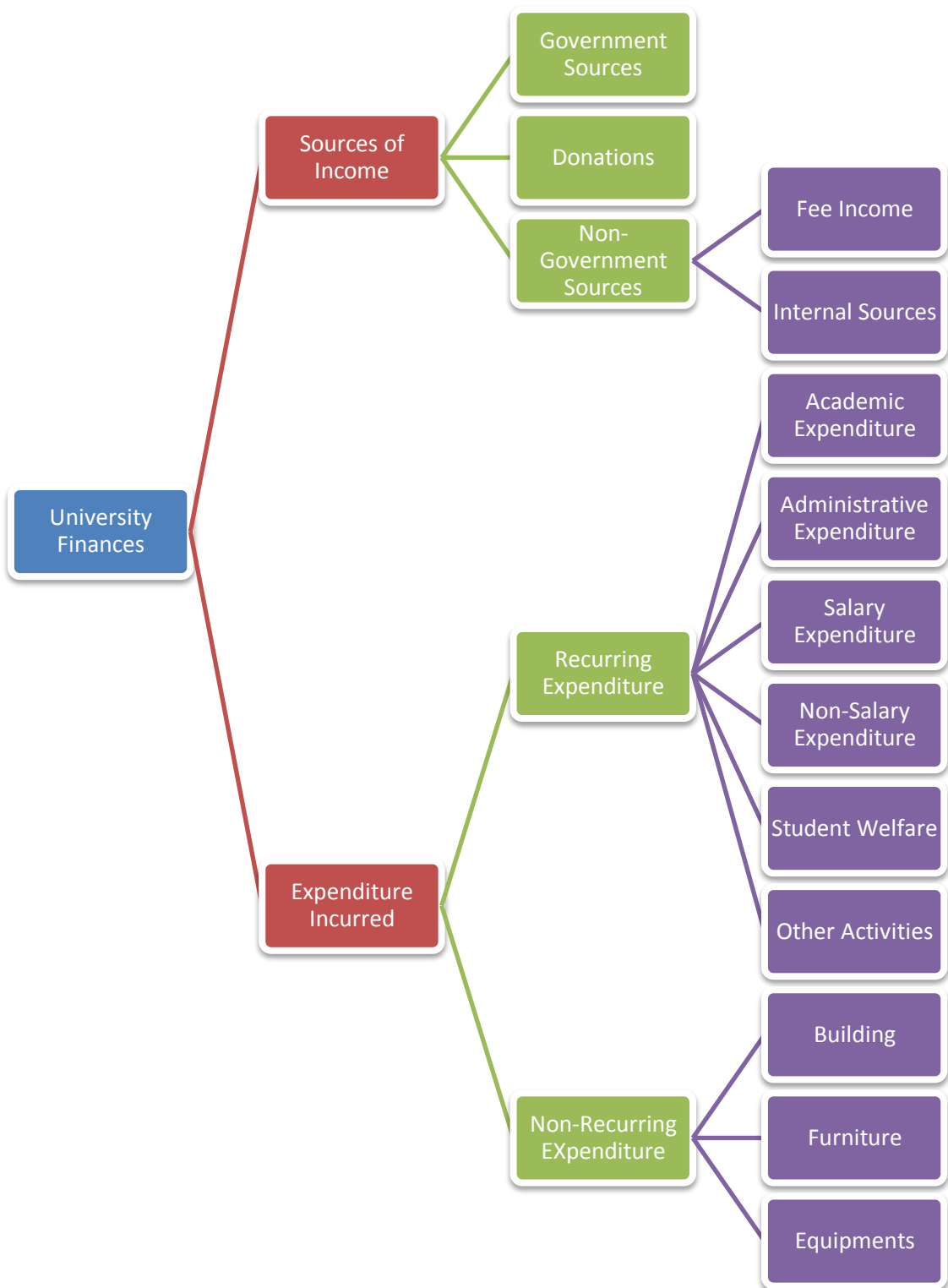


Fig. 2.1. Classification of University Finances

2.11. Classification of the Sources of Finance

The different source of income of the universities includes:

- Government grants: UGC (Central government), state government
- Donation: donation received or aid received from national and international institutes.
- Non-governmental sources of income:
 - fee income
 - Internal resources of the University

2.11.1 Government Grants

As cited earlier, UGC is a prime funding agency of central government, which allocates and disburses funds to central universities and state universities. In central universities, funds are disbursed in the form of maintenance grants and development grants. State universities are given only development grants. The funding arrangement of central and state universities is very much contrasting. The major difference between the two is that the central university is formed or established under an Act of Parliament, while a state university is formed by the legislative body of the concerned state.

It has been argued in the literature that almost 65 per cent of the budget of UGC is meant for meeting the Non Plan expenditure of the central universities and remaining 35 percent is used for Plan expenditure (Tilak, 1988). Planned expenditure forms a very little part as compared to that of Non Plan expenditure. Majority of the non-Plan expenditure is spent on salaries and allowances of the staff. Pension bills also form a large part of the total expenditure incurred in many old institutions. In some institutions non-academic staff exceeds the academic staff. Analysing the share of expenditure in the case study also depicts that very little is spent on the academic activities. Thus it can be observed that the public funding in India is negotiated and institution based which not only promotes inefficiency but also endorses *status quoism* (Agarwal, 2009).

2.11.2 Donations

UGC being the prime funding agency for a central university, there are other sources too which help in generation of income for central universities - state universities,

national institutes like ICSSR, ICMR, ICHR, DST, etc. and international agencies. They provide funds to central universities either under some schemes or for undertaking sponsored research.

Unlike other universities, AMU and BHU are the central universities which have received endowments and donations since their inception. Community based funding was received by the two universities from all over the country. In the beginning, the endowment and donations formed the major part of the funds. However, with time when they got the status of central universities and started receiving funds from the UGC, the proportion of donations and endowment since then have declined relatively. In this pursuit of encouraging philanthropy in an educational institution Radhakrishnan Commission advocated the amendment of income tax laws¹¹.

2.11.3 Non-Governmental Sources of Income

Following are the non-governmental sources of income for the university. These sources can also be attributed as internal resources for the universities. Income received from fees, other receipts such as rent received, interests earned on investments etc are included under non-governmental sources.

a) Fee Income

Fee income is an important non-governmental source of income and includes all the compulsory payment done by the students. It includes not only tuition fees paid by the students, but also other fees such as examination fees, hostel rent and others. Tuition fee is the fee paid by students for obtaining the university education. However, it does not form a substantial part in case of the central universities. Other fee income comprises of variety of fees such as entrance examination fee, admission fee, registration fee, eligibility fee, library membership fee, sports fee, convocation fee, certificate fee, etc. Examination fee is the fee paid for examination. Hostel rent would also include the mess, electricity and water charges paid by the hostel students. Others would include fines and penalty charges paid by students in library, administration, etc. The fee income here refers to entire fee income received from students.

¹¹ http://shodhganga.inflibnet.ac.in/bitstream/10603/8742/12/12_chapter%203.pdf

Following the downward trend in the resource allocation of higher education in the Plan period, the question of cost recovery has become essential. It is well understood that with rising enrolments and shrinking resources, higher education is confronted with crisis because fee recovered from the central universities is unrealistically low since decades as compared to other state and private universities. Policy documents of government, reports of committees and commissions from time to time have suggested alternative ways for resource mobilisation in central universities. The major recommendations concerning the revision of fee structure are as follows. One major consensus among the committees and commissions is that, fee income forms an important part of the total income and has not been revised since decades in most of the central universities. Thus, reasonable upward revision in the fee charged by the students is needed in the universities.

A substantial hike in university fees is essential (emphasis added)" (Government of India, 2001:37). Tenth five year Plan document also emphasises on supplementing additional resources in the university other than government resources (Government of India, 2002-2007:17). Punnayya Committee recommended that tuition fee should be revised upward regularly considering inflation and other related costs. The fee revision should be done in accordance with the recurrent cost of the respective course and the employment opportunities associated with it (suggesting differential fee structure) (UGC, 1993:77), (UGC, 1993:77). Punnaya Committee also suggested that modified unit cost method should form the basis of the fee structure. The committee also suggested the rate of upward revision of fee structure by 2 per cent annually (UGC, 2000: 41-44 and 16).

Another unanimous recommendation made by the committee is that, institutions can recover 15-25 percent of annual recurring cost per student in the form of tuition fee and other fees at the end of three years. However, in a due course of time, government funding universities should shift to student funding (UGC, 1993; 1999; 2000). In this context CABE committee report firmly advocated that scope of cost recovery in many universities is very limited, as many universities have already made increment in the fee structure following the recommendation of the committees. It also pointed out that more than 20 percent increase in the recurrent cost per student can severely affect the access to higher education.

After discussing the recommendations of the upward fee revision in universities, the other debate is concerned with how the question of scholarships in higher education institutions affects the 'net-fee'. 'Net-Fee' can be defined as the tuition fee minus scholarships. It is important to discuss the concept of net fee in the present context, as it enables us to understand that expenditure incurred on scholarships and subsidies in the central universities, deemed universities and institutions of national importance exceeds far more than what is collected from the tuition fee, thereby making the fee charged from the students to almost negative. However it can be noted that net fee is highest in universities as compared to degree colleges. As a whole 'net fee' forms 17 percent of the total recurring expenditure in higher education (Tilak and Varghese, 1991). Among different courses, 'net fee' is highest in case of business management and is negative in case of medical education, which implies that medical education is the cheapest and business management is the most expensive course.

Fee income forms the total fee recovered from the students. Other than tuition fee, it also includes various other types of fee such as fee charged for admission, examination library, laboratory, hostel and mess and other services. For admission and examination fee, it has been recommended to recover the cost of operations. For facilities such as sports, library, laboratory and other related activities, it is suggested that revision of fee should facilitate recovery of significant part of recurring cost (UGC, 1993:77). Development fee should be charged in accordance with recovering the actual recurring cost with no-profit-no loss basis (UGC, 1999; 2000). For hostel and mess fee, it is suggested to recover the actual recurring cost and a part of capital cost in the due course of time (UGC, 1993; 1999; 2000). For other residuary services such as transport, phone, postage and stationery, typing, computing, photocopying etc, it is suggested to recover the costs (UGC, 1993; 1999; 2000).

b) Internal Resources of the University

Income from internal sources comprises of other internal income, such as income from university press. Other sources of internal income include rent from university land, buildings, etc., and income from consultancy services and research projects, etc. Income from sale of university publications, self-financing courses, and interest income are some other source of internal income of the universities. The contribution of other internal sources and other sources is not significant either in the central or in the state universities. The universities thus tend to finance their budgets mainly with

the help of government grants and student fees (Tilak & Rani, 2003). It is also noted that the share of internal sources and other sources in recurring income in the universities remains either stagnant or has declined. Strengthening internal sources of income as well as other sources of the universities would be more desirable in the times of declining financial assistance from the government. Income from internal sources can be mobilised through increased levels of consultancy and research activities, sale of university publications, etc.

2.12 The Nature of Spending in the Universities

Educational institutions are essentially spending institutions rather than earning institutions. The problems associated with alternative sources of income are certainly essential, however the most important aspect of the educational institutions is how efficiently the expenditure is incurred and with what magnitude the expenditure is incurred (Panchamukhi, 1977). The magnitude and the pattern of expenditure incurred in the educational institutions is helpful in assessing their performance in relation to their output.

In the due course of time income and expenditure in the universities have increased to manifold levels. A massive growth rate in the educational expenditure has been observed since independence. The total outlay on higher education has increased from 3.84 crore in 1950-51 to 16210 crore¹² in 2013-14 accounting for 0.6 percent of the GDP. The number of universities has increased 34 times from 20 in 1950 to 677 in 2014 and number of colleges has increased by 74 times from 500 in 1950 to 37,204 in 2013¹³. This signifies the increased spending and expansion in the universities. The law of increasing state expenditure is applied to university expenditure. However with rising expenditure, it can be noted that "university expenditures increase in spurts, hence there is a displacement effect. The expenditures on administration and unallocable items have a tendency to grow faster than the total expenditure of the university" (Panchamukhi, 1977: 231).

Following the discussion on the behaviour of expenditure in the universities, the division of the activities is undertaken as per their relevance of financial allocation in the universities. In order to determine the pattern and change in the behaviour, the

¹² http://Planningcommission.nic.in/Plans/annualPlan/annual_Plan13_14.pdf

¹³ <http://mhrd.gov.in/university-and-higher-education>

expenditure is broadly bifurcated into recurring and non-recurring expenditure. Recurring expenditure covers direct teaching, non-teaching expenditure, indirect teaching expenditure and student welfare services, whereas non-recurring expenditure comprises of expenditure on building, equipments and other development activities. As per the recommendations of UGC (1993), recurring expenditure or non-Plan expenditure are further divided into three broad categories.

- a) Academic (teaching and research) costs
- b) Academic support costs (libraries and laboratories) and
- c) Student welfare costs (hostels, etc).

The committee suggested that attempts should be made to recover 'reasonable' portion academic costs, 'substantial' proportion of academic support costs, and 'nearly full costs' for student welfare costs (Tilak& Rani, 2003). Further categorisation of recurring expenditure is as follows: Academic expenditure and Administrative expenditure, Expenditure on total salaries and Non-salary academic expenditure, Student welfare, and other services.

2.12.1 Expenditure: Academic and Administrative

Academic expenditure comprises of expenditure incurred on the salaries of the academic staff which includes the teaching staff and other academic (supporting) staff, expenditure on staff development programmes such as training programmes, workshops, seminars, library, laboratory etc. It has been observed that 'central universities spend on an average 45 per cent of their resources on academic activities' (Tilak&Rani, 2003). In the study conducted by Tilak and Rani(2003), Panchamukhi (1977) it is observed that the share of the academic expenditure in some universities is declining and that of administrative expenditure has increased. The decline in the academic expenditure could be due to freezing of recruitment of academic staff or decline in the academic support cost. Considering the importance of quality and efficiency of university education, UGC (1999) advocates that 60-65 percent should be spent on academic expenditure out of the total non-Plan expenditure.

Administrative expenditure includes the expenditure incurred on the non-academic activities, such as salaries and allowances paid to the non-academic staff and other items. In some universities expenditure incurred on the administrative staff is showing an upward trend, may be due to 'increase in the salary of the non-teaching staff'

(Tilak&Rani, 2003). Administrative expenditure is essential in the functioning and management of the university, therefore 10-12 percent of the maintenance grant should be incurred on it (UGC, 1993). However, in some of the studies conducted on university finances it is conducted that non-academic revenue expenditure have grown faster than that of academic revenue expenditure (Panchamukhi, 1977).

2.12.2 Expenditure: Total Salaries and Non-Salary

Total expenditure incurred on the salaries gives an insight into the pattern and behaviour of university finances. Total salaries comprises of expenditure incurred on the salaries of both academic and administrative staff. Salary as a component is broken into various items such as pay, dearness allowance and other allowances, bonus, retirement and terminal benefits. In most of the universities 'total salaries accounts for more than 60 per cent of the total recurring expenditure (Tilak&Rani, 2003). As salaries include salary for teaching and non-teaching staff, salaries of teaching staff constitute the major of the total salaries followed by the other staff (Tilak, 1988). However, it is concluded from some of the studies that universities are spending more on the non-teaching staff as compared to teaching staff (Azad, 2008).

The non-salary expenditure includes expenditure incurred on the development of the staff, seminars workshops, laboratories, etc. Studies have shown the amount incurred on non-salary expenditure have increased marginally over the period (Tilak, 2004). In the study conducted on university finances by Azad (2008), it is shown that the proportion of expenditure incurred on libraries, laboratories, computers are declining in some of the universities. Though libraries and laboratories form an essential part of the educational institutions, their declining share is showing that they are not receiving importance in terms of allocation of resources.

2.12.3 Expenditure: Student Welfare

The expenditure on students welfare consists on expenditure incurred on the hostels, stipends, fellowships, scholarships, and other support services like games, NCC/NSS, cultural activities etc. Regardless of their importance universities are spending small proportion of the budget on student welfare activities. The proportion of expenditure incurred on hostel, stipends and other support services in AMU has declined from 1996-97 to 2001-02 (Azad, 2008).

2.12.4 Expenditure: Other Activities

The expenditure on 'other' activities includes expenditure on the maintenance of the buildings, electricity, telephone/fax and other miscellaneous items. Earlier these expenditures were referred to as 'municipal expenditure' and it was suggested that university should try to reduce such expenditure as much as possible (Tilak & Rani, 2003).

2.12.5 Expenditure: Non-Recurring or Plan Expenditure

Another is the non-recurring expenditure incurred on the building, equipments, furniture and fixtures and other development activities. This forms a very little proportion of the total expenditure incurred in the University. The studies have also asserted that non-recurring expenditure forms on an average of about 10 percent of the total expenditure (Ansari, 1997). A study by Azad (2008) concludes that major share of the non-recurring expenditure is incurred on the construction buildings, followed by a little on library, laboratory, and other activities.

After discussing the alternative sources of income and expenditure incurred in the universities, the following segment reviews the empirical studies conducted on university finances in Indian context.

2.13 Indian Context: Empirical Evidences

This section attempts to discuss the empirical studies concerning the university finances. Though some have analysed and compared a number of universities while some have analysed the affiliated colleges of one university. A brief survey of selected studies and their salient findings have been discussed in the subsequent paragraphs to serve as a background for the present study.

A study by D.Jha (1974) on Patna University explains that the expenditure incurred increased when the university became teaching-cum-residential university. Major source of funding was through government grants; however in 1964-65 the university witnessed the deficit of funds. The finance committee also couldn't function well due to lack of financial rules in the University.

A study on Kerala University finances by E.T Mathew (1974) discusses the trends and pattern of sources of income and expenditure. A detailed analysis of sources of funds from 1960 to 1975 has been undertaken and that of expenditure has been undertaken from 1948 to 1975. Being a state university, major funds were allocated by the state government. In one of the chapters the author examines the receipts and expenditure of the university (in 1974-75); in this chapter he undertakes a detailed investigation of expenditure incurred on the respective departments and other activities of the university. Among the alternative sources receipts from examinations forms the major source of income, increasing at an average growth rate of 176.8 percent. In view of the spending also, the expenditure incurred on the examination registered a higher growth followed by general administration and others expenses.

A study on Calcutta University finances by K.M. Mukherji (1974) found that the administrative expenditure was 30 percent from 1948-49 to 1969-70. The share of salaries varied from 13.6 percent to 18.76 percent. Endowment and donations played a significant role in financing the university. M.S. Nigam (1974) in the study of Rajasthan University found a deficit in the budget of the university finances, and recommended the state government (UGC) to settle the financial issues. A suggestion was also made to stabilise per capita educational facilities. D.M. Nanjundappa (1975) studied Karnataka university finances where state government grants formed 54 percent and income from fees formed 35 percent of the total income. The per capita expenditure incurred witnessed an enormous increase from Rs 80 in 1949-50 to Rs 3306 in 1972-73. The grants of the university were not increased as per the expenditure requirement of the University.

A study by Panchamukhi (1977) on Economics of University finances has analysed the various sources of finance, pattern of spending and resource use in the universities with special reference to Bombay University. He attempts to understand the functional efficiency and overall financial position of the Bombay University. The study concluded that financial position of the University was not sound and there was a need to rationalise the attitudes towards fee structure, endowments, extension activities and publications and the income elasticity of expenditure is rising overtime. The study is a step towards studying the educational process at the micro level.

The Association of India Universities (AIU) published two studies in 1978 and 1982 whereby the proportion of various sources of income and expenditure of 64 and 75 Universities respectively were looked at. The studies found out that there were huge variations in per capita income and expenditure among Universities. In general, there was an inverse relation between number of students and per capita expenditure, per capita expenditure was high with high number of students and vice versa. Amrik Singh and G.D. Sharma (1981) published the case studies on University finances of Karnataka, Bombay, Rajasthan, Baroda and Delhi Universities. The study analysed the funding methods of financing and suggested alternatives. G. Subrahmanyam (1982) studied Andhra University finances. He found that income from internal resources formed 60 percent of the total income. Income from press, publications and interest on corpus fund formed significant proportion of the non-academic income. In the study he suggested a method of providing depreciation. Tilak (1988) reviews the crucial aspects of university finances and emphasises on the problems associated with it. The paper analyses the flow of resources and pattern of allocation of resources by the universities. The paper also discusses the case study on universities of Bombay, Calcutta, Karnataka, Patna, Rajasthan and Kerala. The study concluded that the overall financial condition of the universities is unsatisfactory and deteriorating. Qamar (1990) emphasised that underutilisation of resources in the higher education system is responsible for inefficiency in the use of resources.

Tilak and Varghese (1991) and Tilak (1993, 1997a) studied the long term trend in financing higher education, and critically analysed the policy alternatives in favour of mobilisation of resources such as student fees, student loans, graduate tax and privatisation. Nanjundappa (1994) advocated that universities should mobilise resources through endowments and donations and stressed on university-industry linkages to generate additional resources. He also highlighted the need for extending recoverable loans rather than outright grants to students. Garg (1994) suggested that since internal fees and internal receipts form an insignificant part, grant in aid system should undergo a change in terms of activities so that accountability and autonomy should be pursued as complementary and mutually reinforcing processes and not as management devices. V. Natarajan (1995) studies the application of financial management techniques in the universities with special reference to Pondicherry University.

An enquiry into the pattern of finances of Banaras Hindu University and Lucknow University was undertaken by Furqan Qamar (1996). The author advocates that the institutions dependent on public funding are required to streamline and manage their resources in order to sustain and overcome financial stress through better management of funds and finances. D.K Ghosh (1997) studied financing of education at the macro level. He compared the sources of income and their proportion with the international counterparts. The author also emphasised on benefits of income through sponsored research projects, alumni associations etc.

A macro level study on University finances of fifteen universities is conducted by M.M.Ansari (1997) whereby he undertakes a comparative study of these Universities and attempts to estimate the cost efficiency and cost effectiveness within the universities and among the universities. This is done in order to understand the causes that afflict the financial health of the universities. J.B.G Tilak and Geetha Rani (2003) reviewed the finances of thirty nine universities. The study analyses the period from 1990-91 to 2000-01 of sources of income and pattern of expenditure.

Azad (1975, 1983, and 1989) studied financing of higher education with special reference of grant-in-aid by the state government. He suggested effective measures for development of higher education system by government support on the basis of principles of equity, specificity, adequacy, elasticity, promotional, efficiency and academic freedom (Azad, 2008). Azad (1999) again emphasised on the above principles in the changing economic conditions. Azad (2008) studied the pattern of financing of twenty nine universities; central universities deemed to be universities and State Universities. The author has undertaken an in-depth analysis and compared the pattern of sources of income and spending in these universities in two time periods; 1996-97 and 2001-02. In the study the author also delves into the challenges of Globalisation, Privatisation and Internationalisation of higher education.

2.14. Identifying the Research Gaps

Most of the studies on university finances with special reference to particular universities were conducted way back in 1970s. The structure and pattern of universities in the earlier studies were relatively different from the ones observed in present scenario. In the earlier studies emphasis was laid on the role of endowments in the financing of the universities. The universities funded by the government didn't

face the problem of severe resource crunch. Following the structural adjustment policies the problem of resource crunch has become grave with the massification in student enrolment, rising expenditure, depleting resources. Thus with the change in the policy and perspective there has been a change in the dynamics of problems encountered in managing the university finances. The studies conducted in the post liberalisation period have discussed funding and mobilisation of resources in higher education system. The other studies concerning university finances have compared the structure and pattern of university finances of many universities simultaneously. The present research however attempts to understand the structure and pattern of finances of a central university. Rising enrolment pressure, declining per capita expenditure on students and diminishing financial resources in the country has led to the dire need of managing and utilising the resources in a more efficient manner. Government is advocating cut in the financial assistance and stressing on income generation through non-governmental sources. The fee charged is phenomenally low and is not forming a significant proportion of the total income. In the wake of these constraints a central university is also struggling with problems of managing the resources efficiently. Therefore a study of individual university finances with different dimensions would help in providing useful insights with respect to financing and management of resources at the institutional resources.

Against this backdrop, the study in particular will study the management and utilisation of finances with special reference to Aligarh Muslim University (AMU), despite being publicly funded, how their institutional mechanism is undergoing a change as a result of change in the governance structure and how is the university coping with the challenge of inadequacy of resources.

Chapter 3

Research Methodology

Introduction

With the identification of gaps in the literature the present chapter probe into the rationale of the present study. The chapter discusses the objectives and research questions which the present study attempts to address. The discussion is followed by understanding of education production function and input-output model in university and how the present study is guided by these frameworks.

3.1. Rationale

With the ‘massification’ of higher education, constrained public budgets and rising privatisation, the debate in financing of higher education revolved largely around the allocation of resources between higher education and competing uses. In the Indian context, very few studies aftermath of economic reforms highlighted the impact of compression of the budget expenditure on education in general and on higher education in particular, and how it adversely affected the growth and the quality of the higher education system. There are various perspectives through which financing of higher education can be studied such as from the government, students, or institutional perspective. The studies have mainly focussed on the mobilisation of resources with respect to alternative sources. Effective allocation and utilisation of resources and matters related to financial management of resources is hardly talked about. Studies concerning pattern of finances and spending in universities is extremely scarce (Tilak & Rani, 2003). Most of the studies concerning university finances have delved into comparative study of many universities and studies pertaining to institutional perspective are scarce. Hence, there is a need to study financing with the view of management and utilisation of resources at the institutional level. Mis-utilization of resources in the universities will lead to real welfare loss as much as the economic benefits foregone in any commercial sector due to misallocation of funds. Thus in the light of the present scenario it is inevitable to undertake detailed inquiry into the causes of what ails the financial health of the universities.

A study of university finances of a central university will shed light on the crucial aspects of pattern of allocation of funds, efficiency of use of funds and performance in terms of research output. An understanding of these aspects would help in informing the policy and practices in financing and management of higher education systems.

Thus following are the objectives and research question of the study

Objectives:

- To investigate the change in the funding pattern of the university.
- To study the pattern of spending in the University.
- To analyse the challenges faced by the University in wake of resource constraint.
- To analyse the performance of the university with respect to its research output.

Research Questions:

1. How do we account for changes observed in the funding pattern of university in terms of grants (Non-Plan and Plan), academic receipts and internal resources?
 - What is the mechanism of disbursement of Non-Plan and Plan grants in a central university?
 - What are the different sources of income in the university? Has there been a change observed in the components of the sources of income over the period?
2. How does the university account for changes observed in the pattern of spending of the university?
3. How does the university negotiate with the challenges of development and expansion of the university in the face of resource constraint?

4. How is the overall research culture of the university in terms of publications and projects?

- A small case study of economics department is undertaken to know the perspectives of the teachers, their challenges and their academic pursuits in the face of resource constraint.

The study will attempt to answer the above questions, but it will be too optimistic to claim that it will find answers to all the questions. The study with the help of these questions attempts to understand the system of financing and management of resources at the institutional level.

3.2. Sources of Income and Output: A Theoretical Framework

The change in the governance reforms led to an overall change in the dynamics of higher education system across countries. Among all the reforms that higher education is going through, fiscal distress (as discussed in Chapter 1) is the most pertinent and is the one which causes concern among the institutions and government. As the site of analysis of the present study is University, it is constantly faced with the dilemma of how to make the best use of their existing resources. In order to cope with the challenge of utilising the resources within the institution, there is a need to strengthen the internal governance and management of resources within the university. This entails the understanding of the concept of efficiency in the University. Though it is well understood that the applicability of the efficiency as a concept is not tenable in education, however, to understand the phenomenon of utilisation of resources in the present context analogies are drawn from conventional economic theories as discussed in Chapter 2. Conventional microeconomic production function is a deterministic relation between inputs and outputs where inputs and outputs are measurable and inputs are substitutable. In education the relationship between input and output is not deterministic and input is not transformed into output mechanically unlike firms. In Education institutions, students are the inputs and students are the outputs, value addition in their knowledge is the result of transformation of input into output.

3.2.1 Education Production Function: An Understanding

The study looks into the funding pattern of the University in terms of sources and utilisation of funds and is guided by input-output model. The input and output of the University is as follows:

$Q = f(\text{inputs: students, teachers and infrastructure, maintenance and augmentation})$

$Q = \text{total output of the university: graduates, research output}$

Higher education institution is multi-input multi-output production unit in a non-market context. In view of this the following segment discusses the EPF as formulated by Bear (1974). Bear (1974) proposes an input-output model for an education institution with the view of maximising the net social output. The model is as follows:

Let y be the non negative vector where the components pertain to quantities of educational output like the number of undergraduates, post graduates and doctoral students and the quantity of research in each of the disciplines per period. Let x denote the non- negative vector of input quantities in terms of hours per period of faculty time in various disciplines, hours per period of non faculty labour, hours of utilization of lab equipment, hour of student's time, and material inputs. Let p be the vector of prices of output and w is the price of inputs. The dimensions of all the vectors are required to be greater than 2. Therefore, the value of net social product of the educational firm is expressed as follows:-

$$V \equiv p' y - w' x$$

The firm should maximize with respect to (y, x) , subject to the production relation linking outputs and inputs as:

$$f(y, x) = 0$$

So the objective problem can be stated as:

$$\text{maximize } (p^b, p^p, p^r)'_q (y^b, y^p, y^r) - (w^b, w^p, w^r, w^a)'_q (x^b, x^p, x^r, x^a)$$

Subject to

$$g^b(y_q^b) = f^b(x_q^b, x_q^a, x_q^p, y_q^r)$$

$$g^p(y_q^p) = f^p(x_q^p, x_q^a, x_q^b, y_q^r)$$

$$g^r (y_q^r) = f^r (x_q^r, x_q^a, x_q^b, x_q^p)$$

The central fiscal agency assists each institute by supplying information on certain p_s and w_s . Q is the number of academic disciplines and professional schools. The output is categorized into three branches of education delivery undergraduate, postgraduate and research (b, p, r) respectively. Administration is denoted by 'a'. While administrative input is essential for all three lines of production, it is shown that teaching experience at the UG and PG level is not only important for other levels of teaching but they also contribute to research. Similarly, research activity strengthens teaching programmes.

The above formulation of Input-output model is a complete model which helps in understanding that how the higher education institution endeavour to use input-output model in the wake of changing governance reforms. As Marginson (1997:223) remarked:

Input—output economics provided a framework for the economisation of educational administration, and the entry of economists and accountants into the management of education programs in place of career professional educators, no longer able to be trusted with scarce public expenditure.

The model also explains how the undergraduate, post graduate, and research programmes are inter-related and how the externalities are transferred within teaching and research. However, due to lack of data and other information the computation of the above model has not been undertaken in the present study.

3.2.2 Resource Allocation in the University

The subsequent segment will discuss the framework which will be useful in guiding resource allocation in the University. The framework is borrowed from the study of Winston (1999), but the equations are modified as per the requirement of the study.

Since the profit maximisation principle is not applied to the non-profits organisations, Hansmann (1980) differentiates the revenue for non profits into two parts. One is 'donative nonprofits' which can be referred to as charitable donations and other 'commercial nonprofits' which are generated through sale of goods or services. Universities and institutions of higher learning generate resources from both types of revenues. They are offered charitable contributions and generate some commercial

revenue through sale of services, and so are called ‘donative–commercial non profits’. Donative revenues are generated through various means; alumni contributions often forms the major part of it, as it creates a sense obligation of repaying the past subsidies or some may contribute sheer out of gratitude and even out of realisation that higher education generates positive externalities and is important for the society. Commercial revenues are generated in the universities through possible means; renting out university building if any (internal source of the university), a university publication, net tuition fee receipts from the students forms the part of commercial revenue (Winston, 1999).

For a university dependent heavily on public funding, expenditure incurred on maintenance and development are primarily constrained by sources of funds. In this context, an equation can be used to explain sources and uses of funds, Winston (1999).

$$p + dr + g = c + v + d \quad (1)$$

Where v = retained earnings and d = dividends, in a central university $v=d=0$, ‘ c ’ = cost (expenditure incurred), p = fee income received from the students and g =grants and f =governance structure.

$$p + dr + g = c \quad (2)$$

Since the present study is concerned with the utilisation of resources in a central university, therefore, $Q = f(c)$

$$Q = f (p + \text{Internal resources} + dr + g) \quad (3)$$

The above equations depict the sources and uses of funds in a university. This framework is used in addressing the research questions of the present study.

a) Changing Funding Pattern

The first research question accounts for the changes observed in the funding pattern in terms of grants, academic receipts and internal resources. The university receives funds from government in the form of grants, from the students in the forms academic receipts (fee income) donations from the alumni and it also generate resources internally in the form of interest on investment, and rent received etc. Each source of

income irrespective of its share in the total income has its implications on the output of the university. AMU being Central University receives major chunk of its funds in the form of grants from the government. Grants are used in order to incur maintenance and development expenditure in the university. Maintenance grants are extended to meet day to day expenses and government with little alteration extend the funds which the university asks for. The impact of the changing governance reforms is however observed on the development expenses. Another source of income is the fee income recovered from the students. In the typical government funded university the fee income does not form a significant proportion of the total income. Following the changing reforms and decline in the financial resources an upward revision of fee has been practised by the university. AMU is also generating internal resources in the form of interest income, income from sale of publications, and rent received. AMU, an old university, with its own historical relevance attracts a lot of funds in the form of donations and endowments from the alumni and general public. Recently university has initiated schemes to tap resources from its alumni network in order to supplement the existing resources. Therefore all the sources of income in the university irrespective of its share have its implications on the output of the university. Equation (3) can be re-written again so as to explain the changing pattern of sources of income.

$$Q = f (g + \text{Internal resources} + p + dr)$$

As discussed in the above section there is no deterministic relation between the transformation of input and output in the university. In the university function ‘*f*’ is the governance which ensures conversion of inputs to outputs. Teaching learning and research are all about the efforts by the students and teachers and it is the motivation which determines their efforts. On account of changing governance structure, the components of sources of income are also undergoing a change, resulting in change in the output.

b) Spending in the University

The second research question discusses the changes observed in the pattern of spending in the university. This phenomenon can also be explained with the help of equation (3).

$$Q = f (g + \text{Internal resources} + p + dr)$$

Fiscal distress is reflected in the allocation of the grants and is responsible for changing governance reforms. As a result of stagnant resources, and rising demand university is compelled to prioritise its spending. Expenditures such as salaries, tariff charges are not witnessing a change, as these expenses in the university will inevitably increase over the period of time. The real fund cut will not be observed in the recurring expenses such as salaries in a central university. The impact of changing scenario is observed in the Plan expenditure, the government is practising fund cut in the Plan expenses. It should be noted here that the amount extended in the nominal term is increasing; however in real terms Plan grants of the university (controlling for inflation, number of enrolments etc) is declining. Actual Planned allocation may be against the priorities of the university is phenomenally low as Planned grants are awarded based n the university's desire. Therefore university can deal with the situation of resource constraint by revising its fee structure, tapping resources from alumni network, so as to supplement the limited resources.

c) Expenditure Adjustment

The third research question discusses the challenges faced by the university in the wake of its expansion and development. This can also be explained with the help of above framework. Equation (2) is re-written:

$$c = p + dr + g$$

If $c' > p + dr + g$ then,

c' is the cost required to meet the target.

How will the university cope with the challenge of $(c'-c)$, resource gap by curtailing c' to c so as to meet the resources availability.

With the changing ' f ' (governance) in equation (3), costs are rising (as advocated by Baumol (1967) in education being a non-progressive sector costs will inevitably rise as discussed in chapter 2) and the financial resources of the university is falling short of meeting the rising costs. Due to this the university is failing to improve its infrastructure (maintenance of the existing hostels and other building and building new hostels). University is initiating ways and means to supplement resources and meeting the rising cost, however the fee income is not forming the significant

proportion and the alumni funds are not substantial for expansion and diversification. Thus, given the massive structure of the university, a big push is required by the government.

d) Research Culture

The fourth research question attempts to look at the research culture of the University in terms of publications and projects and it also discusses the perspectives of the faculty members and the challenges faced by them in their academic pursuits given the resource constraints. The above phenomenon can also be explained through equation (3)

$$Q = f (g + \text{Internal resources} + p + dr)$$

Q is the total output of the university, (an education institution is a multi- output production unit which produces educational output, informational output and research output). The above research question investigates the research output of the university. As discussed in previous research questions f seeks to capture the funding arrangement of the university thereby impacting the output of the university. The changing governance in the university is affecting the academic freedom and real autonomy of the stakeholders. In particular, the amendment of PBAS-API in 2013 is a perfect example of how the new public management is advocated to reform the university governance (Das and Chattopadhyay, 2014). The reform is precisely quantifying the time allocated by the teachers in different academic activities in the form of scores. The quantification of such nature is restricting the academic freedom of the teachers and also leading to proliferation of unfair practices (in the form of mushrooming of the journals). Teachers and students in order to get promotions and appointments respectively, publishing their work in any journal. Aftermath the amendment in 2013 an article in an international journal is strictly comparable with the newspaper article (ibid.). This quantification is leading to equalisation of assessment among fields which is not only simple but is demeaning for the academic profession (ibid.). This is one form of impact seen on the research output of the university. The other impact on the output of the university is due to inadequacy of resources. The university due to shortage of resources is unable to provide adequate facilities to teachers and students. Teachers in the constituent college of AMU do not have their respective rooms and in the departments they share the rooms with other

faculty members (as discussed in Chapter 5). These challenges do impact the performance of the teachers and in turn hamper the quality of work.

Therefore the above equations help in understanding the research questions but do not completely explain the impact of governance on the changing scenario. The inability of the framework in explaining the whole dynamics is due to the fact that there are actors involved, policies involved and there are conflicts within the interests of the actors in a democratic set up which governs the phenomenon. Thus dynamics of governance (*f*) is so complex in a university set up of shared governance that any particular framework is incomplete to explain the whole phenomenon.

The next section will proceed with the discussion on Aligarh Muslim University (AMU). It is essential to overview the nature and evolution of the university to understand its structure and functioning. In the light of rising enrolments and present financial crisis, universities are experiencing crunch in the resources. Though it is assumed that central universities are not experiencing crunch in resources but in real terms central universities are encountered with inadequacy of funds. Therefore a case study of Aligarh Muslim University is undertaken to identify the challenges faced by the Central University in wake of resource constraint.

3.3. Introduction to Aligarh Muslim University (AMU)

Aligarh Muslim University is a central university set up by the act of parliament in 1920. Aligarh Muslim University is even today considered as one of the premiere institute of higher education founded by Sir Sayeed Ahmad Khan, who is considered as a pioneer in Muslim education in India. In 1877, Sir Sayeed founded Muhammadan Anglo Oriental College in Aligrah. It is believed that he laid down the foundation of college later turned into university on the pattern of Oxford and Cambridge from which he was himself was inspired and that's why even today it is called Oxford of east. MAO was turned into independent University in 1920. Since 1920, till now 95 years since it has got its status of University, it has undergone many changes. "Today University today has nearly 19,000 students, more than 1,100 faculty

members in 111 academic disciplines, five institutes and 80 residential hostels on its 467-hectare campus”¹⁴.

Ever since then University is functioning. The University is now one of the centres of excellence in the country and aims to achieve benchmarks of quality education in academics programmes and nation building.

3.3.1 Vision and Mission of the University

Sir Sayeed Ahmad khan, in his speeches and writings have persistently emphasised on secularism, national integration and nation building. Aligarh Muslim University is unlike any other central university, it is a movement which have persisted since long. Sir Sayeed Ahmad khan envisioned the institution to be the centre for “holistic learning, knowledge acquisition where the students would be provided with unparalleled perspectives of creativity and critical thinking” (NAAC Report volume1:4). The focus on the critical thinking was so much so that the founder established two societies: ‘The Scientific Society in 1864’, this was set up in Aligarh to translate western works into Indian languages thereby making the community acquainted with the western knowledge and instilling scientific temper among the Muslim class. The other was a periodical ‘Tehzibul Akhlaq’ in 1870 which emphasised on mitigating the social condition of Muslims. As one of the founding principle, the university stressed on the composite culture, by not only giving priority to Muslim education alone but to all those who are marginalised in the society, irrespective of caste, creed, religion, region, language, race, culture etc. Sir Sayeed’s while laying the foundation of MAO College professed the purpose of the institution:

... to educate them (countrymen) ...; to dispel those illusory traditions of the past which have hindered our progress; to remove those prejudices which have hitherto exercised a beneficial influence on our race; to reconcile Oriental learning with Western literature and Science; to inspire in the dreamy minds of the people of the East the practical energy which belongs to those of the West;

Sir Sayeed’s model of education emphasised on moral values, cultured and civilised behaviours of the students and not their career and employability exclusively.

¹⁴ <http://indiatoday.intoday.in/story/aligarh-muslim-university-indias-best-universities-digital-teaching-facilities/1/448724.html>

The ultimate vision of Sir Sayeed is reflected in the address given by Sayeed Mahmood on behalf of the MAO College Fund Committee, at the time of the laying of the Foundation Stone of Mahomedan Anglo-Oriental College by the Viceroy, Lord Lytton on 8 January 1877:

“... that from the seed which we sow to-day there may spring up a mighty tree whose branches, like those of the banyan tree of the soil, shall in their turn strike from roots into the earth and themselves send forth new and vigorous saplings; that this college may expand into a University whose sons shall go forth through the length and breadth of the land to preach the gospel of free enquiry, of large-hearted toleration, and of pure morality”. (Pioneer, 11th January 1877)

3.3.2 Profile of the University

The university caters to more than 33000 students¹⁵, which includes school students, faculty students and off campus students. The student enrolled in higher education forms a major proportion catering to 18863 students followed by school students with 14374 and off campus students with 596 enrolments (Annual Report, 2013). According to the annual report of 2013-14 the university has 1113 university teachers, 206 school teachers and 5588 non-teaching staff. There are 99 teaching departments functioning under the 12 faculties of Agricultural Science, Arts, Commerce, Engineering and Technology, Law, Life Sciences, Management studies and technology, Medicine, science, Social Science, Theology and Unani Medicine. Besides these, there are 6 centres, 2 institutes, 2 polytechnics and 1 woman's College involved in teaching and research. The other special feature is its residential character with most of the students and staff residing in the campus. There are 19 halls of residence for students (including NRSC) with 86 hostels.

Apart from the conventional undergraduate, postgraduate programs, in social science, science, humanities, the university also specialises in technical, vocational and interdisciplinary studies. The university campus is not only limited to Aligarh, three new off campus centres have been commenced in Kishanganj (Bihar), Mallapuram (Kerala) and Murshidabad (West Bengal) since 2011. The establishment of these off campus centres has been a result of provisions made under Sachchar Committee

¹⁵ As per 2013-14 Annual report, 33000 comprises school students, university students and the students enrolled in the off campus set ups in Murshidabad, Mallapuram and Kishanganj.

Report. Due to the provisions made under the report, Government of India encouraged AMU to set up centres in Muslim dominated areas which are educationally and economically backward.

3.3.3 Student Enrolment

Since students forms the most important input of the university it is crucial to understand the dynamics of student enrolment and its structure. AMU being a huge and massive university caters to large number of students. Enrolment as per 2013-14 annual report shows that university has 33833 students, which includes school students, faculty students and off campus students. The student enrolled in higher education forms a major proportion catering to 18863 students followed by school students with 14374 and off campus students with 596 enrolments.

The present study is concerned with the functioning of the university, student enrolments in higher education will be considered for the analysis. Administering more than 18000 students clearly demonstrates massification of higher education. The table below shows the trend of the total student's enrolment in higher education from 2009-10 to 2013-14

Table 3.1: Student Enrolment in Higher Education In AMU Campus

Particulars	2009-10	2010-11	2011-12	2012-13	2013-14
No of Students	18278	18356	18627	18522	18863
Annual growth		0.426743	1.476357	-0.5637	1.841054

Source: Annual Report of AMU.

With the slight increase and decrease student enrolment in higher education depicts a stable trend.

The next section will examine faculty wise strength of the students. The analysis will intend to discuss the structure of students enrolled in various faculties. Table 3.2 shows the trend of total strength of the faculties from 2009-10 to 2013-14

Table 3.2: Faculty wise Strength of Students

Particulars	2009-10	2010-11	2011-12	2012-13*	2013-14
Agricultural Science	236	233	124		236
Arts	1707	1888	1698		2443
Commerce	867	871	895		1193
Engineering and Technology	3685	3680	3782		2233
Law	526	541	579		578
Life Sciences	699	662	762		1277
Management Studies and Research	265	261	258		258
Medicine	1218	1367	1404		1372
Science	2713	2723	2723		3063
Social Science	2592	2463	2689		3078
Theology	150	153	169		152
Unani Medicine	391	342	328		387
Women's College	2563	2488	2491		
Interdisciplinary Biotech Unit	57	58	27		36
Centre For Professional Courses	262	282	396		331
B.E. Evening	347	344	272		517
Other Courses					1709
Total	18278	18356	18597		18863

Source: Annual Reports of AMU

* Not available

3.3.4 Admission Policy

The admission policy adopted by AMU is unlike other Universities which follows the conventional mode of including the students on the category basis. AMU categorically divides the students on the basis of Internal and External. The following priorities are adopted for the basis of selection of students. First Priority is first and second class students of the Aligarh Muslim University if they are otherwise eligible. Second Priority is 1st class external candidates, Third Priority is all internal eligible candidates and Fourth Priority is External candidates on merit. This procedure is followed for all the courses except M.B.B.S., B.Sc. (Engineering) Diploma in Engineering, M.B.A., B. Lib. Science, M. Lib. Science, Education, B.U.M.S., Computer Sciences and M.Phil. /PhD. The university has reserved 5% seats for SC/ST candidates out of the 20% seats reserved for certain defined categories (such as sons and daughters of employees and old students etc.) to be admitted by the Vice-Chancellor at his own discretion amongst the eligible candidates for all courses except MBBS. This clearly depicts that considerable weightage is given to the internal students in the admission policy (UGC Recommendation, 1993). Thus, with the given

structure of admission policies, differential fee is charged from the students. The diagram below shows the classification of students as per the variation in the admission fee.

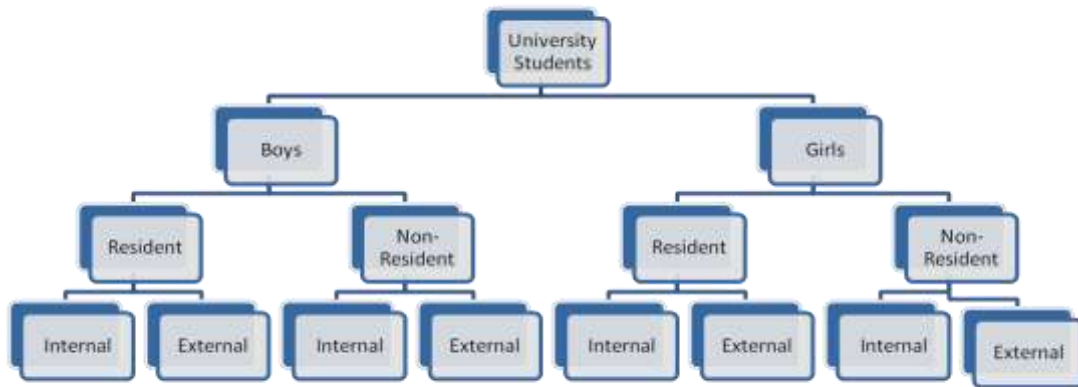


Fig 3.1 Classification of Students Studying in AMU

The criteria of admission vary in the following courses; M.B.B.S., B.Sc. (Engineering) Diploma in Engineering, M.B.A., B. Lib. Science, M. Lib. Science, Education, B.U.M.S., Computer Sciences and M.Phil. /PhD. However the fee structure is same for all students in the university. All the students pay the fee as per above classification.

3.3.5 Policy of Inclusion

In the outset, the AMU was known for its elite structure; however the pattern in which the university has expanded depicts the change in the overall policy. Today the University is catering to large number of students from different strata of the society. It is visible that the number of Muslim students outweighs the number of students from other communities; it still does maintain its secular structure. Majority of students in the university belong to underprivileged section of the society. The University has set up off campus in the backward areas of Bihar, Kerala and West Bengal (on the recommendation of Sachar Committee Report) with the view to reach to more and more people. The university is also setting up English medium intermediate college in 75 districts of Uttar Pradesh. These intermediate colleges will be in line with the Christian-missionary institutions- open to everyone with some

reservation for Muslim students¹⁶. These institutions will make the students competent for higher learning and enabling them clear entrance examination of professional courses.

Thus keeping in view the evolution and structure of Aligarh Muslim University, the study investigates how in the wake of resource constraint, University is effectively managing its resources and improving its performance.

3.4. Methodology

The present study aims to examine the trend of finances of a Central University and understand the process and issues concerning the same; therefore the study will be looked through the prism of descriptive research design. Descriptive research design set out to describe and to interpret *what is*. This design facilitates the individuals, groups, institutions, methods and materials in order to describe, compare, contrast, classify, analyse and interpret the entities and the events that constitute their various field of enquiry (Cohen et al., 2000)

3.5. Methods

The study has adopted quantitative as well as qualitative approach and is based on the secondary data. Qualitative method is looked upon in order to understand the underline dynamics of the phenomenon. As the study seeks to analyse the structure and pattern of finances of the university, the relevant financial data as mentioned below has been looked upon. A detailed analysis of Financial Statements, Annual Reports, Revised Budget Estimate of Non-Plan grants, and Requirements details of 11th and 12th Plan with their Utilisation Certificates until 2013-14, Expenditure details of 11th Plan Grants, Self Study Report of NAAC (2013) has been undertaken. In addition to substantiate the results of the study Annual reports of UGC, AISHE, Planning Commission Reports, and Reports of Commissions and Committees on Universities finances especially Punnayya Committee Report has been looked upon.

To understand the functioning and trend of the finances of a university, semi structured interviews with the finance officials especially the Finance Officer and Deputy Finance Officer (Accounts) and other officials were undertaken. For the case

¹⁶ <http://indiatoday.intoday.in/story/aligarh-muslim-university-indias-best-universities-digital-teaching-facilities/1/448724.html>

study of Department of Economics, semi-structured interviews with the faculty members were conducted to know their perspectives and challenges that they come across while pursuing academics.

The analysis is undertaken in two stages. In first stage the data of the financial statements of the University was aggregated as per the need of the study. As the financial statements comprises of figures of all the campuses (Aligarh, Murshidabad, Mallapuram, khishanganj), and the scope of the present study is to study finances of Aligarh Campus, the data has been disaggregated as per the requirement. While doing the analysis the data is classified under same heads as that mentioned in the financial statements of the University.

Chapter 4

TREND ANALYSIS OF UNIVERSITY FINANCES

Introduction

After discussing about the Aligarh Muslim University (AMU), the present chapter gives an insight into the financing of AMU. In order to study the resource management and utilisation at the institutional level, it is essential to examine the pattern of income and expenditure in the University. The proceeding analysis would seek to develop an understanding of overall functioning of the University.

The chapter is divided into following broad sections; in the first section an in-depth analysis of income of the University will be undertaken, the second section will discuss the structure and pattern of expenditure incurred followed by the challenges faced by the University in receiving and disbursement of funds.

4.1. An Overview of Plan and Non-Plan Grants

Grants received from the Government in the form of Plan and Non-Plan are to be treated as the income for the University, however an expenditure for the Government. In India, Budget of the universities is divided into two parts, one is Plan or development budget, and another is Non-Plan or maintenance budget. The difference between the two is more procedural than real. 'The classification of Expenditure into Plan and Non Plan, although not rooted in the Constitution, has evolved with Planning process' (Rangarajan, 2011). The Government used to divide the entire Expenditure under two broad heads Plan and Non-Plan¹⁷. Hence, the natural corollary of the budgetary practice is that Non-Plan encompasses the committed expenditure of the Universities based on their requirement and Plan expenditure is broadly based on the availability of resources with the Government. However, in the context of present study, the mode of disbursement of Plan and Non-Plan grants varies, therefore, their analysis will also be undertaken in different sections.

¹⁷ The Non-Plan expenditure is a committed expenditure and is based on historic parameters, whereas Plan expenditure is the one which is calculated after estimating the resources (both tax and non-tax).

4.2 Income from Non-Plan Sources

The subsequent section undertakes a detailed analysis of the sources of income of Aligarh Muslim University. It investigates the changes observed in the funding pattern in terms of grants (non-Plan), academic receipts, and internal resources.

This section outlines the sources of income in the Financial Statements of the University. The functional classification of Income is as follows:

- Grants and donations,
- Academic receipts,
- Income from investments,
- Other incomes

Table 4.1 represents the proportionate shares of alternative sources of income of the following years.

Table 4.1: Proportionate Shares of Alternative Sources of Income

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Grants	94.06	95.88	96.22	96.72	96.60	95.74	95.90
Academic Receipts	3.03	2.84	2.55	2.21	2.42	2.52	1.99
Income from Investments	1.75	0.40	0.38	0.17	0.21	0.35	0.79
Other Incomes	1.16	0.88	0.85	0.90	0.77	1.39	1.33

Source: Calculated from the Financial Statements of the AMU.

From 2007-08 to 2010-11, hostel fee is not included in the academic receipts and from 2011-12 to 2013-14 figures of academic receipts is inclusive of hostel fee.

Table 4.1 sketches the share of percentages of sources of income in Aligarh Muslim University. It is evident from the table that among all the sources, grants comprises of the major source of income for AMU. Other sources of income for the university such as academic receipts (fee incomes) received from the students constitute very little proportion of the total income followed by the income from investments and other incomes such as rent received, income from sale of publications, and interest from

investments. The subsequent sections will discuss in detail the sources of income specifically in terms of Non-Plan Grants, Academic Receipts, and Internal sources¹⁸.

4.2.1 Maintenance/Non-Plan Grants

University Grant Commission (UGC), under section 12(b) of the UGC Act is authorised “to allocate and disburse, out of the fund of the Commission, grants to universities established or incorporated by or under a central act for the maintenance and development of such universities or for any other general or specified purpose” (UGC Act, 1956, p.10). This act authorises the Commission to allocate and disburse funds in the form of maintenance and development grants. However, with respect to particular case study, section 12(b) of the UGC Act is not applicable because this act is meant for the universities which were established after the Act of UGC (A) 1972. In AMU, 2(f) of the UGC Act is applicable, where, “the Commission may advise any authority, if such advice is asked for, on the establishment of a new University or on proposals connected with the expansion of the activities of any University.” This particular Act is applicable because the university was upgraded from a college to University by the act of Parliament prior to the UGC Act 1956.

a) Nature and Structure of Maintenance/Non-Plan Grants

The nature and structure of the maintenance grants in the central universities has been subject to change. In the initial stages most of the expenditure in the form of maintenance grants was incurred on basic infrastructure, but, with the development of the universities, academic, research, administrative and other activities were also included in the maintenance expenditure. Many activities undertaken in the Plan period are carried forward to maintenance budget in the subsequent years. Expenditure incurred on the salaries, allowances, dearness allowances, pensions have been increasing with 14-15 percent annually in the maintenance grants with the appointment of the new staff in the universities. Other expenditure such as cost of books and journals, teaching aid, other costs and tariffs are also increasing. In many old universities, buildings and replacement of equipments which are more than 10 -15

¹⁸ Grants discussed in the table are the Non-Plan grants in terms of maintenance block grants and other grants received from the national and international agencies mentioned in the financial statements. Plan Grants will be discussed separately.

years old and have outlasted their normal tenure, require special maintenance and repair while in turn adding up to the burden on maintenance expenditure (Source).

In Central Universities, fees recovered from the student's form a very meagre proportion of the total expenditure incurred. In many central universities the fee structure has not been altered since decades. With growing level of expenditures and nearly stagnant cost recovery in the form of fees is in turn leading to manifold increase in the maintenance expenditure of the universities.

With the given structure of maintenance grants in the context of Indian universities, very little scope is provided to the universities to exercise their autonomy in the usage of the funds. Grants are used for the respective purpose for which they are granted: for instance, grants extended for payment of salaries are used for the same and not for other purpose. Until the financial crisis observed in the budget allocation of higher education system, not much problem was faced by the level of incremental grants. With the crunch in the financial resources, no single method has evolved for sanctioning of resources; universities are negotiating with the UGC, in turn government for the resources. All this is leaving very little room for the universities to economise its resource use, so that efficiency can be encouraged.

b) Procedure for disbursement of Maintenance/ Non-Plan Grants

The course of action followed for maintenance grants in the central universities is to prepare the budget and revised budget estimates. The revised budget estimate is to be duly approved by the finance committee and executive council by the month of September/October, thereby facilitating timely disbursement of the funds. In order to ensure the budget is in accordance with the guidelines of the subject, the finance committee is purposely required to have a UGC representative and a representative from the department of education who is the financial advisor (who has links with Ministry of Finance). Due to the presence of UGC representative in the committee, UGC does not scrutinize the minute details of the meeting. After the meeting, proposals received from the university is consolidated and presented to the government for the sanctioning of maintenance grants. The approval of the grants is subject to the negotiations between UGC, MHRD and Planning commission (now NITI Ayog), by the virtue of negotiated funding, practised in India. However, usually it is experienced that the proposals of the university is generally accepted with little

modifications, as the maintenance grant includes funds for day-to-day functioning of the university like salaries, allowances other regular academic expenditure on libraries laboratories etc.

The above discussion on Non-Plan grants sheds light on the mechanism and procedure of disbursement. In the subsequent section, Non-Plan grants of AMU are analysed. Now the trend of Non-Plan grants of Aligarh Muslim University will be examined in the subsequent section.

c) Trend Analysis of Non-Plan grants of AMU

The following section analyses the components of non-Plan grants and the change in their pattern.

Table: 4.2 Annual Percentage Growth Rates of Grants

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Central Government (Maintenance Block Grant)	36.75	34.31	5.25	4.68	5.56	42.4
Development Grant						
UGC	77.33	66.77	598.57	64.27	126.4	54.5
State Government	50.7	28.5	-30.93	44.6	31.05	23.7
National Bodies/Institutions	-9.63	-0.5	25.82	30.28	12.88	3.17
International Institutions	0	50	11087	155.26	48.57	7.98
Others	108.3	-0.38	-23.55	83.78	129.8	16.6
Total	30.59	34.01	11.79	0.39	8.36	42.4

Source: Calculated from the Financial Statements of the AMU.

i) Maintenance Grants

The grant is extended particularly to meet the current expenditure in order to ensure proper functioning of the institution. The admissible expenditure made by this grants includes salaries of the staff (teaching and non-teaching) establishment charges, maintenance costs, contingencies rent taxes losses due to fee concessions, scholarships and other financial assistance to the students (Husain, 2003). It is also known as 'Block Maintenance Grants'. Generally to meet the above expenditure provision is made under 'Block Grants'. Thus the grant is used to carry routine activities of the university. The proportion of funds received under this largely

depends on the size of the university. AMU being an old and massive university requires large amount of funds for its functioning. Therefore, maintenance grants forms almost 93-98 percent of the total grants. The study of its pattern depicts that, the amount has been rising over the years in absolute numbers. However what is noticeable is the change in its percentage growth¹⁹. Initially in the annual growth rate the maintenance grants grew at the rate of approximately 35 per cent, however the period from 2010-11 to 2012-13 witnessed a stark decline where the grants increased to only 4-5 percent annually²⁰. There were no clear reasons stated in favour of the decline in the annual percentage growth. Nonetheless in 2013-14 it again rose to 42 percent. The hike in 2013-14 might be due to the rising number of staff in the University; the total staffs have increased from 6316 in 2012-13 to 6701 in 2013-14. Another reason for the increase in the maintenance grant is the rising tariff charges. Electricity bill is adding an enormous burden on the operating expenditure of the University. Thus the escalating costs, rising inflation and salaries are some of the prominent reason for rise in the maintenance grant of the University.

ii) Development Grants

The next in the list are the development grants extended under specific schemes by various national and international agencies. Under the development grants, UGC provide grants for specific schemes of the university, which includes the sponsored projects undergoing in the University. Since Projects are for limited span of time, the figure under this head shows an overall fluctuating trend. In 2010-11 there has been an increase in the amount of grants provided by the UGC as compared to previous years. In 2011-12, the amount received decreased, followed by the steep revival in the following years.

The next in the development grant is the aid provided by state government. For central university bulk of resources is channelled through central government, however under some specific schemes state govt's also assign some funds and are dispensed to the University, although the amount provided forms a meagre proportion

¹⁹ While analyzing the percentage growth of grants, it is assumed that AMU being a central university, grants will form the only substantial source of income. However the following exercise is undertaken to understand that at what annual growth rate the grants are increasing as compared to previous year.

²⁰ Though the share of grants between 2010-11 to 2012-13 were between 94-96 percent, however the decline is registered in the annual percentage growth rate, which signifies that as compared to the previous year the maintenance grant is declining. The reason for decline was enquired from the finance officials; however no reason for decline in the annual percentage growth rate was stated clearly.

of the total funds. Despite of its little share in total income, the annual growth rate is uneven, the percent of funds provided by the state government decreased during 2009-10 and 2010-11, however in subsequent year the percentage of the funds increased albeit declined in the next two years (Appendix A1). State government do not provide the funds regularly and the funds allocated to the university can be under specific schemes or programmes, which may be applicable for particular years, so one cannot make out much from this uneven trend. Many national and International agencies also provide grants and aids to the Universities for various projects and schemes.. The amount received under this head are received from different agencies such as DST, ICHR, ICSSR, NRHM, IARI, CSIR, DBI NBHM, and MHRD at the national level and UNICEF, various institutions, Commissions, Embassies of the foreign countries at the international level. In 2010-11, grants received from international institutions witnessed an unprecedented growth; it was because in 2009-10 grant of Rs 63200 was received only from international agency WWF. However in 2010-11, AMU received international aid from UNICEF, US Embassy, and British commission. This led to the phenomenal increase in the annual growth rate of international grants. The grants from national and international agencies are showing a fluctuating tend (as shown in table 4.1), as these funds are received occasionally and are not a regular source of income, however it helps in supplementing the understanding of the university finances.

The grants and aids which are not covered under the above mentioned sources are included in the 'Other' source of income. The annual growth rate of this item shows bumps and downfalls in the trend, because the funds received are occasional in nature.

After analysing the specific components of grants, in totality the grants depicts more or less a stable trend except in 2011-12 it just registered the growth of 0.39 percent (Table 4.2). In brief, maintenance grants forms approximately more than 94 percent of the total grants, followed by development grant by UGC to almost 3-5 percent, as most of the projects sponsored by UGC. Other components form very little proportion of the total grants (Non-Plan) received by the University (Appendix A3).

Another analysis of exponential growth has been undertaken whereby the maintenance grants has been compared for the following years in nominal as well as real terms. In nominal terms, maintenance grants have declined from 31 percent

growth rate in 2008-09 to 20 percent in 2013-14 (base year 2007-08) and in real terms it has declined from 20 percent to 12 percent (Appendix A4 & A5). In 2011-12, the real exponential growth rate also declined to 8 percent. The decline in the maintenance grants in nominal and real terms (base year 2007-08) seeks to explain the phenomenon of decline in the resources by the government to the university. As stated earlier, in absolute numbers the grants are increasing, it is however the annual growth rate and the exponential growth rate that captured the decline in the grants received by the university as compared to the previous years.

4.2.2 Academic Receipts

Due to unwillingness and inability of the government to meet the financial requirements of the institutions of higher education, government is pressing on the institutions to increase the fees and promote self financing courses. Though share of fee income may not be very significant, it has become an important source of income for the Universities after grants. Azad (1975, 1984), World Bank Report (1986), Varghese and Tilak (1991), and Punnaya Committee Report (1992-93), have advocated the need to raise the tuition fee so as to reduce the burden on government. Debate concerning fee income has been discussed in Chapter 2.

The following section investigates the structure and pattern of academic receipts in the Aligarh Muslim University. The overall trend of percentage change of the academic receipts is given in table 4.3 as:

Table: 4.3 Growth Rate of the Academic Receipts

Academic Receipts	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Admission Test Fee	24.51	38.06	-7.91	20.51	-0.49	9.67
University Admission Fee	3.17	40.12	-28.08	1.44	4.13	103.77
Tuition Fee	6.93	3.08	16.51	-11.12	21.26	40.87
Examination Fee	37.76	32.2	4.07	-32.4	11.01	95.39
Hostel Fee	0	0	0	0	14.35	-84.72
Others	30.64	10.15	14.32	-29.87	58.23	1.25
Total	20.27	20.03	-3.83	10.31	13.75	11.93

Source: Calculated from the Financial Statements of the AMU.

The analysis of table 4.3 is bifurcated into two sub sections; one in admission test fee which is collected from all the students applying for the courses, and second sub section would focus on the fees collected from the enrolled students in the form of admission fee, tuition fee, examination fee, hostel fee etc

a) Admission Test fee

Admission test fee is an application fee charged for different courses. It forms an important component for the source of income for the university. It is a well understood phenomenon that application received for most of the courses exceeds the available seats in the university, thereby leading to generation of additional revenue for the university. In consonance with the national trend, it is evident that UGs and PGs and research programmes M.Phil./PhD depicts positive demand ratio. The demand for undergraduate programmes is more followed by research and post graduate programmes. The table 4.4 below shows the demand ratio of the following programmes:

Table 4.4: Demand Ratio of the Programmes

Programmes	No. Of Applications Received	No. Of Students Admitted	Demand Ratio
UG Programmes	94075	6518	14.43
PG Programmes	29453	3745	7.86
Research Programmes (M.Phil/PhD)	2297	274	8.38

Source: Self Study Report 2014, Submitted to NAAC (Vol. 1)

Further trend analysis of admission test fee is analysed from table 4.3. The analysis is based on the amount received from the students and annual rate at which it is increased or decreased. The pattern depicts an increasing trend in 2008-09 and 2009-10 with the annual growth rate of 24 percent and 38 percent respectively, however in the later years the amount increased in absolute numbers but in percentage terms, it shows an irregular trend. In all, amount collected from admission test fee forms the major fraction of the total academic receipts varying from 40 to 50 per cent approximately in seven years. In 2011-12, it formed almost 50 percent of the total fee recovered from the students. This illustrates the rising demand for the courses in the university.

b) Fee Income

Fee income encompasses the total fee collected from the enrolled students. The broad heads under which fee is charged from the students are admission fee, tuition fee, examination fee, hostel fee, and other miscellaneous charges. The fee collected is in the form of admission fee for the first year of the course and continuation fee from the subsequent years.

It is evident from the analysis of tables 4.3, that admission fee has observed a spontaneous rise in 2009-10 and 2013-14 because of increase in the fee by the University. Tuition fee and examination fee has also observed a fluctuating trend. In 2011-12 tuition fee and examination fee registered a negative annual growth²¹. There can be various reasons for the decline. Few of the reasons can be that many students might not have appeared in the examination and some might have discontinued the study, which led to the decline in the income from examination and tuition fee. Another possible reason for this decline might be the scrapping of some courses by the University. In 2013-14, the university observed the hike of 100 percent in the admission fee, 40 percent in tuition fee, and 95 percent in examination fee as compared to 2012-13. Amidst the total fees collected from the students, after university test fee, admission fee forms approximately 3-4 percent and the tuition fee forms 6-8 percent of the total fee. The noticeable point is that the fee charged from the students has increased with the simultaneous increase in cost of education. However the share of total fee has showed a marginal variance. Exponential growth rate of total fee income generation has witnessed a decline from 20 percent in 2008-09 to 12 percent in 2013-14 in nominal terms (Appendix A4). And in real terms the exponential growth rate has declined from 11 percent to 4 percent from 2008-09 and 2013-14 respectively (Appendix A5). This exercise also depicts a decline in growth rate of academic receipt. Despite of rising fee income in the absolute numbers, the growth rate is continuously declining.

In the subsequent section an exercise is undertaken whereby the structure of the admission fee and peculiarities associated with it is discussed. The students in AMU

²¹ In 2011-12, income from tuition fee registered a negative growth, as total fee income from tuition fee declined from 86, 83,919 in 2010-11 to 77, 18,188 in 2011-12, and income from examination fee declined from 48, 25,740 in 2010-11 to 32, 62,385 in 2011-12. In the same years, however the total number of students enrolled in AMU (excluding school students) has increased from 18356 in 2010-11 to 18627 in 2011-12.

are categorically divided into internal and external students (Chapter 3). The University charges differential fee from the students as per the categorisation in Chapter 3. For the analysis of three years; 2009-10, 2011-12 and 2012-13, the average admission fee is considered. The courses are bifurcated into three broad categories regular course which includes B.A, M.A. PhD; technical course which includes B.TECH, M.TECH and MBBS; and professional course includes LLB and LLM. The following table will study the change in admission fee in the three years and will attempt to account for the changes observed.

As the University runs almost 300 courses, different fee is charged for various courses. Table 4.5 is an attempt to gauge the difference in the fee structure. The major courses undergoing in the University is divided into three heads; regular, technical and professional courses. The evidence from the table clearly shows that the fee charged from technical and professional courses is way more than that charged from regular courses. This is akin to application fee charge from the students applying for these courses. The application fee charged from the students also varies from course to course.

Table: 4.5 Admission Fee* for Different Courses

Years	Regular			Technical			Professional	
	B.A	M.A	PhD**	B. Tech	M. Tech	MBBS	LLB	LLM
2009-10	2587	2550		4573	3850	14987	5462	3150
2012-13	3807	3770		5757	5070	16107	6682	3752
2013-14	6660	7500	7240	9230	9042	21430	8680	8440

Source: Data Provided by the University

* Average fee charged from all students is taken into consideration

** Not available in 2009-10 & 2012-13

4.2.3 Internal sources

After discussing the structure and pattern of grants and academic receipts following segment elaborates on the income generated within the university. The internal source of income comprises of interests earned on investments, rent received from orchards, quarters, sale of publications, etc. Though these do not form a substantial proportion of the total income, however the study of their pattern will help in throwing some light on the sources of income generated within the university. Interest is earned on

the investments made in the form of term deposits and special term deposits, donations and endowments etc. Table 4.6 shows the trend of internal income of the University which comprises of income from investments and other incomes. The analysis of the two tables is clubbed together.

Table: 4.6 Growth Rate of Internal Income

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Income from Investments	-84.44	-0.13	-18.75	12.63	29.63	578.78
Interest Earned	-57.24	39.45	-60.66	33.59	107.02	117.42
Rent received	60.55	-5.3	9.27	48.28	42.68	-4.6
Sale of Publication	44.21	57.99	-22.34	5.09	43.82	75.32
Others	-9.46	34.37	20.49	-21.84	110.59	41.34
Sub Total	-46.38	126.38	-71.99	77.77	333.75	808.26

Source: Calculated from the Financial Statements of the AMU.

The trend of interest on investment shows an irregular trend, in 2008-09 and 2010-11 it has registered negative growth rate, whereas it has shown a positive growth in other years and has enormously increased in the years 2012-13 and 2013-14. The pattern of other income such as rent and sale of publication shows a rising trend except in the year of 2011-12, in which it has registered negative growth. The cumulative picture of internal receipts shows asymmetrical trend, the income from internal receipts registered a negative growth rate in 2008-09, however, in following year it has registered growth rate of 23 percent and 14 percent in nominal and real terms respectively in 2013-14 (Appendix A4 & A5). The fluctuating trend signifies that the income from internal receipts is not fixed and is certain. Anyhow, this income doesn't form a significant proportion of the total income, therefore not impacting the finances of the university very significantly.

4.3. Plan Grants

Plan or development grants signify the expenditure undertaken in the development schemes during the Plan period. They are given for the expansion, innovation and creation of assets in the university. As the size of the university expands, the size of the development grants does not grow in proportion to the maintenance grants.

4.3.1 Procedure of Disbursement of Plan Grants

The procedure followed in the case of development grants differs from that of maintenance grants. In this case, UGC formulates the proposal for the Plan period for all the central universities and is presented to the government for further discussion. While making the proposals for central universities, UGC analyses the past performance of the central universities, simultaneously, considering their needs and development. The proposal is finalised after the detailed discussion between UGC and government. Followed by this, the final allocation of resources is done by the Planning Commission (now NITI Ayog). UGC has experienced a considerable cut in the proposals by the Planning Commission (UGC recommendations).

As discussed earlier with the rising costs and shrinking financial resources higher education is faced with challenges. Initially the proportion of Plan expenditure was much more than the Non-Plan expenditure. However the present trends depict that majority of funds are utilised in making Non-Plan expenditure and very little is left for Plan or development expenditure. Studies have also revealed that Plan expenditure in the University form approximately 10 percent of the total budget. The ensuing table shows the consolidated requirement of the University, grant allocated, and grant received for development activities in the 11th Plan. The UGC asked the requirement of the funds in two priorities.

The aforementioned table compares the requirements of the University in terms of infrastructure, equipments, books, and journal etc with the actual allocation, grant received and actual expenditure incurred by the University. This attempt to understand the extent of funds actually allocated in against of the requirements of the University. The actual allocation made forms the following proportion of the requirement of priority1. Building-16.41 percent campus development- 65.9 percent, staff 8.25 percent, books and journal- 11.90 percent, Equipments 8.90 percent, others- 48.5 percent and the total grants allocated forms only 9.33 percent of the total required Planned grants by the University. The total Planned allocation under 11th Plan is 153 crore, and the grant receive is 140 crore, which is very less considering the size of the University. The Finance official of the University pointed out that the University is suffering from severe financial constraints and in some case delay in sanction of funds is adding extra burden. Thus the funds received for planned

development of the university does not form very significant proportion when compared with the size of the University.

Table: 4.7 Consolidated Requirement, Allocation and Grant Received by the University, for development activities in the 11th Plan

Items	Proposed (in lacs)		Allocated (in lacs)	Grant Received (in lacs)	Percentage of Grants Allocated to Proposed
	Priority 1	Priority 2			
Building	34019.12	10923.7	5582.57	5453.78	16.41
Campus Development	4081.7	2127.7	2692.61	2692.61	65.97
Staff	21934.88	8185.6	1809.67	699.26	8.25
Books & Journal	4521.55	1395	537.98	537.98	11.90
Equipments	24790.43	11887.9	2206.83	2206.83	8.90
Research Activities	3898.26	1523.9			0.00
Extension Activities	3531.56	1278.2			0.00
ICT Requirements	2608.82	1065.1			0.00
Others	4958.5	2324.9	2409.54	2409.54	48.59
Expansion Plan	600000	55300			0.00
Total	164344.8	96012	15337.13	14000	9.33

Source: Financial Statement of the University

At the national level, under 11th Plan, National Development Council (NDC) envisaged setting up of new central universities in each state where there is not any central university (except Goa). As a result, 16 new central universities were established by the act of parliament in 2009. This can be one possible reason that there was decline in the rate of growth of expenditure by the University. The 12th Plan witnessed a change in the policy at the macro level, where the NDC focussed on ‘scaling up of capacity in existing institutions rather than increasing the number of institutions’²². However the paradox is that with change in policy at the macro level in 12th Plan, the funds received by the University did not increase much in the real sense. In the 12th Plan AMU received 162 crore which is not very substantial as compared to 11th Plan and in consideration with the rising inflation, costs, etc. Thus the Planned grants received are insufficient in meeting the demands of the University.

²² http://mhrd.gov.in/sites/upload_files/mhrd/files/general_policy.pdf

4.4. Pattern of Expenditure in the University

As discussed earlier, funds are acquired by the University from multiple sources in varying proportions. The resources received by the funding agencies in the form of block grant are not earmarked for specific purposes and therefore universities enjoy considerable autonomy in allocation of funds for academic and related activities. Thus in order to determine the amount of funds required by the institutions for its operational and development purposes, it is important to study the pattern and structure of University.

This section discusses the behaviour of expenditure incurred in the University. The analysis is expected to enunciate about the activities which are considered crucial in terms of financial allocation in the university. In order to examine the pattern the classification of expenditure is done into recurring and non-recurring expenditure. Broadly Recurring expenditure includes of direct teaching and non teaching expenditure, indirect teaching expenditure and student welfare services. Non-recurring expenditure includes expenditure incurred on Buildings, Furniture, Library, Laboratory, equipments etc. The analysis of expenditure will primarily focus on pattern and behaviour of recurring expenditure.

4.4.1 Analysis of Recurring Expenditure

Recurring expenditure refers to the expenditure incurred yearly on the continuous basis for carrying out ongoing programmes of teaching and research in the University. It is included under Non-Plan as well as Plan expenditure. The magnitude of the recurring expenditure varies directly in proportion to the size of the salary bill for teaching and non-teaching staff and financial requirements of other consumable items. The amount of expenditure incurred under this head is directly dependent on the trend of committed liability under Plan and non-Plan expenditure, rather than the students enrolled in various programmes and level of research activities undertaken in the University (Azad, 2008). Major heads of recurring expenditure are : salaries of the teaching and non teaching staff, maintenance of common services like repair of buildings, roads maintenance of gardens health centres water and electricity supply, provision of students services namely sports and games and other cultural amenities maintenance of libraries and expenses on conduct of examinations etc.

The share of total recurring expenditure and its respective heads is shown in the following table:

Table 4.8: Share of Components of Recurring Expenditure

Recurring Expenditure	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Staff Payments & Benefits	80	84	89	89	89	88	86
Academic Expenses	4	3	3	3	2	4	3
Administrative & General expenses	1	0	0	0	0	0	1
Repair and Maintenance	2	1	1	1	1	1	1
Other Expenses	13	12	7	7	8	6	10

Source: Calculated from the Financial Statements of the AMU.

Table 4.8 shows the relative share of components of recurring expenditure. It is evident from the figure of table 4.8 that among the recurring expenditure as well as the total expenditure the major expenditure is incurred in paying off the salaries and other allowances to the staff members of the University. It is clearly visible that the magnitude of the expenditure incurred on the salary alone is enormous. The subsequent section reviews the recurring expenditure under following heads as mentioned in the financial statements; staff payments and benefits, academic expenses repair and maintenance and administrative and general expenses.

a) Staff Payments and Benefits

The following head consist of expenditure incurred on salaries of teaching and non-teaching staff. The expenditure incurred on the salaries as a proportion of the total expenditure gives insight into the behaviour of University finances (Azad, 2008). The share of salaries in the total recurring expenditure is already discussed. In this section the break-up of the total salary is done so as to study the share of respective components. As per the financial statements of Aligarh Muslim University the salaries of teaching and non-teaching staff is mentioned under the head of staff payments and benefits. The table below will analyse the respective share of components of salary head of the following years.

Table: 4.9 Percentage Distribution of Components in Total Staff Payments and Benefits to the Staff Members

Staff Payments & Benefits	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Salaries Allowances & Personal Claim	67	52	41	41	40	41	36
Allowances & Bonuses	12	30	21	24	28	32	34
Contribution to Provident Funds & Other Funds	0	0	0	1	1	1	1
Retirement & Terminal Benefits	21	17	21	19	24	21	23
Other Expenses	0	0	17	15	7	5	6
Total	100	100	100	100	100	100	100

Source: Financial Statement of the University

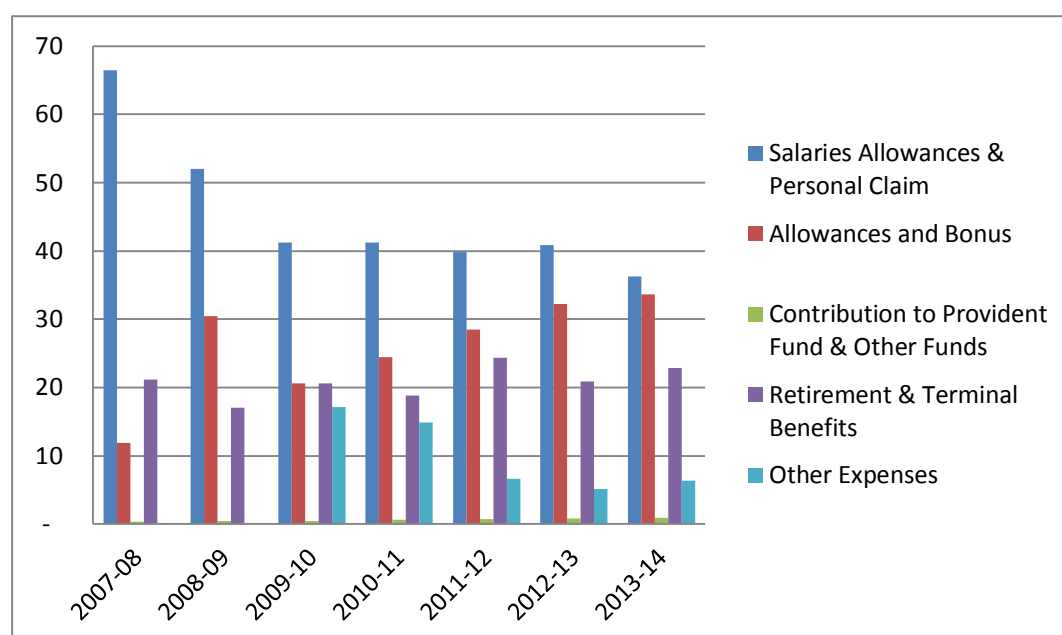


Figure 4.1. Share of Staff Payments and Benefits

It can be clearly inferred from the table 4.9 and the figure that the share of salary allowances in 2007-08 is 67 percent which has declined to 40 percent approximately from 2009-10 to 2012-13 and further declines to 36 percent in 2013-14. The reason for the share of the salary in 2007-08 is that, the posts which were created in the tenth Plan (Plan expenditure) became the part of Non-Plan expenditure in 2007-08 (Eleventh five year Plan) which added on to the burden on Non Plan salary expenditure in the University. In the next year, 2008-09, following the

implementation of 6th Pay Commission the arrears were paid in 2008-09 (40 percent) and 2009-10(60 percent). The decline in the share of salary payment in the following years might be because the vacant posts were not filled. The selection committee was also not set up in the University since long, due to which the appointments and promotions of the faculty members were pending.

The share of allowances and bonus has also increased from 12 percent in 2007-08 to approximately 34 percent in 2013-14. The rise in share of bonus and allowance might be due to the increase in dearness allowance paid to the employees. With the rise in inflation share of allowance paid to the employees is also increasing overtime. The share of contribution to provident fund is hardly 1 percent.

The share of retirement and terminal benefits has remained more or less stable in the period and other expenses registered a fluctuating trend. Thus amongst the components; salary allowance and personal claims and bonus forms the major proportion in the total expenditure, followed by retirement and terminal benefits and other expenses.

b) Academic Expenses

Academic expenses are the expenses incurred directly on the students. It broadly comprises of expenditure on scholarships and fellowships, teaching aid and material, conducting research and survey, other research activities etc. As shown in table 4.8 out of the total recurring expenditure incurred academic expenses hardly forms 2-4 percents including scholarship and fellowships paid to the students. Thus, the evidence clearly depicts that meagre amount of academic expenditure is incurred in the University.

c) Repair, Maintenance and Administrative and General Expenses

This section discusses the share of recurring expenditure on repair and maintenance in the University. It includes expenditure on repair and maintenance, annual maintenance, maintenance of infrastructure etc. As shown in table 4.8 it hardly forms 1-2 percent of the total expenditure. Administrative and general expenses consist of telephone and other charges. It hardly forms any part of in the total expenditure.

d) Other Expenses

The residuary head forms relatively substantial proportion of the total recurring expenditure. It comprises of components such as contingencies, cost of energy purchased, lab expenses, and expenses on equipments, furniture and fixtures. After paying off the salaries, the major expenditure is incurred on the electricity bills. Considering the size, the cost of energy consumed by the University is enormous, thereby leading to an upsurge in the share of total expenditure.

Thus it can be concluded that the share of salary among the total expenditure is high. However, annual percentage growth of salary depicts a decline from 15 percent in 2008-09 to almost 2 percent in 2013 -14. This argument can be justified by the fact that the vacant seats available to be recruited were not filled in the due period. The annual growth of total components of salary also witnessed a decline from almost 47 percent in 2008-09 to 15 percent in 2013-14.

The analysis undertaken above is based on the actual expenditure incurred in the university. Since the preceding analysis does not divide the expenditure in salary: teaching and non teaching and non-salary. Thus, another exercise will be carried out in the subsequent section on the basis of revised budget estimates (Non-Plan). Considering the primary function of University is teaching and research, an attempt will be made to evaluate the share of expenditure incurred on salary (teaching and non-teaching) and non-salary.

Table: 4.10 Non Plan Expenditure (Revised Estimates)

Recurring Expenditure		Expenditure incurred in lacs						
		2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
1	Salary							
	A Teaching	16122.53	16774.38	17300.00 (48)	18857.31 (51)	18000.00 (48)	20000.00 (47)	19906.62 (41)
	B Non Teaching*			16408.32 (46)	15810.95 (43)	17200.21 (46)	19845.00 (47)	26580.57 (54)
2	Non Salary	3958.80	4629.25	2122.63 (6)	2122.63 (6)	2322.63 (6)	2650.00 (6)	2650.00 (5)
	Total	20081	21403.63	35830.95	36790.89	37522.84	42495.00	49137.19

Source: Calculated from Financial Statement of the University

Parenthesis represents percentage to total

* Non-teaching salary is not mentioned in 2007-08 and in 2008-09 in the documents.

As per the classification of the above table, the analysis of salary and non-salary components presents an overview of the pattern of university financing. The share of teaching staff is declining over the years. From almost more than 70 percent in 2007-08 it has reduced to 40 percent in 2013-14, and that of non teaching staff has increased from 46 percent to 54 percent. The evidence clearly indicates the share of non-teaching salary has gone up noticeably. Rising share of non teaching salaries indicates the existence of large number of non-teaching positions whose contribution to the realization of the academic objectives of the institutions might not be significant (Azad, 2008). The explanation is also supplemented by the fact that AMU is an old and massive university with more than 5500 non-teaching staff to support its functioning which is huge in number.

The share of non-salary items forms almost 5-6 percent of the total recurring expenditure (as per revised budget estimates). As it has already been discussed in the earlier explanation of salary expenditure, the bulk of expenditure is made in paying the salary bills to the staff members.

In brief, composition of expenditure and pattern of distribution of resources in the universities helps a great deal in providing information about the structure of university finances. Thus, after examining the share of respective components in recurring expenditure, the following segment analyses the expenditure in the real terms. An attempt will also be made in this section to calculate unit cost of the students.

4.4.2 Real Recurring Expenditure

In order to obtain the real picture of the recurring expenditure, the values are deflated by using the GDP deflator, as GDP deflator includes prices of all the goods and services produced domestically within the year. Thus, it is the most comprehensive measure to curb the impact of inflation on the expenditure. The given table 4.11 shows the comparison between actual and real values of recurring expenditure and their annual growth rate respectively.

The evidence clearly indicates that the recurring expenditure has witnessed an unprecedented growth in nominal terms. However the real expenditure depicts the gloomy state of University finances. In real terms the expenditure is increasing but not

with the pace of rising enrolments and other activities in the university. The increase registered in 2008-09 and 2009-10 was relatively better as compared to other years. In 2010-11 a negative growth rate is witnessed followed by 3 percent and 2 percent in the following years respectively. The three years of 11th five year Plan shows a phenomenal decline in the growth of recurring expenditure both in nominal as well as real terms. In 2013-14 (12th Plan) the situation relatively becomes better with an increase in recurring expenditure incurred.

Table: 4.11 Comparison between Actual and Real Recurring Expenditure (in lacs)

Years	Actual Expenditure	Annual Growth Rate	Real Expenditure	Annual Growth Rate
2007-08	25687.97		25687.97	
2008-09	36011.14	40	33204.53	29
2009-10	47023.95	31	40878.04	23
2010-11	49031.00	4	39121.01	-4
2011-12	54577.79	11	40132.37	3
2012-13	59569.62	9	40900.86	2
2013-14	70996.58	19	45771.49	12

Source: Calculated from the Financial Statements of the AMU.

After comparing the annual growth rate of recurring expenditure, another exercise has been undertaken where by the exponential growth rate of recurring expenditure has been compared. In 2008-09 the recurring expenditure has declined from 40 percent to 18 percent in 2013-14 and in real terms the expenditure has declined from 29 percent to almost 10 percent. The decline in the growth rate shows that in nominal as well as real terms the growth rate of the expenditure incurred is declining.

4.5. Unit Cost Analysis

In order to ensure effective management and utilisation of resources at the institutional level, an attempt is made to assess unit cost. Ansari (1997), in his study of 15 Universities, estimates student per cost and compares it within 15 universities. He defines the concept of unit cost in an institution as the amount of recurrent expenditure spent per student in a given year. By this definition of unit cost, Ansari, (1997) advocates that 'unit cost are calculated either for educational system as a whole or preferably for certain levels of education, or particular institution or for particular programme of study'. The unit cost implies the cost of educating one

student for a year at the level of chosen disaggregation. This method facilitates comparisons made from one year to another; from one institution to another and so on. Studies advocate that estimation of unit cost helps in ascertaining the efficiency of resource use at the institutional level. However the scope of this estimation is limited because it is only appropriate in making comparisons among the universities for Planning and perspective. As the present study analyses the finances of a single university, it is not tenable to conclude that university is efficient or not. The rationale of estimating unit cost in the context of present study is to over view the trend of expenditure incurred on the basis of per student.

The approach adopted for estimation of unit cost is as follows. The total institutional cost encompasses the recurring expenditure and non-recurring expenditure financed by the government grant and the collection of private charges incurred by the students. The private charges include cost of books and stationary, transport and other maintenance expenses. Another is the opportunity costs which are borne by the students for attending the universities. However for the analysis private charges and opportunity costs is not included. As the higher education institutions are largely funded by the government, the unit cost analysis attempts to have an idea about efficiency in utilisation of resources within the institution (Ansari, 1997).

Thus following the investigation, the study attempts to estimate the unit cost (per student) for five years. The analysis will seek to have an overview of pattern of expenditure incurred on the students in nominal as well as real terms.

Table: 4.12 Unit Cost Analysis (expenditure* in lacs)

Years	Number of Total Students	Actual expenditure*	Real Expenditure*	Unit Cost (Actual)	Unit Cost (Real)
2009-10	18278	47,024	40,878	2,57,271	2,23,646
2010-11	18356	49,031	39,121	267112 (4)	213124 (-5)
2011-12	18627	54,578	40,132	293004 (10)	215453 (1)
2012-13	18522	59,570	40,901	321615 (10)	220823 (2)
2013-14	18863	70,997	45,771	376380 (17)	242652 (10)

Source: Calculated from the Financial Statements of the AMU.

Parenthesis include the annual growth rate at which per student cost is changing

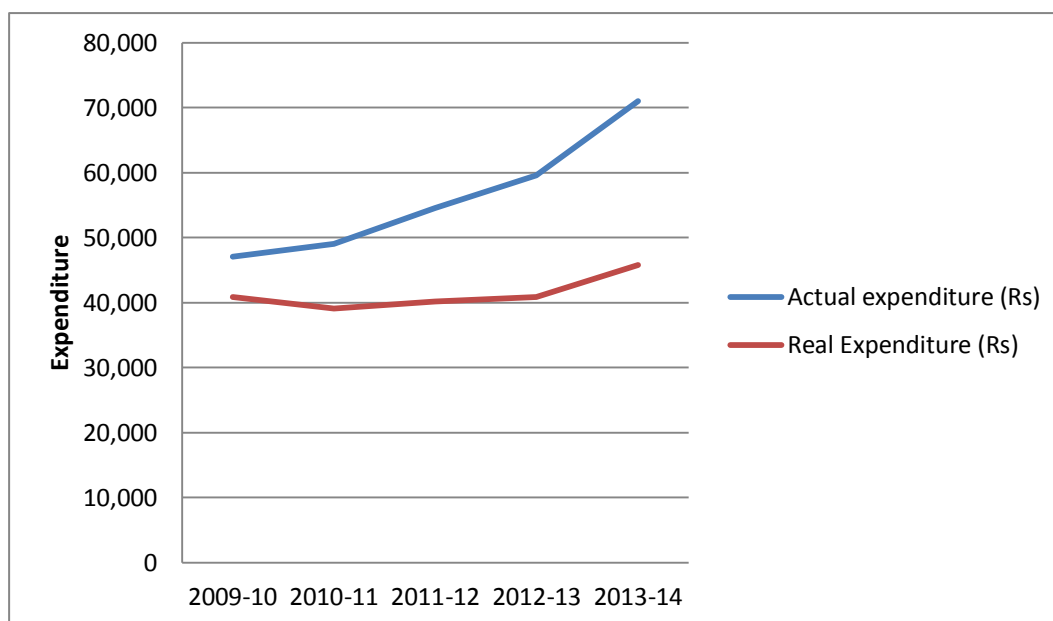


Figure 4.2: Gap between Actual and Real Expenditure

Table 4.12 briefly analyses the overall unit cost of the university over the period of time. For the estimating of unit cost (per student), recurring expenditure is divided by total number of students in higher education. The exercise is conducted in order to witness the change observed overtime in the expenditure incurred on the students. Following the shortage of funds in the higher education, the decline in the expenditure incurred is very much evident. The unit cost (per student) is rising in nominal as well as in real terms, except in 2010-11 a negative growth rate is registered on expenditure incurred on the students. The difference between the actual and real expenditure is evident from the figure, the actual expenditure is rising phenomenally, however the real expenditure shows more or less a stagnant trend until 2012-13 and rise slightly in 2013-14.

The above table comprises of total recurring expenditure, in the following table the figure will be disaggregated in salary and non salary components. This is done as expenditure on salaries forms the major proportion of the total expenditure and it will inevitable rise. This however does not imply that expenditure on the students related activities such as hostel, ICT and etc have increased. In this view table 4.12, analysis of unit cost is divided into salary and non-salary components.

Disaggregated figures of salary and non-salary components also depict an upward trend except in 2010-11 in which it has registered a negative growth. It is assumed

under normal circumstance, in real terms, per student expenditure should not be allowed to be less than that in the preceding year (unless there is change in the technology of the University system and thereby in internal efficiency). The figures of above table shows real expenditure per student has rise at a very slow rate except in 2013-14 where it has registered the increase of 7 percent in salary items and 36 percent in non-salary components. The real expenditure on students have increased in 2013-14, whereas, in non-salary component a hike of 36 percent is registered.

Table 4.12a: Total Salary Component (Salary in lacs)

Years	Actual Salary	Real Salary	No. of Total Students	Unit cost (Actual)	Unit Cost (Real)
2009-10	41,913	36,435	18278	2,29,307	1,99,338
2010-11	43,662	34,837	18356	2,37,862	189786 (-5)
2011-12	48,351	35,554	18627	2,59,575	190872(1)
2012-13	52,704	36,187	18522	2,84,548	195373 (2)
2013-14	60,890	39,256	18863	3,22,803	208111 (7)

Source: Calculated from the Financial Statements of the AMU.

() within parenthesis growth rate is depicted

Table 4.12b: Non-Salary Component (Salary in lacs)

Years	Non-Salary (Actual)	Non-Salary (Real)	No. Of Students	Unit Cost (Actual)	Unit Cost (Real)
2009-10	5,111	4,443	18,278	27,963	24,309
2010-11	5,369	4,284	18,356	29250 (5)	23338 (-4)
2011-12	6,227	4,579	18,627	33429 (14)	24581 (5)
2012-13	6,866	4,714	18,522	37067 (11)	25451 (4)
2013-14	10,106	6,515	18,863	53577 (45)	34541 (36)

Source: Calculated from the Financial Statements of the AMU.

() within parenthesis growth rate is depicted

4.6. Challenges Faced by the University

With the examination of structure and pattern of sources of income and expenditure, the following segment discusses the challenges faced in management and utilisation of the finances at the University level. As apparent from the analysis in the 11th Plan huge cut in the financial assistance is witnessed. The government is emphasising more and more on generation of additional resources within the system, either by hiking fee

or by the means of other internal resources. The major challenge faced by the university is in terms of inadequate funds, the inadequacy is so severe that the university is not even receiving resources at par with other central universities. The university administration is pressing on the need of more funds from the UGC. In this regard, a report has been submitted by the university to the UGC emphasising on certain criteria which can govern the allocation of funds in the Central Universities. The University has suggested that size of the university and performance of the university in terms of ranking, publications etc should form the basis of determining the allocation of funds.

According to one of the finance official in the 12th Plan allocation AMU received 162 crore, whereas Jamia Millia Islamia received 204 crore and Banaras Hindu University received 262 crore. The allocation depicts criteria for allocation of funds which justifies the negotiated funding arrangement in the country. The officials also believe that fee differential is high among the central universities; therefore they advocate that uniform criteria should be adopted for determining the fee structure in the central universities. The university is also facing delay in sanctioning of Planned grants especially in off campus set ups and the major problems faced by the university is the shortage of funds, which can also be identified by the Table 4.7, where there is huge difference between the proposed funds and the actual funds received. Therefore, a big push by the government is necessary to undertake all the development activities which are due for long. In the concluding note the finance officer affirms that the performance of the university has significantly improved and is improving in with the faster rate.

4.7. Concluding remarks

In brief, AMU being the Central University, major grants flow from the government in the form of maintenance grants and developments grants. Maintenance grants are extended in order to meet recurring expenditure where as development grants are extended in favour of creation and innovation of assets. The sources of income generated within the university in the form of academic receipts and other internal income such as income from investments, sale of publications, rent received etc forms insignificant proportion of the total income. In the recent years university has practiced upward fee revision with the view to rationalise the fee structure, however

still the fee income forms meagre proportion of the total income. Donations and endowments also form an important source of income in AMU. Many alumni's are extending donations and endowments for specific purposes such as providing scholarships to students from deprived sections etc. In recent years university has initiated schemes to tap more and more resources from the alumni so as to supplement the limited resources. With regard to the expenditure it is apparent from the literature and the analysis that major share of expenditure is made in favour of paying off the salary bills of the staff members and tariff charges especially electricity bills, followed by the other expenditures.

Chapter 5 Research output

Introduction

In the modern day knowledge economies, the developmental role of higher education institutions is to serve as the centres of creating and disseminating knowledge, and, as spaces of critical thinking. It is seen that a majority of the higher education institutions today in India are still in the earliest stage of knowledge creation, with university research focussed on generation of new ideas. As academic research constitutes one of the important components of the technological base of the country it lays the foundation of shaping the public policy for supporting academic research in the country. Thus, universities act as a catalyst in this process of search of knowledge and its creation thereby leading to research output.

The present chapter discusses the nature of the academic research output. In this context, a case study of the Department of Economics is carried out so as to examine the perspectives of faculty in the face of challenges faced in their academic pursuits with respect to resource constraints. The chapter is divided into following segments. Section 2 will discuss the link between teaching and research and how the process of understanding research is incomplete without teaching. Section 3 will elaborate on the understanding of research output and problems associated with its measurement and pricing. Section 4 will give an overview of the research output of AMU in terms of articles, books, publications, thesis, etc. Section 5 will discuss the challenges pertaining to resource constraint and its implication on research output in the Department of Economics.

5.1. Teaching-Research Nexus

The principle function of the university is to make value addition to the existing stock of knowledge by both teaching and research. It is observed that there exist sharpening division between teaching and research thereby leading to weakening of the relation between teaching and research. It is often understood and assumed that value addition made by the research is enormous, which might not always be true (Bear, 1974). Teaching also plays a dominant role in the evolution of research ideas. The advancement in the ideas can happen while discussing in the class with students, thereby leading to publications (see Robertson, 2007). The study by Horta *et al.*,

(2012) analyses and concludes that ‘the number of graduate credit class students does not impact faculty outputs, but research outputs decrease when faculty do not teach graduate credit classes’. Thus, the time spent in the class is not important, but the process of teaching learning and dynamics in the class which contributes to the teaching and research activities (ibid.). Agarwal (2009), also affirms that research is stimulated, informed and occasionally even germinates as a result of instructional activities. Being actively involved in research makes one a better teacher and vice versa. Thus, both the teaching and research activities are complementary to each other and are crucial in ‘new’ knowledge generation.

5.2. Understanding Academic research output

At the outset of the discussion on research output, it is important to distinguish between two pertinent features. The first is the creation of ‘new’ knowledge, and the second aspect is the dissemination of that knowledge to the society. The two aspects of the research output widely vary as it is not always that knowledge created has to be disseminated to the society. Evaluation of discovery of ‘new’ knowledge is difficult, whereas knowledge at the dissemination level can possibly be measured through various methods such as publications, research reports, patents, public lecture and other results of the research conducted. Thus, research is a discovery and dissemination of new knowledge (Bear, 1974).

5.3. Problems in Measurement of Research Output

As it is well established that academic or research output is difficult to quantify. The simple method of measurement could be taken as the number of published papers or the total amount spent on the sponsored research as suggested by Brinkman (1981). Unfortunately, publication of knowledge is neither necessary nor a sufficient condition for its dissemination. Thus, publication as a surrogate for dissemination makes the quantification more ambiguous. Another ambiguity is concerned with the differences in the disciplines, as the paper published in Physics is not equivalent to the paper published in history. According to this measure, only numbers of papers are counted and the quality of the content is not given due importance. Further, if there is a need to distinguish the quality of research, this could be done by further subdivision of the fields in the disciplines and then evaluating the journal in which it is published. This disaggregation would apparently help in capturing the quality of the new

knowledge and the extent of its dissemination (ibid.). It is indeed very complicated to accept the notion of published papers as a proxy of dissemination of knowledge. After controlling for the disseminated knowledge by disciplines, fields, and journals, it is hard to accept the following measure. It might be possible that a paper with less number of pages might of higher quality and is able to make impact on the society, which is an ultimate means of gauging the quantity of research (ibid.). Given the complexities and absence of operational alternatives, selection committees, base their decisions on the number of pages published as the sole important factor.

Another component of research output is sponsored research conducted by institutes of higher education. It is not necessary though that some research output is generated by sponsored research. However, in sponsored research the correlation between funding and research output can be perceived, at least by the sponsors of the research (Cohn, Santos, and Maria, 1989).

With the innovation in the field of education new method for measuring output have been adopted so as to simplify the assessment of research output. There are two ways of assessing research output one is peer review and other is bibliometric method. As bibliometric method may not usefully be applied to all the departments or across the board, peer review as unit of measurement is often considered as a principal method of assessing the research output. When the method of peer review is supplemented with publication and citation and other information the method is ‘informed peer review’ (Geuna and Martin, 2003)

5.4. Pricing of Research output

Assuming that the above measure of quantifying research output is acceptable, another intricacy involved with it is to set a price on each page. Since it is not tenable to gauge the impact of the research on the society (particularly in social science, humanities and liberal arts), pricing of the dissemination of new knowledge becomes tricky. Some journal and publishers pay the author according to the number of pages, while some reputed journals like *Econometrica* does not pay at all (Bear, 1974). In case of sponsored research conducted by the research organisations and some institutes knowledge is disseminated keeping in view the public good characteristics of the knowledge. In the case of sponsored research, the principle of pricing each page of the research is not applicable as the granting agencies does not pay as per the

number of pages, as the pages published is the *ex post* phenomenon and thereby involves uncertainty (ibid.). Usually it is assumed that grants are extended to researchers who have expertise in the respective fields. Thus, creation and dissemination of new knowledge are different phenomenon and involves subjectivity which is very hard to quantify. In the following segment academic research in India is discussed.

5.5 Academic Research in India

Universities and institutions are nowadays taking the global ranking seriously. IHE are globally ranked by different agencies according to different parameters. There are various indicators on which universities are ranked. One of the studies of European university association asserts that most of the international raking is focussing primarily on research related activities in the universities. In Indian context, the higher education institutions are severely under-resourced which is impairing their research output and their performance at large. It is of vital importance for the institutions in India to invest in research and increase the research output in quantity and improve its quality as well so as to make their mark at the global level. Thus, the present study attempts to understand the nature and impact of research output in the Indian context.

Publication count in refereed scientific and technical journal is often referred to assess the impact of research. In this regard, by identifying classified set of journals Institute for Scientific Information (ISI) has developed Science Citation Index (SCI) and Social Science Citation Index (SSCI) (Agarwal, 2009). Another study by Prathap (2014), evaluates the performance of the research output by using bibliometric²³ data from scopus²⁴. In the study Prathap (2014) assesses the performance of research output based on the following indicators such as scientific impact, thematic specialization, output size and international collaboration networks of the institution. The methodology adopted in selecting the institution is that at least 100 scientific documents of any type (articles, reviews, short reviews, conference papers, letters, etc.) published during the last years of the respective five-year window as selected by

²³ Bibliometrics is a statistical analysis of written publications, such as books or articles. Bibliometric methods are frequently used in the field of library and information science, including scientometrics. For instance, bibliometrics are used to provide quantitative analysis of academic literature

²⁴ An Elsevier product (www.scopus.com)

Scopus. The selected institution accounts for almost 80 percent of all research (according to Scopus database). The bibliometric database used in the study not only captures quantity (output) but also quality (scientific impact) of the research performance in the IHE. Therefore, these databases serve as useful for measuring the research performance in the global context.

In most of the earlier studies the quality angle of the research was not taken into consideration. Prathap (2014) uses quantity and quality attributes where output is the indicator of quantity and Normalized index, Quality publications and Excellence rate as quality attributes in research. Therefore, the exercise of using the quality dimension is advancement over the uni-dimensional criteria of considering only quantity in terms of number of pages.

Table 5.1 shows the ranking and output of selected central universities appearing in SIR 2013 according to various indicators.

Table5.1: Research Output and Ranking of the Universities as per their Research Output

Higher education institutions	Values Output	Ranking Output
DU	6488	4
BHU	5336	8
AMU	3124	17
UOH	2223	21
JNU	1766	26

Source: Prathap (2014)

Table 5.1 gives a picture of the research output of the universities and its ranking with respect to other Central Universities (Prathap, 2014). However, the Universities are ranked as per their total output which is largely dependent on the number of departments in the University.

5.6 Social Science Research

In India, most of the empirical studies measuring the impact of research output have been undertaken in science stream. Studies by Prathap (2006) and Agarwal (2009), and various other scholars, have studied the impact of scientific output, their growth

and pattern over the period of time. Very little has been discussed with respect to social science research in the Indian context. The state of social science research is even depressing than the science counterpart. Due to lack of accountability coupled with low level of funding has resulted in poor quality of research in the social science. The doctoral research conducted in social sciences often applies descriptive approach to specific limited topics without relating it to wider socio-political and economic concepts. Therefore, there is a need to apply analytical and comparative approach in doctoral research (Agarwal, 2009). One of the studies on social science research in South Asia in 2002 showed the share of articles published in the *Economic and Political Weekly* in India was only 25 percent. However, among this also the major share of publication is skewed in favour of three universities, namely Jawaharlal Nehru University, University of Mumbai and University of Delhi (Chatterjee, 2002). This gives a glimpse on the state and quality of social science research in India. Another reason for the grim picture of social science is that the impact of its research output is limited and weak because it involves policy makers to implement the outcome of policies, which is time-taking. However, with the passage of time it has been observed that the funding level in social science is increasing which will eventually increase the impact of research output on the society.

The next segment will discuss in general the academic research output of Aligarh Muslim University, followed by the case study of Department of Economics in specific.

5.7 Research output of Aligarh Muslim University

Aligarh Muslim University is an old and massive university which comprises 12 faculties which includes more than 99 departments as discussed in Chapter 3. The section will give an overview of research output produced by the university in the form of M. Phil. / Ph.D. Degrees, publications in the form of (a) Books (b) Articles (c) University Journals, and Research Projects of all the faculties.

Temporal analysis of the above research output can be done in order to analyse the trend of the research output in the university. The study will also focus on proportion of total budget utilised on research in the university and resource mobilisation via different funding agencies for research in the university. In all the study will attempt to probe into the research culture of the university.

Table 5.2: Trend Analysis of research output of AMU

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
M.Phil./PhD Degrees	379	393	393	370	346	304	321
Books	82	110	110	116	106	146	159
Articles	1207	1400	1400	1628	1476	2703	2074
University Journal	19	19	19	19	23	11	15
Research Projects	203	262	262	230	186	205	210

Source: Annual Reports of the respective years.

Table 5.2 shows more or less a stable trend of production M.Phil./PhD degrees. A substantial increase is witnessed in the publication of books and articles in 2012-13 followed by stable trend in research projects going in the University. The University journal overtime has observed a decline in its number. This table gives a glance of overall research output of the university. In the following section, detailed discussion of specific research output is undertaken.

5.7.1 M.Phil./PhD Degrees: In research programs, M.Phil. and PhD are the two degrees which directly makes value addition in the existing knowledge in the respective fields. Undergraduate and post graduate programs are also crucial, but the value addition is made in the knowledge of an individual. Therefore, M.Phil. and PhD, directly affect and make addition to the existing knowledge of the discipline as well as the individual. As discussed, research is creation of and dissemination of ‘new’ knowledge. Creation of new knowledge does not guarantee its dissemination; degree helps in creation of new knowledge, however the crude measure of dissemination is publication. As per the 2009 regulation of UGC, PhD thesis are submitted to *Shodhganga* so as to facilitate dissemination of knowledge. This portal via open access facilitates electronic dissemination of knowledge through INDCAT supported by INFLIBNET. This portal consists of 25 largest Doctoral theses producing universities of India. This facilitates dissemination of knowledge and ideas via electronic medium, thereby making it more accessible. AMU is ranked 5th among

the 25 universities enrolled in *Shodhganga*. The table below shows the faculty wise division of M.Phil. and PhD

Table 5.3: Trend of MPhil and PhD in AMU

Faculties	2010-11		2011-12		2012-13		2013-14		Total	
	M.Phil.	PhD	M.Phil.	PhD	M.Phil.	PhD	M.Phil.	PhD	M.Phil.	PhD
Agriculture	0	8	2	15	1	12	0	5	3	40
Arts	1	63	2	66	1	57	1	32	5	218
Bio Tech	0	3	0	6	1	3	0	2	1	14
Commerce	0	8	0	6	0	4	0	2	0	20
Engineering &Tech	6	16	1	19	2	29	2	6	11	70
Law	0	8	0	12	0	5		4	0	29
Life Sciences	21	34	8	19	7	32	0	14	36	99
Management	0	18	0	17	0	9	0	7	0	51
Medicine	0	6	0	4	0	9	0	1	0	20
Sciences	25	57	27	43	14	41	2	13	68	154
Social Sciences	36	54	20	71	4	67	1	33	61	225
Theology	3	6	3	5	1	3	0	2	7	16
Total	92	281	63	283	31	271	6	121	192	956

Source: NAAC Report 2013.

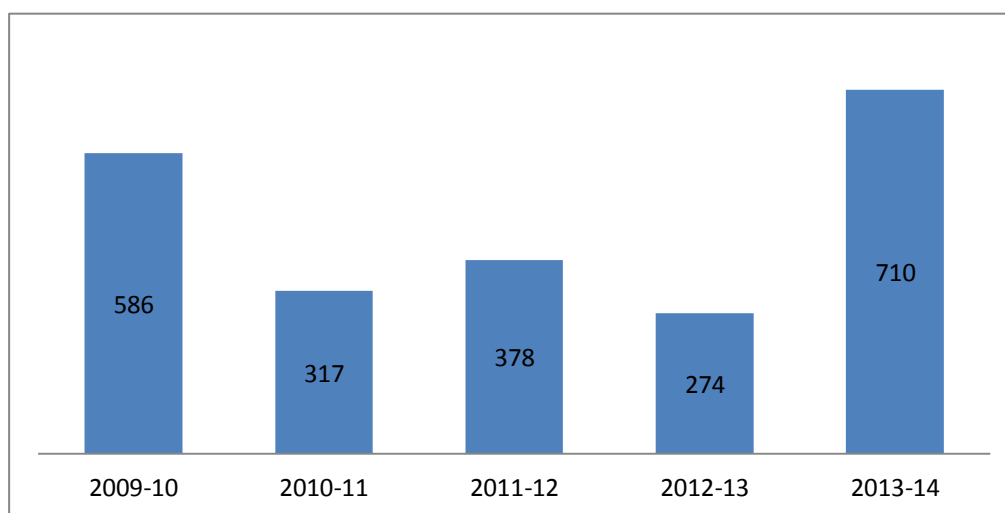


Fig 5.1: Trend of M.Phil./PhD Course

It is evident from the above figure that there has been a decline in the number of students enrolled in M.Phil. / PhD until 2013-14. The number of students in 2013-14 witnessed an increase as a result of change in admission policies of the university with respect to admission in M.Phil./PhD courses. The categorisation of students followed

(until masters are not applicable) in M.Phil./PhD courses. The students are selected on the basis of marks obtained in the entrance examination. Following the 2009 UGC regulation, for PhD entrance, written test was conducted and students securing more than 45 marks were called for interview and those securing less than 45 and more than 40 were called for M.Phil. The numbers of seats under teachers were also limited as per the university rules; professors can have maximum five research scholars, an associate professor can have four and an assistant professor can have three scholars at a time, this criterion was followed until 2012-13. In 2013-14, the admission policies again changed, from this term written test was only considered as qualifying criteria and interview (50 percent), academic qualification (25) and presentation (25) were given all the weightage. As per this criterion very few students qualified the entrance. This caused unrest among the students. In response to this Vice- Chancellor intervened and made required amendments in the admission policy. Vice- Chancellor (Zameerud-din Shah) stressed that all the vacant seats until February 2014 should be filled and written test should also form the basis of admission in the M.Phil./PhD courses. Under the regime of present Vice Chancellor, the number of seats under teachers was also increased as per UGC norms where Professors can have eight research scholars, an associate professor can have six and an assistant professor can have four scholars. Thus the change in the admission policy led to the drastic increase in the number of enrolments in the M.Phil./PhD courses in 2013-14.

5.7.2 Publications: The publications of the university involves not only Books, articles, monographs, the university also publishes its own journals, Bulletin, newsletters etc. University with its own editorial board centrally publishes *Tahzibul Akhlaq* (Urdu), *Fikro Nazar* (Urdu) ISSN and *Nishant* (Hindi) which encompass issues concerning education, language, culture, literature etc. University also publishes a magazine for students called *The Aligarh Magazine* in Urdu and English. In addition to these, 24 research journals are published by respective departments.

It is observed from table 5.2 that there has been a sudden increase in the number of articles in 2012-13, this increment can be elucidated by the amendment in the Performance Appraisal System (PBAS) in 2013. The policy of revising the Academic Performance Indicator is one of the shifts by the government towards reforming the University governance via New Public Management (Das and Chattopadhyay, 2014). One can observe that the numbers of publications has not only increased in AMU but

in most of the Universities, following the amendment in API. The amendment has not only caused increase in the number of publications; it has also led to the proliferation of journals in the market, which lacks credibility and do not account for quality, thereby adversely affecting the academic ambience of the Universities (ibid.).

5.7.3 Research Projects: Sponsored research undertaken by the faculty members of the university is discussed in the following section. A good number of research projects are sponsored by various funding agencies UGC, ICMR, ICSSR, DST, UPCST, CSIR, DBT, CCRUM, SERB, etc. Some of the departments of the university are recognised and funded by international agencies for their research projects and some are carried out with institutional collaborations at national and international level. Under different schemes, in the last five years, there are about 166 projects running in the university including all the departments.

Research carried out especially in Life sciences, biotechnology unit, and other empirical fields are very helpful in creating in university-industry linkages. Some of the significant achievements of some of these projects are as follows. In the past decade, Interdisciplinary Biotechnology Unit has produced many technologies in the area of infectious disease and drug designing. Science and engineering research council (SERC), under Department of Science and Technology (DST) have facilitated and promoted research performance thereby augmenting research facilities in the university.

5.8. Resource Allocation and Resource Mobilization for Research Activities in AMU

To facilitate the research culture and meet the requirements of the students and faculty members, the university has laid emphasis on the allocation of resources. In the 12th five year Plan, university has allocated 43.20% of the total budget for various research purposes, such as Field Work for Research Work, Travel Grants for attending National/International Seminars, Conferences and Workshops, Organising National/International Seminars/Conferences/Symposia in the University, Visiting Professors/Fellows, Faculty Improvement, Enhancing Faculty Resources (ENCORE), Scholarship to non-NET M.Phil./PhD students, Procurement of Books/Journals, Equipment for Laboratories, and ICT facilities. Besides, allocation of Rs. 158.37 lacs is made every year for laboratory procurements like chemicals etc.

Resources for students and teachers are mobilised differently. Non-NET fellowships are extended to research scholars enrolled in M.Phil. / PhD of Rs 5000 and Rs 8000 respectively. A contingency amount is also extended for preparation of dissertation/thesis and other research materials. This fund is allocated from the university budget. Some of the students also get various other scholarships such as Junior Research Fellowship (JRF), Maulana Azad National Fellowship for minority students (MANF), Rajiv Gandhi National Fellowship for SC/ST and OBC students (RGNF) sponsored by UGC so as to make higher education more inclusive. Some scholarships are extended on merit basis and some are on caste basis, thereby uplifting the students and providing them with equal opportunities.

For the faculty members, funds are extended by the university and different funding agencies to undertake research. To facilitate research, University has set up an 'Innovative Council' which encourages faculties to file patents.

After having an overview of the University, the following segment will talk about the research culture of Department of Economics. This study is conducted to have a nuanced understanding of the state of social science research in the University and Challenges faced by the faculty members in undertaking research.

5.9. Profile of the Economics Department

The Department of Economics (established in 1920), is one of the main constituent departments of the faculty of Social Sciences. It offers courses on B.A. (Hons.), M.A., M.Phil. and Ph.D. in Economics. Most of the students are enrolled in undergraduate and postgraduate programmes followed by that in PhD. The department has a long tradition of imparting education and promoting research. The teaching programmes in the Department are focused on proper blending of 'quality' and 'relevance'. This is sought to be achieved by periodic updating of syllabi in conformity with the advancement of the knowledge in the subject, balancing emphasis on theoretical analysis with that on applied economics, introducing new courses from time to time and making tutorials more effective by establishing close student - teacher contact. The research programmes give special attention to economic problems of the country and the state of Uttar Pradesh. The thrust areas include the various fields of Development Economics, International Trade, Agriculture Economics, Public

Finance, Environment Economics, Monetary Economics, Industrial Development and Population Studies.

Department of Economics has fourteen faculty members and caters to hundred students in undergraduate programme in each year, sixty five students in Masters Programme in each year and the number of seats is not fixed in the research programme. In 2014-15 the total strength of research scholars in the department is fifty nine. The intake of research scholars is dependent on the availability of seats under the teachers. The submission of the previous students determines the enrolment of new students. PhD scholars are supposed to submit their thesis in the span of minimum 22 months to maximum of 4 years. In case of students fail to submit their thesis in the due time, a prior approval for extension is required from the Vice Chancellor.

In the past few years Department has conducted some workshops and seminars for the students. In 2013 a national seminar on Economic growth in India and challenges of inclusiveness was organised (in collaboration with Indian Economic Association IEA), in 2014 a workshop was organised on statistical package STATA for M.A., M.Phil. /PhD scholars, in 2014 workshop (in collaboration with ICSSR) on research methodology was conducted (along with the training in statistical packages including SPSS) across the various fields of social science.

University allocates Rs. 70 thousand and 14 thousand per annum for contingency and teaching aid material respectively for the Department of Economics. These funds are allocated to the department for its day to day functioning. A sum of Rs 15 lacs for books and journals and Rs 6.25 lacs is allocated as development grant to the department. Given the level of funding, department is confronted with problem of shortage of funds which in turn leading to other problems such as limited facilities for teachers and students. Teachers of constituent college (Women's College) do not have their respective rooms neither in Women's College nor in the Department. Department has well equipped library and computer laboratory of its own; however students express their concern on shortage of books on contemporary literature and lack of updated statistical software in the computers. Some other challenges faced by the department are insufficient administrative and technical staff, lack of provision for visiting professors and fellows, and limited space. The department endeavours to start

new carrier oriented courses and further aims to improve quality of teaching and research in the department. The faculty members of the department promote students to participate in campus placements conducted in the University; recently five students got selected on campus selection. This segment is preceded by a brief overview of faculty's publications presented in the table below.

Table: 5.4 Publications of Faculty Members

Year of Publications	No. Of Articles	Books Edited/ Published	Total number of Publications
2007	15	2	17
2008	11	0	11
2009	14	2	16
2010	18	0	18
2011	21	4	25
2012	18	4	22
2013	17	2	19
2014	23	4	27

Source: Based on Curriculum Vitae of the Respective Faculty Members.

Table 5.4 shows the research output of faculty members in terms of articles, books, monographs in the following years. The table portrays a sudden increase in the number of publications aftermath of amendment in the Academic Performance Indicator (API) based on Performance Based Appraisal System (PBAS) in 2013 (GOI, 2013). This clearly indicates the impact of new public management on the University governance.

However as per the evaluation of NAAC in 2013, the Department of Economics has 64 publications in the peer reviewed journals (including national and international) with average impact factor and average citation index. As NAAC must have evaluated the Department of Economics on the basis of total publications of teachers as well as students, which is why there is a discrepancy in the figures.

5.9.1 Faculty's view

This segment talks about the challenges encountered by the faculty member in their academic pursuits given the level of funding. To comprehend these, semi-structured interviews were conducted with some of the faculty members of the Department of Economics. The experiences of the faculty members are summarised as under.

As the department caters to mostly undergraduate and postgraduate students major time of the faculty members are allocated in teaching activities and relatively less time is left for undertaking research. Some of the faculty members feel that the teaching load is so immense that it severely affects their research productivity. While some feel that since UGC (as per 2009 regulations) has allotted reasonable seats under the faculty and subjects are also accordingly given, teaching does not really obstruct the productivity of research output²⁵. The department receives relatively adequate funds for teaching activities, whereas for undertaking research activities no special funds are extended by the University. The department does not get any external funds on the basis of its performance. For the first time, department evaluation was undertaken by NAAC team in 2013-14, impact of which on funding is yet to be seen. A UGC project under Special Assistance Programme (SAP) scheme is undergoing in the department (2011-2016). The SAP scheme is implemented at Departmental Research support (DRS-I) level. The thrust areas of which are Fiscal Decentralisation and Rural Development and Policy Coordination and Designing with the Local, State and National Government²⁶. SAP-DRS extend financial assistance to the department and also facilitates in enhancing the research output of the department (as stated by one of the faculty members). Most of the other ongoing projects in the department are sponsored by the UGC, followed by Ministry of Environment (GOI) and other national agencies. None of the projects in the department are funded by the international funding agencies. All the completed projects were funded by the UGC and the ongoing projects are funded by the UGC and Ministry of Environment. However the faculty strongly believes that under the regime of present Vice Chancellor, performance of the department in terms of publications, participation in

²⁵ The views expressed are by the two faculty members one teaches in a constituent (Women's College) to undergraduate students and one teaches to postgraduate students in the department.

²⁶ The main objective of the SAP scheme is to support the university department, which have potential to undertake quality teaching and research. It also aims to make research as a catalyst for good teaching and introduction of new courses relating to identified thrust areas. And the most important objective is that it utilises the output of research for the development of the nation and society.

conferences, projects, etc. have improved a lot and they hope to carry forward the momentum²⁷.

The next challenge encountered by the faculty is the delay in setting up of selection/promotion committee. The faculty believes since they are dedicated to their services, regularisation of selection committee will further give them incentives to perform better. In June 2015, the selection committee was set up where promotions of the faculty members were considered and vacant positions were duly filled. Another dilemma faced by the teachers is in terms of lack of exposure. Since the University is situated in an isolated place it sometimes fails to perform at par with other Universities situated in the capital. The faculty and students are sometime unable to attend seminars, workshops, lectures conducted in the capital. Also sometimes it is not feasible to call faculty members from outstation on short notice due to time constraint, fund constraint and other related issues, thereby limiting the coverage of its activities.

The development of infrastructure and renovation of the department is severely affected by shortage of funds. Teachers at the constituent college of the university (Women's College) do not have their respective rooms in the college as well as in the department. In the Women's College they have common staff room and in the department they share room with the other faculty members. This acts as a deterrent factor in the performance of the teachers. The university in its capacity is providing conducive environment for undertaking teaching and research activities. The major obstruction is due to inadequacy of funds of which University as whole is suffering from and in turn is having impact on the performance and development of the department. Overall the faculty affirms the low level of funding in social science is due to the fact that the impact of the research output on the society is tenuous and is not implemented as quickly as that in science. Nevertheless, as every cloud has a silver lining, the overall funding in the social science in the AMU is increasing in real terms with the passage of time, since two three years thereby leading to improvement in the condition.

²⁷ Numbers of papers in peer reviewed journal-64, Chapters in books-28, Edited books-04, Books with ISBN number -08.

5.10. Conclusion

This chapter is an attempt to understand the concept and importance of academic research output which in turn help in improving the performance of the institution. It talks about the problems encountered in measurement and pricing of the research output and whether at all it is possible to quantify research output. The chapter also examines the state of social sciences in India and attempts to explain the low funding level in social sciences. In subsequent section the chapter elaborates on the research output of Aligarh Muslim University (AMU) and with the help trend analysis it endeavours to study the research culture of the University. To understand the nuances of research culture of the University, an elementary level case study of Department of Economics is undertaken. The case study guided in nuanced understanding of research output and the challenges faced by the faculty members and students in pursuing academics. It is derived from the study of Department of Economics that due to shortage of funds there are lack of facilities for teachers and students. In a Public University salary payment to the teachers is assured on time. However, the question is what is that motivates the teachers to perform well or how to get more from the teachers when the salary is not dependent on the performance and there is no feedback system from the students. Regularisation of promotion committees, increasing level of funding in terms of sponsored projects and advancing the level of facilities given to faculty members will not only motivate them but will also have a positive impact on the quality of research output. Good quality research improves the performance of the Universities thereby improving its overall ranking, which is a major concern now days. However the major concern not only in AMU but in most of the publicly funded Universities is that the concept of good quality education is not widely understood and appreciated. Very little focus is given to the discussion which aims at increasing the quality of research or research output at the institutional level (RUSA 2013). Therefore this calls for increased level of funding and improvement in other amenities in order to motivate teachers and students to perform well and improve the quality of work.

Chapter 6

Conclusion and Main Findings

The higher education systems especially universities throughout the world are in transition. 'Hollowing up of publics' is becoming reality and consequently there is an increasing trend of budgets cuts, pressures of efficiency, introduction of evaluation systems with performance indicators so on and so forth. This has led to the crisis like situation especially in the developing countries, both because the harsh fiscal adjustment and inability of the developing country to contain pressure from enrolment expansion (World Bank, 1994).

Therefore, keeping the overarching state of affairs in background the present dissertation is a modest attempt to understand how the trend of university finances is undergoing a change? What is the impact of the changing scenario on the output of the University? The study is guided theoretically by the input-output model modified by the sources of funding. It is assumed that it is strenuous and to an extent inconceivable to apply input output literally in the realm of higher education. However, an attempt has helped in informing the functioning of the higher education institutions in the changing scenario. The major theme of the dissertation revolves around changing pattern of income and expenditure and the description of research environment in a central university.

The nature of finances in terms of sources of income and spending in the university is undergoing a transformation. It is an established fact that the government grants constitutes more than 90 percent of the total income in the central university. However analysis of university finances from different dimensions shows the twist in the changing structure of finances. The fund allocation mechanism may not be changing very rapidly in the Indian context unlike universities in the OECD countries, Denmark, Netherlands (Jongbloed, 2004), but it is changing. As a result of downsizing of expenditure and rising enrolments, government is adopting steering mechanisms so as to curb the autonomy and academic freedom and increase the accountability of the stakeholders. There is a rising pressure within the universities, how to prioritise the usage of limited resources. The maintenance grants are mainly used in meeting the day to day expenses and the funds allocated for development

purposes are not forming substantial to carry out the developmental activities as per Plan. Thus in the present scenario universities are either supposed to generate resources internally or tap resources from alumni and other non-governmental sources.

In this regard a study of University finances with different dimensions has been undertaken so that it helps in revealing insights into the educational process in general. Understanding of educational process at a micro level would be more useful in Planning of education at the macro level. It is in the same spirit that an attempt is made to study the finances and research output of Aligarh Muslim University (AMU).

Some of the reasons for studying the finances of Aligarh Muslim University are as follows: it is one of the oldest universities in the country and an in-depth analysis of finances of AMU has not yet been undertaken. It caters to more than 30000 students, which represents its mass structure; therefore in the wake of rising enrolments the finances of the university could be studied. One of the prime reasons for choosing a central university is that, it is often assumed that major chunk of government is diverted towards central universities and they are not facing any problems of inadequacy of financial resources. With the analysis of finances of AMU, though of limited time span, it is understood that with the diminishing financial resources even the central universities is struggling for finances and looking for non-governmental sources of income.

The analysis of the study has been undertaken in following sub sections; an examination of the trend of income and expenditure of Aligarh Muslim University has been looked upon for the time span of 2007-08 to 2013-14. In the next section an attempt is made to have a nuanced understanding of the research culture of AMU. While understanding the research culture of the AMU, a small case study of Department of Economics has also been conducted.

Main Findings

Contours of the university finances on the basis of the data supplied by the university have been examined. Some of the main findings of the study are as follows:

6.1. Pattern of Income

There are three major heads under which AMU receives its income; grants from the government, academic receipts from the students and the internal receipts which are generated within the University. Key findings of these sources of income are as follows:

6.1.1 Grants

The central university receives Non-Plan as well as Plan grants from the government. The Non-Plan grants are received annually for the day to day to functioning of the University and Plan grants are received as per Plan period for the development activities (As detailed in chapter 4). The first segment will discuss the trend of non-Plan grants.

6.1.2 Non-Plan Grants

Non-Plan grants comprises primarily of maintenance grants received by the university. Out of the total grants received, maintenance grants constitutes for more than 93 to 94 percent, which is apparent from the analysis (Appendix A3) and the literature. University also receives grants in the form of development grants from the UGC, state government, and aid from national and international agencies. The funds received under these heads are neither fixed not certain. These are occasional funds which are received under specific schemes and projects. The incomes received from these funds are very little as compared to the maintenance grants. The analysis of total income received in the form of grants shows that over the period of study (from 2007-08 to 2013-14) the growth rate of the grants received by AMU has increased to 20 percent in nominal terms and 12 percent in real terms (Appendix A4 & A5) which implies a reasonable growth rate in the grants (the growth rate is inclusive of salaries, and the arrears of the 6th Pay Commission).

6.1.3 Academic Receipts

Academic receipts comprises of the fee income received from the students. As it is established from the literature, that fee income does not form a significant source of income in a central university. The analysis of the academic receipts has been undertaken in two sections. First section has analysed the income from admission test

fee and second section elaborates on the fee income collected from the enrolled students; such as admission fee, tuition fee, examination fee, hostel fee etc.

a) Admission test fee: income from admission test fee forms the major source of income for the university, constituting almost 40-50 percent of the total fee income. The growth rate of academic receipts of the span of study (2007-08 to 2013-14) registered an increase of 13 percent. The rate at which the admission test fee is increasing and share of income that it is forming in the total income illustrates that it is an important source of income for the university and there is a rising demand for the courses of AMU. The university is running more than three hundred courses under various streams and it receives large number of applications for these courses as shown in table 4.4 whereby the demand ratio of undergraduate, post graduate and M.Phil/ PhD is shown.

b) Fee Income: This section comprises of the fee collected from the enrolled students in the form of tuition fee, examination fee, hostel fee and other fee collected from the students. Fee collected from these sources constitutes very little proportion of the total academic receipts. Admission fee forms 2-4 percent, tuition fee forms 6-8 percent, and examination fee forms 3-4 percent of the total academic receipts (Appendix A3).

Total academic receipts in span of the present study (2007-08 to 2013-14) have registered a growth rate of 12 percent in nominal terms and 4 percent in real terms (Appendix A4 & A5). The university has been increasing fee from time to time with the view to rationalise the fee structure. The admission fee has been revised in 2009-10 by 40 percent (as compared to 2008-09), followed by that in 2012-13 by 4.13 percent (as compared to 2011-12) and then 2013-14 by more than 100 percent (as compare to 2012-13) (as mentioned in table 4.3). Table 4.5 depicts that AMU charges differential admission fee for the different streams. Another noticeable point is that AMU charges different fees from different category of students and admission policies of the university are not in consonance of the all India character. AMU categorically divides students on the basis of internal and external quota. The admission fee is charged from the students on the basis of the division of the students (Chapter 3).

The continuation fee, that is the tuition fee of the students have also been subject to change in the respective years. Recently the tuition fee has been revised in 2013-14, a

growth rate of more than 40 percent was witnessed as compared to the tuition fee of 2012-13. As per 2013-14 AMU is charging between Rs 4400 to Rs 7500 as tuition fee for most of the courses. The fee charged from the students is phenomenally high as compared to other central university, for instance JNU charges approximately Rs 200 as tuition fees. Thus when fee structure of the AMU and JNU is compared by the virtue of both being the central universities, here comes the role of students how much they can resist the fee hike. The students in AMU protested against the fee hike in 2013-14 where the fee was increased to almost 40 percent. However the administration remained adamant and did not roll back the fee hike. This is because the student union of AMU is not registered unlike JNU and other than that also the student union is not strong enough to force the administration to change the policies as per the student's requirements. All these are some of possible reasons for the resistance among the students in AMU.

6.1.4 Internal sources

Internal sources comprise the income generated within the university in the form of income from investments, interests, rent, sale of publications etc. It is evident from the table 4.7 that income from internal resources is fluctuating, in some years it has witnessed a hike of more than 800 percent (2013-14) as compared to the previous year and in some year it shows a decline in negative percentage. This is because income generated within internal sources is uncertain and is not fixed. The annual growth rate of internal receipts has increased to 23 percent in nominal terms and 14 percent in real terms in 2013-14 as compared to the base year of 2007-08. The exponential growth rate shows the internal receipts of AMU have been increasing (Appendix A4 & A5). The increase in the income of internal sources can be justified from the following reasons. AMU since its outset has been receiving donations and endowments from its alumni, and in recent years AMU has initiated new schemes to tap resources from its alumni network. Thus following the increase in the endowments and donations the interest on them is also increasing leading to growth in interest income; the interest earned increased to almost more than 100 percent annually in 2012-13 and 2013-14 (Table 4.6).

6.1.5 Plan Grants

After elucidating the pattern of Non-Plan grants the following section detail the Plan grants of AMU. Plan grants constitute of grants received for development expenses such as expansion, innovation and creation of assets in the university. The allocation under Plan grants is inadequate as compared to the size of the university. In 11th Plan approximately 9 percent of the total grants demanded were allocated to the university (Table 4.7). The actual grants allocated to AMU in favour of the priority under different heads were phenomenally low as shown in Table 4.7. The documents of 11th Plan show that no allocations were made in against of research activities and extension activities and ICT requirements (Table 4.7). The total Planned allocation in 11th Plan was 153 crore, however the university received 140 crore, the due grants were not received in against of the priority of building and staff (as shown in table 4.7). As stated by one of the official in the 12th Plan the university received Rs162 crore of Plan grants, whereas Jamia Millia Islamia received 204 crore and Banaras Hindu University received 262 crore. Thus, following the magnitude of the Plan grants one of the finance officials extended his apprehension and pointed out that considering the size of the AMU; the funds allocated are very low. In this regard AMU has submitted a report to UGC stating that emphasis should be laid on certain criteria which can govern the allocation of funds in all the Central Universities.

6.2 Pattern of Expenditure

The following segment discusses the pattern of expenditure of the University. It is observed that the overall expenditure has substantially increased over the years. Recurring expenditure forms the largest proportion of the expenditure as against the non-recurring expenditure. Non-recurring expenditure has increased in nominal terms however in real terms the increase is not very significant. Most of the non-recurring expenditure is incurred on the building, campus development, and equipments. The analysis of the pattern of expenditure has been primarily done on the basis of recurring expenditure.

Spending in AMU has been bifurcated under the following heads: salaries payments, academic expenses, administrative general expenses, repair and maintenance and other expenses. Major highlights on Spending of AMU are as follows:

6.2.1 Salary Expenditure

As derived from the analysis and the literature, it has been observed that major proportion of recurring expenditure has been incurred on paying off the salaries of the staff members (teaching and non teaching staff). Table 4.9 clearly shows that 80-90 percent of recurring expenditure has been incurred on the staff payments and benefits, followed by that on academic expenses, repair and maintenance, administrative and general expenses and other expenses. Expenditure on staff payments and benefits has been increased and constitutes the major proportion of total expenses. It has registered a growth rate of 20 percent in nominal terms and at 11 percent in real terms in 2013-14 as compared to the base year 2007-08 (Appendix A4 & A5).

6.2.2 Non-Salary Expenditure

Non-salary comprises of the expenses incurred on the academic expenses, administrative expenses, repair and maintenance and other miscellaneous expenses. The expenditure incurred on these expenses forms relatively very little proportion of the total expenses. Approximately 2-4 percent of the total expenses have been incurred on academic expenses (Table 4.8) and barely 1-2 percent is incurred on administrative expenses and repair and maintenance (Table 4.8). Following are the highlights of non-salary components.

- While studying the annual growth rate of non-salary expenditure, it has been analysed that academic expenses over the span of study has increased to 10 percent in nominal terms and 2 percent in real terms in 2013-14 (Appendix A4 & A5). However in between the years in 2008-09 the academic expenses has registered a negative growth rate of 15 percent in nominal terms and 22 percent in real terms. In 2011-12, in real terms the academic expenses has declined to 4 percent (taking base year of 2007-08, Appendix A4 & A5).
- Another head under which the expenditure of the university (AMU) has drastically declined is the administrative and general expenses. The administrative expenses might be showing a growth rate 14 percent in nominal terms and 6 percent in real terms in 2013-14, taking base year 2007-08 (Appendix A4 & A5). However what is startling is the negative growth rate registered in administrative expenses in the following years.

Table 6.1: Exponential Growth Rate of Administrative and General Block

Years	Administrative and General	
	Nominal	Real
2008-09	-90	-91
2009-10	-70	-72
2010-11	-56	-59
2011-12	-46	-50
2012-13	-1	-8
2013-14	14	6

Source: Calculated from Financial Statements of AMU

Table 6.1 sketches the negative growth rate registered in administrative and general expenses. In 2008-09, it registered 90 percent negative growth rate in nominal terms and 91 percent in the real terms. In the following years also until 2012-13 the administrative and general expenses were declining to negative percentages.

Table 6.2: Exponential Growth Rate of Maintenance and Repair

Years	Repair and Maintenance	Repair and Maintenance
	Nominal	Real
2008-09	-28	-34
2009-10	-17	-23
2010-11	-18	-24
2011-12	-7	-14
2012-13	-6	-13
2013-14	6	-1

Source: Calculated from Financial Statements of AMU

- Repair and Maintenance is another head on which barely 1-2 percent of the total expenses are incurred (Table 4.8). The analysis of annual growth rate however shows that over the span of study that is from 2007-08 to 2013-14 there has been a growth rate of 6 percent in nominal terms and has declined to 1 percent in real terms. Under this head also the University has reduced the expenses tremendously. In nominal terms in all the years the expenditure

incurred has declined except that in 2013-14 as shown in Table 6.2. In real terms expenditure on repair and maintenance has declined to 34 in 2008-09 to 1 percent in 2009-10.

- Another head comprises the miscellaneous expenses incurred by the university. Under this head the expenses incurred has increased over the span of study to 13 percent in real terms and 5 percent in 2013-14 (base year 2007-08). The expenses under this head also registered a very little growth rate in nominal terms, but in real terms a negative growth rate was witnessed in 2009-10, 2010-11 and 2012-13 (Appendix A4 & A5).

Therefore, analysis of annual growth rate of non-salary components depicts a very gloomy state of affairs of AMU finances. The impact of squeezing of funds is easily visible from the above tables. The university is cutting down its expenses severely on the administrative and general expenses and repair and maintenance.

This phenomenon can be explained through the following equation

$$p + dr + g = c$$

Where p = fee income, dr = donative revenue and g = grants and c = cost or the expenditure incurred in the university.

With the view of balancing the sources of income and spending, AMU is cutting down its cost on non-salary components. AMU receives funds from the government (g), fees (p) and donations and endowments (dr), now with rising demand of the university, the sources of income are falling short and is unable to cover all the expenses. Thus AMU is cutting its expenditure on the non salary components especially on administrative and general expenses and repair and maintenances.

6.2.3 Unit Cost

The study attempts to estimate the unit cost of the University for the Span of 2009-10 to 2013-14. The analysis have been undertaken to have an overview of pattern of expenditure incurred on the students in nominal as well as real terms. The analysis of unit cost depicts gap between the nominal and real expenditure. In nominal terms per student expenditure is rising, however in real terms there is not much increase witnessed in the per student expenditure. In 2010-11 the annual growth rate of per

student expenditure in real terms (table 4.12) has registered a negative growth rate of 5 percent and in the following years also it hardly increases to 1-2 percent in 2011-12 and 2012-13. The declining unit cost implies that expenditure incurred on the student related activities has severely declined. As discussed above there has been a severe cut on the expenditure of non-salary expenses until 2012-13 and in 2013-14 the expenses have increased (as shown in table 4.12).

In some of the earlier studies (Ansari, 1997) Unit cost has been calculated in order to gauge cost efficiency and effectiveness. However, the scope of the unit cost as a measure of efficiency is limited, as it is not tenable to conclude that university is efficient or not on the basis of estimation of unit cost. In education institution, where most of the expenditure is incurred on the human beings, the scope of reducing the cost is limited. Thus, in the education system reduction in cost does not signify efficiency (unless there is any major technology change in the system).

After the discussion on income and expenditure of AMU, the subsequent segment will extend an overview of research culture of the university.

6.3. Research output

The following theme of the dissertation attempts to have a nuanced understanding of the research environment of the University. The analysis of this section is also theoretically guided by the 'input output model'. University is multi-input and multi output production unit in a non-market set up (Chapter 2 and 3). In the university relationship between inputs and outputs is not deterministic and input is not transformed into output mechanically unlike firms. In university, output, that is $Q = f$ (financial resources, human resources, and physical resources), f is the conversion factor which converts inputs into outputs. The conversion of inputs into outputs in the university is dependent on motivation infused with morality, peer pressure, culture etc. Amendment in API has impacted the output of the universities; it is acting as an external target for the universities, however the peer pressure and culture within the institution also affects the output of the university. Thus with the view of keeping the input output model in the backdrop, the discussion proceeds with understanding the research output in the realm of the University followed by the issues concerning the problems encountered in measuring the research output, pricing of the research

output. It endeavours to study the impact of the research output and how it is crucial for improving the performance of the institution.

The academic research output of AMU is examined and the output in the form of books, articles, university journals and research projects been looked upon. It can be seen in table 5.2 that there has been a rising trend in the number of articles and books published, while the trend of M.Phil./PhDs and research projects are fluctuating, the numbers of M.Phil./PhDs and research projects are subject to change as there is uncertainty attached to them due to many factors.

6.3.1 Publications

The number of books published each year in AMU has increased from 82 in 2007-08 to 159 in 2013-14. The publication of books with each passing year has been continuously rising as shown in table 5.2. The number of articles published has also increased from 1207 in 2007-08 to 2703 in 2012-13 and it again declined to 2074 in 2013-14 as shown in table 5.2. Overtime the number of articles has registered a phenomenal increase especially in 2012-13. The data on the number of books and articles and other research output of AMU has been taken from respective annual reports of the university. Therefore the increase in number does not account for the quality of the publications of books as well as articles and fails to complete the picture of the increment of the same. The number of publications of Department of Economics also depicts a rising trend in the publications of books and articles. In 2014 the Department of Economics has 27 publications of its faculty members as compared to that of 19 in 2013 as shown in table 5.4.

The amendment in PBAS in 2013 is also one of the prime reasons for changing scenario. The increment in the publications can be justified by the revision in the policy of PBAS-API in 2013. As a result of this it can be viewed that not only in AMU, the number of publications are increasing in most of the Universities. The amendment has not only caused an increase in the number of publications; it has also led to the proliferation of journals in the market, which lack credibility and do not account for quality, thereby adversely affecting the academic ambience of the Universities (Das and Chattopadhyay, 2014).

Given the limited the data not much can be said about the research culture of the AMU as whole except that on the allocation made by the university on the research activities (in 12 Plan University allocates 43.20 percent of the total budget on research activities (source: NAAC Report) and the number of publication of books, articles, submission of M.Phil./PhDs, ongoing research projects as shown in table 5.2, however this does not gives the insights into the real culture of the research in the university.

6.3.2 Department of Economics

In order to have insights of the research culture of AMU, an intrinsic case study of Department of Economics was attempted to understand the challenges faced by the faculty members in pursuing academics. In this regard a semi structured interview was undertaken with some faculty members to have their views on the same. Some of the major issues that the faculty members are confronted with are as follows:

- University allocates seventy thousand and fourteen thousand per annum for contingency teaching aid material respectively for the day to day functioning of the Department of Economics. A sum of Rs 15 lacs for books and journals and Rs 6.25 lacs was allocated as development grant to the department of economics. The given level of funding is inadequate given the requirement the department, thereby leading to other issues. The inadequate infrastructure is affecting productivity of the faculty members in turn affecting their quality of work: teachers of constituent college (Women's College) do not have their respective rooms neither in Women's College nor in the Department.
- The next challenge encountered by the faculty is the delay in setting up of selection/promotion committee. The faculty believes since they are dedicated to their services, regularisation of selection/promotion committee will further give them incentives to perform better.
- Another dilemma faced by the teachers is in terms of lack of exposure. Since the University is situated in an isolated place it sometimes fails to perform at par with other Universities situated in the capital. The faculty and students are sometime unable to attend seminars, workshops, lectures conducted in the capital. Also sometimes it is not feasible to call faculty members from

outstation on short notice due to time constraint, fund constraint and other related issues, thereby limiting the coverage of its activities.

Other issues concerning the Department of Economics is that it has well equipped library and computer laboratory of its own; however students expresses their concern on shortage of books on contemporary literature and lack of updated statistical software in the computers. Some other challenges faced by the department are insufficient administrative and technical staff, lack of provision for visiting professors and fellows, and limited space.

After examining the concerns of faculty members, the following segment attempts to give an overview of the external funding that the department is receiving in the form of projects.

6.3.3 External Source of funding (Projects)

Projects undergoing in the department constitute the external source of funding for the department. A UGC project under Special Assistance Programme (SAP) scheme at DRS- I level is undergoing in the department (2011-2016). The thrust areas of which are Fiscal Decentralisation and Rural Development and policy Coordination and Designing with the Local, State and National Government. SAP-DRS extend financial assistance to the department and also facilitates in enhancing the research output of the department (as stated by one of the faculty member). Most of the other ongoing projects in the department are sponsored by UGC, followed by Ministry of Environment (GoI) and other national agencies. None of the projects in the department are funded by the international funding agencies. All the completed projects were funded by UGC and the ongoing projects are funded by UGC and Ministry of Environment. The funding level on the projects sponsored by UGC (except the SAP-DRS-I and the one sponsored by the Ministry of Environment) are very low.

Therefore, given the limited level of university funding and external funding, the Department of Economics is suffering from inadequacy of resources especially at the development front.

6.4 Discussion

After analysing the state of University finances it can be concluded that overall financial position on the yearly basis of the University is reasonable, however the problem is encountered on the development front whereby the university is not getting resources in the Plan period to undertake developmental activities. In the 11th Plan AMU has faced the problem in incurring recurring expenditure, which led to the huge cut in the non-salary component especially the administrative expenses and repair and maintenance.

Efforts were made to gauge the impact of research output of the university, however due to limited information in terms of number of publications only; the analysis could not give the complete picture. The dimension of quality of the publications could not be gauged completely. Anyhow, increased level of funding and improvement in other amenities will motivate teachers and students to perform well and thereby improving the quality of work.

6.5. Limitation of the study

A word about limitation of the data and approach of analysis may be mentioned. The financial statements are maintained for all the campuses of (including Aligarh Murshidabad, Mallapuram, and khishanganj) Aligarh Muslim University. The study is primarily based on the finances of Aligarh Campus, thus the data has been disaggregated from the financial statements as per the need of the study. The university has followed varied methods in maintaining the financial statements from time to time; the data was therefore reclassified and clubbed suitably as per the latest pattern to reflect the pattern of university finances. In many instances a number of difficulties arose about the inclusion and exclusion of certain items. Thus limitation of the data and the approach should be borne in mind throughout the analysis. And lastly, without dwelling deep in concepts the terms efficiency and effectiveness higher education institutions and Universities have been used in the study interchangeably.

The pattern of income and expenditure is undertaken for six years. In many instances the analysis was done for five years. As the study is accounting for limited time period in the analysis some exercise have been undertaken to have a glimpse of changing trend and in the university finances. Unit cost is assessed for the whole university. Due to lack of data on level of programmes and different courses the estimation of unit is not undertaken for the same.

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Appendix

Table A1. Income Received by AMU (in laacs)

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Grants							
Central Government	23945.68	43981.02	43981.02	46290.53	48456.06	51148.56	51148.56
UGC	1267.37816	479.11359	479.11359	3346.96637	1195.75846	2707.1894	2707.189
State Government	29.15464	31.41545	31.41545	21.70008	31.37734	41.1193	41.1193
National Bodies/Institutions	396.65704	356.67455	356.67455	448.77217	584.66634	659.97762	659.9776
International Institutions	0	0.632	0.632	70.70136	180.47543	92.82721	92.82721
Others	55.30477	114.77263	114.77263	87.74373	14.23573	32.72716	32.72716
Sub Total	25694.17461	44963.6282	44963.6282	50266.4137	50462.5733	54682.401	54682.4
Academic Receipts	0	0	0	0	0	0	0
Admission Test Fees	331.17932	569.29431	569.29431	524.24734	631.76367	628.64425	628.6443
University Admission Fee	30.09542	43.50951	43.50951	31.29193	31.74311	33.05285	33.05285
Tuition fees	67.62211	74.53086	74.53086	86.83919	77.18188	93.58994	93.58994
Examination fees	25.46105	46.36825	46.36825	48.2574	32.62385	36.21525	36.21525
Hostel Fees	0	0	0	0	41.56817	47.53328	47.53328
I.F.E	277.1324	349.5574	349.5574	322.60908	381.48815	515.19912	515.1991
Others	95.23073	110.27447	110.27447	134.56819	69.81163	85.99125	85.99125
Sub Total	826.72103	1193.5348	1193.5348	1147.81313	1266.18046	1440.2259	1440.226
Other Income	0	0	0	0	0	0	0
Income From Investments	240.91474	37.4407	37.4407	30.42049	34.264	44.41779	44.41779
Interest Earned	238.36055	142.12473	142.12473	55.90645	74.688	154.62142	154.6214
Rent received	30.3133	46.09155	46.09155	50.36537	74.68283	106.5604	106.5604
Sale of Publication	1.00646	2.29314	2.29314	1.78079	1.87142	2.69146	2.69146
Others	284.82583	346.50439	346.50439	417.5123	326.34742	687.26801	687.268
Sub Total	316.14559	394.88908	394.88908	469.65846	402.90167	796.51987	796.5199
Grand Total	27316.31652	46731.6175	46731.6175	51970.2122	52240.6074	57118.186	57118.19

Source: Computed from Financial Statements of AMU.

Table A2. Expenditure Incurred in AMU from 2007-2013 (in lacs)

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Staff Payments & Benefits							
Salaries Allowances & Personal Claim	13,606.99	15,735.05	17,276.20	18,015.07	19,274.74	21,533.52	22,108.57
Allowances and Bonus	2,425.22	9,218.38	8,646.97	10,677.60	13,756.99	17,011.75	20,478.55
Contribution to Provident Fund & Other Funds	75.79	130.26	191.17	256.89	350.39	437.09	553.51
Retirement & Terminal Benefits	4,323.40	5,150.02	8,635.77	8,224.71	11,754.85	11,015.57	13,893.15
Other Expenses	28.82	3.05	7,162.70	6,487.67	3,214.04	2,706.10	3,856.57
Sub Total	20,460.216	30,236.76	41,912.81	43,661.93	48,351.00	52,704.03	60,890.35
Academic Expenses							
Books, Periodicals and Journal	35.88	36.60	178.19	210.41	211.61	37.66	218.74
Cost of Answer Books	17.84	21.28	22.61	26.95	24.88	13.86	34.55
Teaching Aids and Material	16.33	15.90	13.15	9.31	11.38	11.61	13.78
Scholarships and Fellowships	7.01	690.20	711.87	676.45	545.00	810.50	1,021.13
Other expenses	1,023.46	168.39	387.30	511.52	454.14	1,604.56	1,963.05
Sub Total	1,100.53	932.37	1,313.12	1,434.64	1,247.02	2,478.18	3,251.24
Administrative and General Expenses							
Telephone Charges		17.18	15.35	13.81	12.98	11.86	12.27
Scholarship Paid	205.55	5.59	4.92	5.02	5.76	7.52	259.83

Other Expenses	0.15	0.17	0.17	0.08	0.16	191.78	210.06
Sub Total	205.70	22.95	20.44	18.92	18.90	211.16	482.16
Repair & Maintenance							
Maintenance and Repair	509.08	361.17	314.35	230.35	326.38	78.02	353.81
Maintenance of Infrastructure	-	0.24	1.53	0.26	0.53	0.30	117.19
Annual Maintenance Charges	29.85	30.33	28.81	26.71	15.32	27.47	224.11
Other Maintenance Expenses	58.35	36.96	63.40	71.66	98.04	323.84	846.53
Sub Total	597.28	428.70	408.10	328.98	440.28	429.63	846.54
Other Expenses							
Contingencies	330.02	328.23	369.57	424.24	438.83	450.43	479.58
Cost of Energy Purchased	817.60	1,020.58	985.87	1,259.49	1,255.36	1,666.50	2,041.96
Equipments	111.49	361.06	212.18	94.72	96.92	169.43	105.78
Furniture and Fixture	108.39	107.76	74.39	51.74	63.62	57.90	129.52
Lab Expenses	11.66	164.33	155.80	134.48	144.75	148.01	158.45
Other Expenses	0.02	0.02	0.02	0.02	0.03	0.01	0.04
Sub Total	1,379.18	1,981.98	1,797.83	1,964.67	1,999.51	2,492.28	6,814.47
Total	5,227.75	5,774.39	5,111.14	5,369.07	6,226.79	6,865.59	11,394.41
Grand Total	25,687.97	36,011.14	47,023.95	49,031.00	54,577.79	59,569.62	72,284.76
Non-Salary Component	5,227.75	5,774.39	5,111.14	5,369.07	6,226.79	6,865.59	11,394.41

Source: Computed from Financial Statements of AMU.

Table A3. Percentage Distribution of Income Received

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Grants							
Central Government	93.19	97.60	97.81	92.09	96.02	93.54	93.51
UGC	4.93	0.86	1.07	6.66	2.37	4.95	5.37
State Government	0.11	0.13	0.07	0.04	0.06	0.08	0.07
National Bodies/Institutions	1.54	1.07	0.79	0.89		1.21	0.87
International Institutions	0.00	0.00	0.00	0.14	0.36	0.17	0.13
Others	0.22	0.34	0.26	0.17	0.03	0.06	0.05
Sub Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Academic Receipts							
Admission Test Fees	40.06	41.47	47.70	45.67	49.90	43.65	42.77
University Admission Fee	3.64	3.12	3.65	2.73	2.51	2.29	4.18
Tuition fees	8.18	7.27	6.24	7.57	6.10	6.50	8.18
Examination fees	3.08	3.53	3.88	4.20	2.58	2.51	4.39
Hostel Fees	–	–	–	–	3.28	3.30	0.45
I.F.E	33.52	34.31	29.29	28.11	30.13	35.77	35.17
Others	11.52	10.30	9.24	11.72	5.51	5.97	4.86
Sub Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Income From Investments							
Income From Investments	30.29	8.38	6.52	5.47	6.69	4.46	17.58
Interest Earned	29.97	22.78	24.74	10.06	14.59	15.53	19.60
Rent received	3.81	10.88	8.02	9.06	14.59	10.70	5.93
Sale of Publication	0.13	0.32	0.40	0.32	0.37	0.27	0.28
Others	35.81	57.64	60.32	75.09	63.76	69.03	56.63
Sub Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Calculated from Financial Statements of AMU

Table A4. Exponential Growth Rate* of Income and Expenditure (Nominal)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Income						
Grants	31	32	25	18	16	20
Academic Receipts	20	20	12	11	12	12
Other Income	-3	12	14	6	20	23
Total Income	28	31	24	18	16	20
Expenditure						
Salaries	48	43	29	24	21	20
Academic Expenditure	-15	9	9	3	18	10
Administrative & General	-90	-70	-56	-46	-1	14
Repair & Maintenance	-28	-17	-18	-7	-6	6
Other Expenditure	33	1	3	8	3	13
Total Expenditure	40	35	24	21	18	18

Source: Computed from Financial Statements of AMU.

* 2007-08 is the base year.

Table A5. Exponential Growth Rate* of Income and Expenditure (Real)

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Income						
Grants	20	23	16	10	8	12
Academic Receipts	11	12	3	3	4	4
Other Income	-10	4	6	-2	12	14
Total Income	18	22	15	9	8	11
Expenditure						
Salaries	36	33	19	15	12	11
Academic Expenditure	-22	2	1	-4	9	2
Administrative & General	-91	-72	-59	-50	-8	6
Repair & Maintenance	-34	-23	-24	-14	-13	-1
Other Expenditure	22	-6	-5	0	-5	5
Total Expenditure	29	26	15	12	10	10

Source: Computed from Financial Statements of AMU.

* 2007-08 is the base year.