

## Chapter 5

### Availability and Shortages of Teachers in Higher Education

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Higher education occupies a central place in India's growth and development. The sector has expanded rapidly, being fuelled by rising demands emanating structurally from India's demographic structure, as millions of new potential job seekers entering college-going age, look towards higher education as a means to better their opportunities. As the Indian economy has grown more rapidly and liberalized, the economic role of higher education has also evolved. This has led to a greater emphasis on professional and technical education both from the students as well as policy makers. To meet this demand, the Higher Education Institutions (HEIs) have expanded recently in numbers, size and diversity. To take a longer perspective, the expansion of the Indian HEI system has taken place historically in three waves. This evolutionary process has shaped the institutional composition of HE providers, as well as the nature of demand for teaching faculty.

During the first wave of expansion in the second and third decades of the planning era, central government policy was the main driver of HE expansion. A set of new institutions were established with government funding—the Central Universities, the Indian Institutes of Technology (IITs), the Indian Institutes of Management (IIMs), the All-India Institute of Medical Sciences (AIIMS) and the Regional Engineering Colleges (RECs). During the mid-1980s, the second wave of expansion brought the emergence of private institutions. These were mainly private sector-run professional colleges, which were located particularly in some states, such as Karnataka, Andhra Pradesh, Maharashtra and Tamil Nadu. During the 1990s, another phase of accelerated expansion began, and this process is still unfolding. Driven by the policy of economic liberalization, as well as the demographic bulge in the college-age population, there has been a sharp expansion in the number of new universities and technical and professional institutions in both the private and the public sector. The latter includes the recent dramatic increase in the number of new IITs, IIMs and AIIMS across the country. This urgency as well as the institutional composition of intensification of HE reflect the emergence of scientific, technical and professional education as strategic priorities to deal with the economic challenges of globalization. The new international economic system requires such branches of knowledge for industries and professions to remain competitive in the global economy.

This vast expansion of the Indian HE system has necessitated a commensurate demand for appropriately skilled faculty members. For some years now, concern has been growing among higher education policymakers and administrators about the adequate availability of faculty resources. There is a general acknowledgement of a "shortage of faculty", despite the lack of comprehensive and reliable quantitative data. Efforts to cope with the faculty shortage have led to the appointment of ad hoc teaching staff in both public and private universities on a large scale.

This development has created a tension between the quantity and the quality of higher education produced in the country.

The Ministry of Human Resource Development (MHRD), Government of India constituted a Task Force on Faculty Shortage and Design of Performance Appraisal System to examine the matter.<sup>1</sup>The Task Force submitted its report in 2011 in which it observed that the shortage of faculty in the Indian HE system had already reached a critical level. This opinion was supported by the uniformly expressed views of the vice-chancellors and regulators who met with the Task Force. While noting that this was a “rough estimate” due to paucity of data, the Task Force stated that the shortage was approximately 380 thousand teachers (or 50 per cent of sanctioned positions). It is also observed that the scarcity was likely to worsen further during the coming decade, and reach 1.3 million.<sup>2</sup> Hence the matter needs urgent policy attention (MHRD, 2011).

Faculty availability had been a source of longstanding concern long before the problem assumed critical dimensions. Prior to the Task Force, several committees commented in passing on the faculty shortage question though they did not study the problem systematically. They tended to view this as a supply-side problem, and suggested ways to increase and/or retain teaching faculty. This included the G.K. Chadha Committee to Review the Pay Scales and Service Conditions of University and College Teachers (for the 6<sup>th</sup> Pay Commission). Even as early as 1964, the Kothari Commission had expressed concern that scholars of high potential might be discouraged from joining the teaching profession because of the unattractive working environment in academic institutions.

### **Gauging faculty shortage and structural issues identified by expert groups**

The Task Force attempted to assess the quantitative extent of faculty shortage. It soon realized that there was a severe paucity of reliable data. The major regulatory bodies did not possess data and hence were unable to provide much information. The data available with the UGC were dated and highly incomplete. Hence, the Task Force attempted to conduct a survey on its own. Unfortunately, the data that could be collected was limited mainly due to the short time available. Nonetheless, the Task Force drew some tentative conclusions from the limited data that it was able to gather. It found that in the Central Universities, on an average 35 per cent of faculty positions were vacant. In several cases, the shortage exceeded 50 per cent. The gap was high in some leading universities —e.g. Delhi University had a shortage of 53 per cent. However, in a few central universities the situation was comfortable (e.g. Vishwa-Bharati, Assam University, Aligarh Muslim University,

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<sup>1</sup>Hereinafter we shall refer to this committee as the Task Force. Prof. Sanjay Dhande was Chairperson. The present author served as a member. This chapter draws on the report of the Task Force, and in particular on the analytical framework chapter to which he contributed. Other members of the Task Force were Prof. Devi Singh, Prof. V. Kannan, Prof. K.K. Aggarwal, Dr. R.K. Chauhan and Dr. Niloufer A. Kazmi.

<sup>2</sup>MHRD, 2011, Preamble, p x. According to the All India Survey on Higher Education 2013-14, the total number of teachers is approximately 1368 thousand in higher education.

Jamia Millia Islamia University). With respect to the State Universities, the average shortage in the 77 universities that responded to the Task Force survey was 33 per cent. However, in 25 per cent of the responding universities the faculty shortage was above 50 per cent, and in another 18 per cent of the responding universities the figure was above 40 per cent. The situation was alarming in some state universities which had over 70 per cent of unfilled positions.<sup>3</sup>

Viewing the faculty shortage problem in relation to the size of enrolment, the average student to teacher ratio was found to be 20.9. This compares unfavourably with the UGC norms, which is 13.5 (with 15 for undergraduate and 12 for postgraduate programs). The Task Force thus estimated that the faculty size should be increased by 54 per cent of the existing strength in order to bring it on par with the norm. To fill the data gap, the MHRD has recently launched the All India Survey on Higher Education (AISHE), which provides more recent information on various aspects of higher education. According to the AISHE 2013-14 Report, the All-India figure for the Pupil - Teacher Ratio (PTR) for Universities and Colleges in the Regular Mode (i.e., excluding Distance Education) remained at 21 (MHRD, 2015). This confirms and validates the estimate made by the Task Force. The AISHE data shed additional light on the regional variation. There is a very wide variation in the PTR across the states, which implies a corresponding disparity in faculty shortage. Bihar (54) and Jharkhand (55) show very high PTR, followed by Uttar Pradesh (38) and West Bengal (37). The faculty resource position is grave in these states, as they are very far from the UGC norms. On the other side of the spectrum, we have states where the overall faculty availability is comfortable. These are Sikkim (11), Karnataka (13), and Tamil Nadu, Kerala and Andhra Pradesh (14 each) (MHRD, 2015).

To summarise, the available quantitative evidence confirms that there exists an overall shortage of faculty. Precise measurement of its magnitude remains difficult. If it is measured as the proportion of unfilled positions, the average national shortage is about 35 per cent. If, however, it is assessed in terms of the shortfall from UGC norms on pupil-teacher ratios, the average shortage is 54 per cent. There is a large disparity across regions, as well as across universities. Many institutions with alarming faculty shortages are state universities. However, perhaps surprisingly, some of the leading central universities also have high faculty shortage. There are significant variations in the faculty shortage in specific academic domains.

For policy making, these quantitative estimates of faculty shortage need to be complemented with an understanding of how the Indian higher education system actually functions. We present such an understanding which is gleaned from the observations of various expert committees, as well as from the insights that senior higher education administrators and regulators shared with the Task Force. These judgements and insights convey a sense of the prevailing 'ground realities' and decision making environment affecting faculty resource availability. We have grouped these

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<sup>3</sup>MHRD 2011, Chapter 3.

observations into three categories—(a) Factors affecting the supply motives of faculty resources, (b) Demand-side perspectives; and (c) Regulatory and policy context.

*(a) Supply side factors*

Given India's population size and long tradition of higher education, there exists a large pool of potential teachers. However, the requisite skills are scarce and there are alternative professional options for potential teachers. Hence, the central issue is whether the teaching profession is adequately attractive for qualified and talented professionals. The diagnosis of inadequate supply has generally rested on (i) salaries, and (ii) academic working environment. The Chadha Committee (UGC 2008) held that the problem of faculty shortage needs to be addressed by offering adequate pecuniary incentives so that competent individuals are motivated to join the teaching profession. In the early decades following independence, salaries were perhaps less important. Arguably many teachers were attracted by the dignity, intellectual freedom and respect associated with the teaching profession. However, after the 1991 market reforms pecuniary considerations carry more weight in career decisions of skilled professionals. This is particularly true because salaries have skyrocketed in the globalized and/or newly commercialized professions such as information technology, law, management and medicine. The globalization of the skilled labour services market is a relatively recent structural change in the Indian economy, and it is a key driver of income inequality. The desire for some parity between teacher and other professional salaries therefore plays a key role in career choices of potential teachers.

The Goverdhan Mehta Committee (MHRD, 2009) titled 'The Pay Committee for Faculty and Scientific/Design Staff of Central Technical Institutes' pointed out a different supply-side structural constraint—not enough PhD degree holders are being produced in the country, who are qualified to teach in technical and professional institutions. Moreover, very few of even the small numbers who possess the required qualifications are joining the teaching profession. So, motivating new entrants to teaching is an important problem that must be addressed.

What about those who are already in the teaching profession, and their willingness and ability to perform? With regard to the academic working environment for in-service teachers, the Kothari Commission had long ago noted specifically certain features that affect motivation. These go far beyond salaries. This includes the feeling of isolation experienced by 'thinly spread' research-oriented faculty members and hence the lack of stimulating interaction with colleagues, heavy teaching loads, classes of large size with 'unchallenging students' and academic administrators who consciously or unconsciously discourage intellectual vitality and motivation. Citing the 1964 report, the Task Force remarked on the continuing validity of the observations today. These considerations make us realize that, even though economic factors are important, teaching cannot be treated merely as a skilled, commodified service to be bought and sold.

The act of teaching embodies a significant component of individual performance akin to the performing arts. Here skill, inspiration, autonomy, research activity, intellectual renewal and

creativity are extremely important. The notion of a good academic work environment includes these subtle but difficult to quantify elements, the significance of which administrators may not fully grasp. The ongoing process of commercialization of higher education has tended to further marginalize such aspects. Hence, while adequate physical infrastructure of buildings, IT and library resources are important, these are still not sufficient to produce quality education. If quantity of teaching services is increased at a substantial cost of quality, it would defeat the very social and economic purpose of higher education policy.

Finally, maintaining a good working environment over the longer run for in-service teachers also includes having a credible system of performance appraisal and promotion to support the career path of teachers. The Task Force examined this matter in some depth, reviewed the findings of earlier committees and made detailed recommendations for design of an appraisal system. This system has several components—Teaching & Learning Activities; Co-curricular and Professional Development Activities; and Research-related Activities.

*(b) Demand-side perspective*

While acknowledging that supply-side issues constraining the availability of faculty are important, we must recognize the important role of demand. This is an aspect that has not received sufficient attention. Not only has the demand-supply gap for faculty been rising rapidly in recent years, the composition of demand has been changing significantly. Hence the shortage of faculty may be more acute in some programmes and associated disciplines than in others. For example, demand is booming in fields like engineering and management, whereas it is relatively stagnant in traditional disciplines like liberal studies and humanities. Moreover, the problem of faculty shortage is not only a matter of assuring sufficient number of teaching hours. The problem of quality is closely intertwined with it, because attempting to stretch the quantity of teachers inevitably affects the quality of education. Higher education policy makers and administrators attempting to increase the availability of faculty resources need therefore to keep in mind the inseparable relationship between quantity and quality of education services. There might arise a situation where HEIs must trade-off quality vis-à-vis quantity, and this condition should be avoided. The Task Force observed that the quality of Indian higher education is ‘patchy’ and ‘uneven’. In this chapter, we analyse the problem of faculty availability and shortage within a framework that integrates both the demand and supply perspectives.

The Task Force adopted an economic analysis approach, which we follow in this chapter. In our view the economic motivation has become crucial to both the demand and supply of faculty resources. We need to explicitly consider how the higher education institutions determine their demand for faculty resources by the higher education institutions. Failure to account for the underlying economic pressures can lead to the frustration of well-meaning policy and regulatory steps. Thus there is a need to bring the complex and multidimensional elements that determine the availability and deployment of faculty resources into a simplified and coherent framework. A chain

of economic relations and causation determines the market demand for faculty. In the first stage, there is a demand for higher education itself which emanates from the student-age population. This is reflected in the demand for seats in HEIs. The HEIs in turn respond to this demand for higher education by making operational decisions regarding admissions, programs, facilities and faculty resources. The consequent demand for faculty resources is one element in the operating strategy of HEIs. As discussed elaborately in the next section, the nature of demand for faculty resources differs across different types of HEIs. The demand depends on the sources of their operating funds, and specifically on the relative importance of tuition fees, government support, endowment incomes, research grants, and so on.

While bringing in this economic behaviour perspective, we remain conscious that higher education is not a commodity in the standard sense. Nevertheless, we believe that keeping the economic dimension in mind will lead to a more nuanced formulation of policies. In this way, the broader social goals can be maintained, and hopefully policies that curb the possible negative features of ‘over-commercialization’ can be pursued.

*(c) The regulatory and policy context*

Senior functionaries (Heads or Chairpersons) of a large number of regulatory bodies and universities met with the Task Force to discuss the faculty availability scenario. Their evidence covering a variety of higher education domains is summarized below.<sup>4</sup> It sheds light on the structural changes in the system, and especially the significant effect that the large scale entry of the private sector institutions is having on the faculty resource scenario across a broad spectrum of HEIs:

- (i) There is an incidence of faculty shortage in both Central government-funded and State government-funded higher education institutions. This problem can actually be traced back to a de-facto ban on new recruitment and even on the filling up of existing sanctioned teaching positions. The underlying reason was a resource crunch on government budgets. However, surprisingly even after the ban was eased many Centrally-funded institutions have continued to neglect faculty recruitment. Thus, the perceived faculty shortage is a result of both a policy decision regarding higher education funding, as well as institution-level decisions. These decisions have constrained the demand for faculty by the HEIs. This has manifested as a ‘faculty shortage’ as student enrolments have risen. In several state–government funded institutions across the country (e.g., Madhya Pradesh, Rajasthan and Bihar) the situation was allowed to worsen drastically. It is not obvious why exactly the HEIs behaved as they have even after the hiring freeze was withdrawn. Hence, it is all the more important to analyse the determinants of the HEIs’ demand for faculty resources.

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<sup>4</sup>Chapter 2 (MHRD, 2011).

- (ii) With regard to the faculty-resource creation pipeline, doctoral programs are weak, partly because there are not sufficient funds for doctoral and post-doctoral fellowships. In government owned Teacher Education Institutions (TEI) there is a 25% shortfall in faculty resources, and private sector institutions have entered the domain.
- (iii) Both public sector and private sector function in tandem in medical education. However, there are more private sector institutions entering the sector. Faculty shortage is experienced in the older established public sector medical colleges. We may infer that there is competition for faculty resources between the older government medical colleges and the newly emerging private medical colleges, in which government colleges are losing out.
- (iv) In the case of dental colleges, the regulator (Dental Council of India) highlighted the weak and ineffective position of the regulator. The Council is apparently short of staff, and has no ‘teeth’ to regulate either the numbers of students admitted, or the faculty strength. Over 88 per cent of the dental colleges are in the private sector, and they cannot be effectively regulated. They do not provide up to date information on their faculty strength. Indeed, they often provide unreliable and misleading information to the regulator. For example, the name of the same individual might appear on the list of ‘full-time faculty’ in more than one institution. While on paper, there is no faculty shortage, the DCI estimated the de-facto shortage to be between 30 to 35 per cent.
- (v) The All India Council on Technical Education (AICTE) stated that the shortage in technical education (covering a wide gamut of disciplines—engineering, management, pharmacy, architecture, hotel management, etc.) was very acute. This was so especially at the senior faculty level. There were 150 thousand teachers in position, against an actual requirement of 300 thousand teachers (i.e., a 50 per cent shortfall).
- (vi) The situation was less extreme in legal education. There was no overall faculty shortage. However, it was difficult to find ‘qualified faculty’ as per the prevailing eligibility criteria. To meet the situation, the Bar Council of India (BCI) had relaxed some eligibility criteria in order to expand the pool of available teachers. It did not insist on the LL.M degree as an essential qualification for teaching, and practicing advocates were encouraged to teach.
- (vii) Several Vice-Chancellors shared their views and experience with the Task Force. They confirmed that most universities had not recruited faculty ‘for decades’. Government funding has been a constraint, and they felt that Central government support to supplement the resources of State government might ease the situation. They roughly estimated an overall shortfall of faculty amounting to 35 to 40 per cent, while it was worse at the senior faculty level.

(viii) A recurrent theme on which there was uniform agreement was that recruiting ‘quality faculty’ was a difficult task. We conclude from this that the problem of faculty shortage as experienced by the HEIs was not that of receiving an inadequate number of applications for a teaching post during a recruitment exercise. The applicants do not have the desired and expected level of quality and competence for the academic task at hand. This confirms the observation made earlier that the doctoral and post-doctoral programs in the country are extremely weak. Inadequate availability of quality faculty raises a larger question: Are the students graduating from such programs ‘employable’ as teachers in standard academic programmes? In many instances, this situation had resulted in ‘inbreeding’ in faculty appointments—as departments absorbed their own outgoing students. Resorting to temporary and ad hoc appointments had also tended to compromise the quality of teaching as individuals with adequate quality opt for permanent position or to other lucrative professions

### **Faculty availability and shortage through an economic lens**

As noted above, faculty shortage is commonly assessed by policy makers and academic administrators as the proportion of unfilled positions to sanctioned faculty positions. This is useful as a rule of thumb, but it is an imperfect measure of faculty shortage. The ‘sanctioned posts’ for any institution are administratively set. They remain fixed for relatively long periods of time and serve as an upper limit on recruitment. This measure does not help to understand the actual reasons for the faculty shortage, nor do they indicate whether the institutions intend to fill the ‘gap’. Without an analysis based on behavioural functioning of the higher education institutions, policy response to the problem could go wrong. As part of our contribution to the Task Force, we had developed a simple analytical framework through which we may examine the faculty shortage question using an economic lens. We draw on this framework to present below the essential logical structure of this framework, as well as some of the key insights that follow from this perspective.<sup>5</sup>

From an economic standpoint higher education services constitute an ‘output’. This output is demanded by students, and supplied by the HEIs. Faculty resource is one among several ‘inputs’ that are required to produce higher education. Hence to analyse faculty shortage and availability, we need to see first how the demand for faculty resources by the HEIs is derived from the underlying market for higher education services. The demand for higher education at the aggregate level depends on three broad determinants—(a) the size of the student-age population (demographic structure), (b) tuition fees charged to students, and (c) ‘desired gross enrolment ratio’ (Sen, 2013). The desired GER is a parameter that summarizes the attractiveness of higher education to potential students. This parameter in turn depends on expected economic growth trends, as well as the social status associated with academic qualifications. High economic growth results in more favourable job prospects and high salaries on graduation. This increases the demand

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<sup>5</sup>Chapter 4 (MHRD, 2011).

for higher education from the student-age population, i.e., it increases the ‘desired gross enrolment ratio’ in the population. Thus, the demand relationship for higher education is described as follows:

$D_E = f(S; G_d; P_E)$ , where

$D_E$  is the demand for higher education,  $S$  is the proportion of student age population in the total,  $G_d$  is the desired GER, and  $P_E$  is the price of education. If  $S$  and  $G_d$  rise,  $D_E$  would rise. If these parameters remain constant, the demand for higher education is inversely related to the tuition fees, as in a normal demand function. While from an economic standpoint, the price of higher education (tuition fee) is a crucial determinant of the demand for higher education, in actual practice there may be regulatory constraints on the possible tuition fee. The same logic can be applied at a more disaggregated level to predict the demand for individual postgraduate programmes and academic disciplines. Demand for such programs would depend on the relevant tuition fees, while the desired enrolment ratio would reflect the job prospects and expected incomes in specific domains (e.g. engineering or management, and so on).

Having assessed the demand, the HEIs supply the higher education services. Their supply decisions include the following: (a) the quantum and composition of higher education that they will provide during the period.<sup>6</sup> (b) The number of faculty members that would be utilized for delivering the chosen programmes, and the number of new faculty members to be recruited. This latter magnitude represents the demand for faculty resources by an HEI. How do the HEIs make these decisions? We postulate that the HEIs behave in an economically rational manner so as to attain their institutional goals. They have two independent goals—(a) Maximize Net Operating Income; and (b) Maximize Institutional Reputation. These goals reflect their short term and long term institutional objectives respectively. HEIs attempt to find an optimum combination of these two objectives, subject to a number of constraints that they face. These constraints include infrastructure constraints, regulatory norms, government policy directives, and the size of the operating budget.

*Net operating income* is the difference between income flows and recurring costs.<sup>7</sup> With economic liberalization, rising costs and stagnant or shrinking grants, generating a net surplus has become an important goal for all categories of HEIs. *Institutional Reputation* is difficult to measure directly. It is gradually created over a longer period by sustained performance and expenditures on a number of activities. These include providing high-quality education in widely respected academic programmes, good job market acceptance of graduates and the recognition of the

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<sup>6</sup>The quantum of higher education is measured by the size of student intake and hence the planned number of students graduating with degrees. Composition refers to the mix of programs being offered, and the size of enrolment in each program.

<sup>7</sup>Income is obtained from tuition and other fees paid by students, as well as from other sources, such as income from endowment investments, grants, funded research and consulting activities. From this we subtract recurring costs to get the net operating income.

Institution's research and faculty quality. This goal requires investment on infrastructure, as well as on maintaining a good academic work environment. There is a very close association between institutional reputation and the *quality* of education that an institution is able to deliver. Institutional reputation pays off in the long run through the ability to attract good students, as well as to recruit and retain good faculty resources, and to obtain financial grants, earn consultancy income, and to build endowment funds. It enables the HEIs to fulfil the broader goals of higher education, which is difficult to do under conditions of commercialization, where the main focus is on generating profit. High institutional reputation also enables publicly funded HEIs to have a higher degree of operating flexibility and academic autonomy with regard to regulatory treatment. They tend to have greater flexibility in the operating characteristics of HEIs. The relative weights that they assign to each of these goals vary depending on the type of HEI. Moreover, the age of the institution is another important determinant. A new institution may have to devote more attention to reputation-building efforts. In general, there is likely to be a trade-off between the two objectives of net income and institutional reputation given limited operating budget for the HEI.

The Indian higher education sector contains a very wide variety of institutional types. According to the AISHE 2013-14 survey report (MHRD, 2015), there are 723 universities, 36634 colleges and 11664 Stand Alone Institutions<sup>8</sup>. Out of these, 248 are affiliating universities, i.e., they provide the degrees for colleges under them and 219 universities are privately managed. Some of the universities are specialized by discipline--398 of the universities have General programs, 90 are Technical universities, 61 universities offer Agriculture & Allied courses, 43 are Medical, 20 Law, 11 Sanskrit, 7 Language and 56 'other' Universities. The colleges are also quite diverse with respect to their ownership and management--75% of the colleges are privately managed; 60% are Private-unaided and 15% are Private-aided institutions. The objective functions of each of these types of HEIs would vary depending on their operating context. However, our framework is general and may be adapted to each context by assigning an appropriate weight to each of these components of the institutional objective function. For example, a commercially oriented privately managed HEI would assign a very high weight to generating a net operating income, and a very low weight to institutional reputation. This would translate into choice of and/or discrimination in favour of academic programmes where high tuition fees can be charged. By contrast, a well-endowed public institution with adequate and assured financial support from the government would be less concerned with earning a surplus from teaching activity.

The supply behaviour of the HEIs may be conceptualized in the following terms. Let us first abstract from the quality-quantity trade-off.<sup>9</sup> We assume that the HEI is maintaining its desired quality-quantity balance. It supplies a certain quantity of higher education services (measured by the number of students graduating) in accordance with its objective function. As tuition fees rise, the HEI increases the supply of higher education. However, the responsiveness of quantity of

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<sup>8</sup>Stand Alone Institutions offer only diploma courses.

<sup>9</sup>We shall discuss the quality-quantity trade-off subsequently in the chapter.

education supplied depends on a set of underlying conditions. If there are no faculty shortages or infrastructure constraints, the HEI can respond easily to a small increase in tuition fees. In economic jargon, the supply function for higher education will be ‘elastic’. However, when input constraints exist, the supply response is less flexible. In this manner, different configurations can be analysed. Apart from input constraints, there may be other factors that can affect the higher education market. This includes regulatory or policy induced requirements. As discussed above, there could be a ‘ban’ on fresh recruitment.

The analytical framework delineated above can be represented in simple diagrams representing the higher education market. The diagrammatic analysis has been presented more fully elsewhere.<sup>10</sup> We present here some key insights derived using this framework to analyse faculty shortage in a number of different contexts. The appropriate policy response in each of these contexts is very different. In some situations, what may appear as a faculty shortage is not really so. Measuring faculty shortage by the proportion of unfilled to sanctioned posts tends to shift the focus towards increasing the supply of faculty resources. However, this may not be the correct diagnosis of the situation in all cases. Below we present a set of hypothetical cases to illustrate the need for policy to be based on a careful assessment of the operating context and economic motives of the HEI. While faculty availability is our focus in this chapter, we should keep in mind that the more important policy issue is whether higher education is available in adequate quantity and quality.

*Case 1: Excess demand for higher education without faculty shortage in public-funded HEI*

Faculty shortage causes concern because it may prevent education services from expanding to meet rising demand. However, consider a situation where there is no shortage of faculty (in a structural sense). Demand and supply of higher education both respond to the price (tuition fees). The supply for higher education is elastic—i.e., the HEI can increase the supply of higher education by hiring additional faculty resources if needed. If the higher education market functions according to market principles, supply and demand would be equal at a particular equilibrium tuition rate. However, this may not be possible because of an upper limit on tuition fees imposed by government on grounds of economic accessibility. This is the effective tuition fee, and it is lower than the equilibrium rate. This situation will lead to an excess demand for higher education—the supply by the HEIs will be less than the demand at the low price. Here HEIs may claim that they face a faculty shortage, but the real problem is that they have no economic incentive. Under the prevailing conditions, they would recruit more faculty resources only if salaries were lower. In fact, if faculty supplies are increased by policy steps to expand doctoral programs, there will be a downward pressure on faculty salaries and perhaps on quality as well. There is no reason to suppose that faculty salaries in India are too high, and therefore lowering them may not be the best

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<sup>10</sup>The framework explained more fully in a paper by the author (Sen 2013). We shall use it here to convey some of the key insights that are relevant here. The work originated from the author’s participation in the Task Force.

policy. The correct policy therefore would be to increase budgetary support to the HEIs to enable them to expand supply. This is the better way to meet the goals of affordable education together with quality.

*Case 2: Excess demand for higher education with faculty shortage and regulatory constraint*

Here we examine a situation where there are two additional and different types of constraints on the supply of education—there is a structural barrier to expanding faculty size, and a policy-induced ‘ban’ on faculty recruitment. The structural constraint on faculty supply implies that beyond a point, the supply of education cannot be increased easily. This could be because potential teachers are attracted by alternative job opportunities, and they can only be induced to join the teaching profession by offering higher salaries. Thus education supply can be increased by the HEIs, but only at a sharply rising cost. The ceiling imposed on tuition fees remains. In this case, the magnitude of excess demand for higher education can be shown to depend on which of these three constraints is actually binding. If the faculty supply constraint is binding, then the appropriate policy would be to take steps to increase the supply of faculty resources. If on the other hand, it is the policy-induced freeze on faculty hiring that is the binding constraint, then no other policy intervention would ease the problem until this policy is relaxed. Further, even if both of the above constraints (i.e., faculty shortage and hiring freeze) are relaxed, but if the upper limit on tuition is binding then the excess demand for higher will still remain until the HEI receives enhanced funding.

To summarize, our economic framework suggests that policy makers must (a) carefully identify the different potential constraints on the higher education market, and (b) establish which *particular constraint is binding* at any given time; and (c) decide on the policy step to ameliorate the binding constraint.

We now apply our framework to analyse the market for faculty resources. This market is also subject to three influences—demand, supply and regulatory/policy norms. The demand for faculty resources is determined as follows. Faced with a demand for higher education, the HEI decides on faculty utilization so as to maximize net operating income subject to maintaining a chosen level of education quality and institutional reputation. The demand for faculty resources can then derived to be a function of the faculty salaries. If salaries fall, they would employ more faculty resources. If there is a rise in the demand for higher education, then the demand for faculty resources would also increase correspondingly.

On the supply side, the main determinants are: faculty salaries (relative to jobs with comparable qualifications); service conditions (e.g. teaching workload, research opportunities); career advancement prospects (promotion prospects, skill upgradation opportunities); institutional reputation of the HEI; better post-retirement benefits; and attractive fellowship opportunities for PhD and post-doctoral research. These conditions comprise factors that would increase faculty supply over the long term by making academic careers more attractive for new entrants. In the

medium and short run, faculty availability can be increased by such steps as relaxation of the age of mandatory retirement; enabling other professionals and practitioners (who are qualified but whose normal jobs do not involve teaching) to teach on a part-time basis; attracting NRIs and international academic personnel. However, given such enabling conditions, the most effective determinant of supply in the short run is the faculty salary. As wages rise, up to a point faculty supplies would increase readily. However, after a certain level, the availability would run into a limit. Beyond this level further increases would require significant increase in the salary. However, Indian faculty salaries in public HEIs are traditionally fixed by administrative procedures. So we shall assume that the prevailing salary level (say  $W$ ) is given.  $W$  is less than the market clearing equilibrium wage rate.

Finally, regulatory norms influence the faculty market. These can be of two types—(a) those that set a floor on faculty positions through such norms as pupil-teacher ratios, and (b) those that set an upper limit to faculty positions by such mechanisms as freezing fresh hiring, or via rigidity in the number of sanctioned posts.

Applying our framework to the faculty market yields the following insights. The actual faculty shortage is the gap between demand and supply at the administrative fixed salary  $W$ . The shortage would disappear if the market salary was permitted to rise. The actual shortage can be shown to be greater than the gap between sanctioned and actual filled posts—i.e. *the traditional measure is inaccurate and underestimates the true economic faculty shortage*. The number of actually filled positions is low because the fixed salary level is insufficient to elicit adequate quantity of faculty supply.

If we consider a different hypothetical situation where the supply position of faculty is even more stringent, it is possible that at the given wage rate the quantity of faculty resources supplied in the market would be *inadequate to meet the norm of a maximum pupil-teacher ratio*. The appropriate policy responses in this situation would be a combination of the following—(a) in the short term allow the faculty wage to rise; (b) take steps to increase the short term supply of faculty; (c) initiate measures (noted above) to improve the long term attractiveness of academic careers. It is possible, however, that in this situation HEIs and policy makers may attempt to take some other actions. One such action is to restrict the size of enrolments by making entry requirements much more stringent. We observe this phenomenon occurring in the case of the popular professional programmes in management, engineering, medicine and law.<sup>11</sup> Such a step would keep the demand for faculty resources down to manageable levels, but at the cost of unmet demand for higher education. The HEI might also attempt to lower the effective cost of faculty resources by increasing teaching loads and discouraging research and professional development activity. This strategy

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<sup>11</sup>For example, in the Common Admission Test (CAT) to join the Indian Institutes of Management (IIMs), the successful candidates represent approximately 1.5 per cent of the total number of applicants.

would, however, lead to a weakening of institutional reputation. HEIs could also adopt short term measures to increase faculty supply—such as ad hoc appointments. However, without adequate processes for certification and quality control this step may lead to lower quality.

The economic competition for faculty resources has important structural consequences for the higher education sector. Economic liberalization has led to a sharp rise in the demand for those branches of higher education that offer prospects for high-paying jobs. This trend has reinforced the commercialization of higher education by making very high tuition fees feasible and acceptable in certain disciplines. Consequently, the salaries that faculty members in these disciplines can command have risen relative to the teachers in other traditional disciplines. Private sector HEIs have entered such segments of the higher education market. In some cases, they offer higher salaries to teachers whose skills are in short supply relative to the demand. In large established Indian public universities it is difficult if not impossible to have differential salaries for different groups of faculties. This process has contributed to the *institutional fragmentation of the higher education sector*, and explains the emergence of highly specialized and smaller universities. Moreover, the new private HEIs have a strong incentive to ‘poach’ senior faculty members away from the older universities. The latter are consequently weakened through such a process. Thus the intensified commercialization of higher education under conditions of excess demand heightens institutional competition. Because the competition does not occur in a level playing field, it has a differentiating impact on the higher education system. Private HEIs operate with a much greater degree of economic autonomy—they are able to engage in commercial cherry picking. Consequently, they often offer a narrower range of programmes and courses. The strong reliance on net operating surplus of the commercialised private HEIs keeps them focused on revenue earning. However, this also implies that they do not have the capacity to build institutional reputation. On the other end of the organizational spectrum, the public HEIs have a bigger social mission and less operational flexibility which restricts their ability to commercialize, and pay higher salaries to their faculty resources. Hence, their faculty resource acquisition and retention strategies must rely on non-pecuniary incentives—such as high reputation, better working environment and research opportunities.

Our analysis from an economic perspective, thus, suggests that commercialization would exacerbate the fragmentation and differentiation within the higher education system. The commercially oriented institutions would tend to stretch limited faculty resources by focusing on fee-paying courses and high student intakes and heavy teaching loads. The public-funded universities (which typically receive limited funding from government) would be under pressure to increase student intakes particularly of those students who cannot pay high tuition fees. However, with adverse salary differentials they would find it difficult to have adequate faculty in the disciplines and programmes that are in high demand. Both these types of institutions would face challenges in maintaining quality. Under such conditions well-intentioned regulatory norms aimed at maintaining quality (such as pupil-teacher ratios, and adequate infrastructure) might be evaded. As we have seen above, many regulatory bodies expressed their inability to adequately

implement their decisions, mainly because HEIs have an incentive to evade them while the regulators' resources are limited.

## **Conclusion**

The Task Force made a set of comprehensive recommendations which should be adopted. These were grouped under the following heads: (1) Administrative Reforms, (2) Academic Reforms, (3) Financial Reforms and (4) Miscellaneous Reforms. Among the administrative reforms, it recommended that each HEI should establish a Faculty Induction and Development Cell. It also suggested ways to establish procedures and standards for different categories of non-permanent faculty members. These include those who are hired on contract, guest faculty members, adjunct faculty, visiting faculty, distinguished mentor faculty and international adjunct faculty. Under academic reforms, there are suggestions for institutionalizing schemes for inducing younger professionals to academic careers, and award schemes for excellent teachers. Among the financial reforms, the Task Force proposed honorariums for the time that faculty members devote to sponsored research, and establishing externally endowed chair professorships. The miscellaneous category included the setting up of a web portal for greater information dissemination that would help academic career aspirants.

While these recommendations are very useful, we have highlighted here the implications for faculty resources of significant variations in the focus and functioning of different categories of HEIs. It is desirable that the differentiation and fragmentation of the HEI system should be kept within some reasonable limits. Our analysis above suggests that while appropriate steps to increase the availability of faculty resources are desirable, a broader policy approach is necessary. In essence, this would entail ensuring mechanisms for enabling (and encouraging) the HEIs to attain a better balance between the two objectives of adequate net income and institutional reputation. At the moment the different types of HEIs pursue objectives that are highly skewed because their operating environment does not incentivize them to seek a better balance. A better balance between the two goals would narrow the sharp differences in faculty resource strategies. In the case of both private HEIs as well as public HEIs, policy should encourage the creation of some type of endowment fund. Such a fund can be crucial in enabling them to focus on and invest in building institutional reputation. This long term goal may be relegated under pressures to increase student enrolments and/or to raise financial resources. An important component of institutional reputation is creating and maintaining a good work environment for faculty, adequate opportunities for research and professional development. Additional regulatory steps and mechanisms such rewards based on objective performance criteria may be needed to channel competition among HEIs towards building institutional reputation. In the case of public HEIs, it is very important to increase their financial autonomy—by enabling steps that would encourage them to build a strong corpus funds from the savings that they earn. They should be adequately incentivized to fulfil their larger social mandates, without their having to compromise on quality and reputation.

In many ways, such enabling conditions are evident in such institutions as IIMs and IITs. They are publicly funded have acquired the reputation and also been allowed the academic autonomy that enables them to have a good faculty management processes. The issue of tuition fees and accessibility remains a cause for concern in such cases, and this needs concurrent attention. They are able to attract and retain faculty resources in the face of stiff domestic and international competition. Among the private HEIs as well, we find exceptional institutions where institutional reputation is accorded importance. Hence, the problem cannot be attributed to a simple private sector-public sector dualism. Indeed some of the great universities of the world are private. There is, however, no easy way out. The faculty availability problem requires calibrated short-term, medium term and long term policy responses, as well as adequate financial resources.

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