

## **Transition to Higher Education in India**

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### **Introduction**

Higher education is essential for social and economic development of a nation. Today, an increasing number of countries see tertiary education as key to individual prosperity, economic security and the enduring strength of democracy. Besides the clear relationship between higher education and employment, nations are becoming conscious of the fact that there exists a deeper connection between higher educational attainment and the economy. For example, studies show that unemployment during recession is not caused by short-term cyclical layoffs but by structural job loss. What this implies is that when structural job loss takes place in an economy with increasing skill requirements, education and training become essential to enable people to get back to work (Groshen and Potter, 2003). In other words, higher education and training play a critical role in helping economies recover from recessions; they particularly help with the issue of 'jobless recovery.' It is, therefore, essential for countries like India that have (1) chosen the service-sector led growth path, (2) are dependent on sustainable domestic demand to minimize the impact of global recession and (3) are keen to maintain a competitive edge in the global economy, to expand their higher education systems.

Widening of access to higher education is also essential for societies struggling to overcome socio-economic inequalities. Higher education helps them break away from the poverty trap by addressing the structural issues of deprivation and inequality by offering social, occupational and economic upward mobility to everyone in society. As such, the trend all over the globe is that countries

increasingly recognize the critical role of higher education in national development. This is reflected in an unprecedented growth of higher education, in terms of institutions and enrolment, mostly in developing countries. Instead of joining the labour market, more and more graduates from secondary education in developing countries seem to be interested in transiting to higher education. Between 2000 and 2010, the percentage of adults worldwide who have received tertiary education rose from 19 to 29 according to UNESCO, and all predictions suggest that this growth will continue, albeit at a slower pace (Gibney, 2013). Global education trend projections also predict dramatic improvements in attainments at all levels of education in most developing countries including countries in South Asia currently struggling with issues of expansion, equity and excellence in higher education (Samir et al., 2010).

Since the early 1990s, India has been on a growth path that has necessitated substantial increases in public expenditure on education. Even though the investment in education is currently not at the desired level, the pattern of public spending on all levels of education has increased significantly. For example, over the two decades starting from 1990-91, public expenditure on education has risen almost 14 times from INR 196 thousand million to INR 2,721 billion<sup>1</sup> in 2010-11 (budget estimate) (MHRD, 2012). Accordingly, the education sector in India has experienced rapid expansion and change.

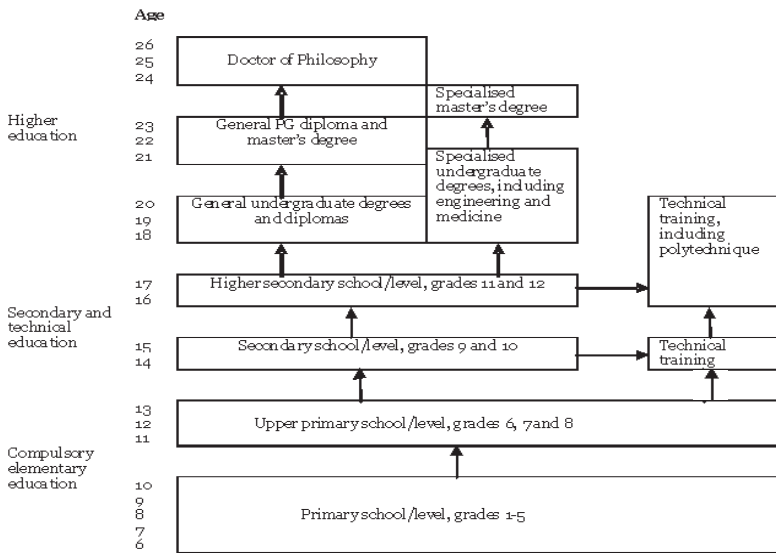
The Central Government has played the leading role in changing the trajectory of educational development, implementing a wide variety of changes in school as well as tertiary education subsectors. Large scale country-wide initiatives like the *Sarva Shiksha Abhiyan* (SSA), *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA), the Mid-Day-Meal Scheme, teacher development programme along with legal provisions such as the RTE Act 2009 making eight years of formal schooling a right of every 14-year old child, have impacted significantly the school participation rate, at least at the elementary level. However, the twin challenges of improving internal efficiency of the school system and the quality of learning continue to bother policy planners both at the central and subnational levels. Even today, nearly half of the grade I cohort do not make it to grade X thereby limiting significantly the size of the eligible population for first cycle of tertiary education. Still, a much smaller proportion of girls, socio-religious groups — children from minority groups and children in difficult circumstances reach the final grade of school education in India. These trends have important implications for transition

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1. One billion equals 1,000 million

rates and expansion of higher education because of the fact that the Indian education system is organized in a fashion that promotes progression to tertiary education following linear paths (see Figure 1). Nevertheless, the development trend in the school sector during the last two decades shows that resources and participation are rising strongly in the country.

**Figure 1: An overview of the Indian education system and progression path to tertiary and technical and vocational education**



Note: Grade and age profiles vary across states and duration of higher education courses varies by discipline.  
 Source: MHRD, GOI, adapted in Hill et al. (2011).

Higher education too has witnessed rapid growth but at a relatively lower pace. Strong supply-side expansion and the falling incidence of poverty have contributed to rising enrolment in schools resulting in increased social demand for higher education. It may, however, be mentioned that the low level of internal efficiency and quality of learning is ailing school education, which in turn is putting supply-side constraints on the expansion of higher education. This is because of the fact that expansion of higher education is a function of the size of the pool of eligible graduates of the school education subsector.

However, India is making special efforts to cope with the rising social demand for tertiary education by expanding the networks of colleges and universities. The number of central universities – set up through legislation in the national Parliament and funded by the union government, and other high quality institutions like the Indian Institutes of Technology and Indian Institutes of Management have doubled in recent years. Having reached the earlier target of

a 15 per cent gross enrolment ratio in higher education by 2012, India has now set a target of increasing the gross enrolment ratio to 30 per cent by 2020. Presently the ratio is about 20 per cent. The Government of India has also launched a programme of expansion of higher education under the *Rashtriya Uchha Shikshya Abhiyan* [National Higher Education Mission].

As has been mentioned, the growth of higher education, both in terms of quantity and quality, depends upon the number of secondary school graduates that the school system produces. Unfortunately, the secondary education system has suffered a long period of neglect. The gross enrolment ratio, though increased over the years, is low: 65 per cent at lower secondary level (grades IX and X/age group 14-15) and 39.3 per cent at higher secondary level (grades XI and XII/age-group 16-17). Combined, the figure is 52.1 per cent in secondary (lower plus higher) education (in the age group of 14-17) in 2011-12. Grade XII is the terminal year of higher secondary or school education in India.

With a view to expand access to secondary education, the Government of India has launched a programme of universalization of secondary education called *Rastriya Madhyamik Shiksha Abhiyan* (RMSA). This aims for a fast expansion of lower secondary education which would have its own push effects on the demand for higher education. Moreover, transition probabilities to higher education are also influenced by economic status of households, attitudes towards higher education and economic expectations that change over time. Reduced poverty levels are also pushing up the social demand for higher education in India.

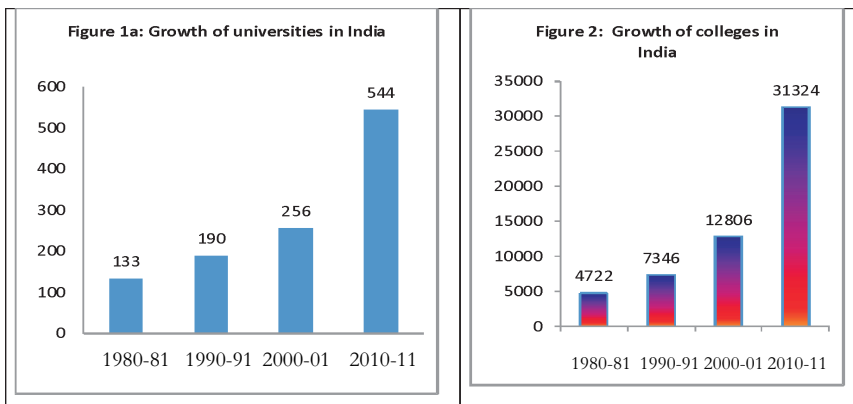
Also, efficient admission procedures are important to maintain the higher education system both in terms of quality and quantity. India has a complex system of multiple criteria for admissions in higher education. They include policies and procedures laid down by central government bodies, for example UGC, AICTE, NCTE and the Medical Council; and state government bodies, universities and other higher education institutions. Reforms are being talked about in this regard to ensure that the selection and admission criteria have predictive validity and that they would enable allocation of opportunities to those who are most likely to benefit academically. At the same time, as one of the important functions of higher education is to promote equal opportunities for all, admissions to higher education in India are also determined by a set of affirmative policies that aim at improving equitable access to higher education.

Against this background, this paper presents the prevailing post-secondary education situation in India by examining the trends in transition to higher education with a particular focus on selection and admission policies. It presents

a short analysis of available data from secondary sources and selection/admission procedures and criteria adopted in the tertiary education sector in general and institutions of higher education in particular. Specifically, the article, attempts to assess the rate of transition from secondary to tertiary education by examining data on enrolment and reviewing the admission policies in select higher education institutions. A few earlier studies on transition to higher education are based on household data, particularly NSS data on employment and unemployment (Basant and Sen 2011; Azam and Blom, 2009). The focus of the present study is on undergraduate or first cycle selection and admission in higher education, although reference is made to selection and admission processes and criteria at other levels and types of higher education in India as well.

### 1. Trends in Access and Participation in Education in India

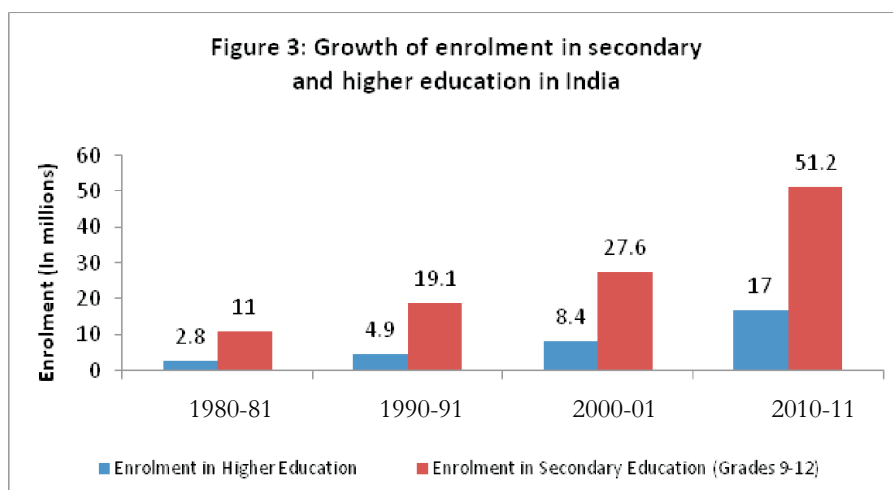
There has been significant expansion at all levels of education in India during the post-independence period, more particularly during the last quarter century. Today, the Indian education system represents one of the largest in the world. The number of schools, colleges and universities has grown phenomenally. Enrolment in secondary education (grades 9-12) has increased significantly from 27.6 million in 2000-01 to 51.2 million in 2010-11. The gross enrolment ratio in higher secondary education has gone up from 27.8 per cent in 2004-05 to 39.3 per cent in 2010-11 (MHRD, 2012). In higher education, the growth has been more marked. The number of universities has increased by about four times and the number of colleges by about six and half times during the last four decades, as shown in Figures 1a and 2. Growth has been very rapid since the beginning of the 1990s. More than one-third of the colleges in India have been established during the last five years (FICCI, 2012). During the last decade, the number of



Source: MHRD, *Selected Educational Statistics*, various years.

colleges has grown at an average annual growth rate of 9.4 per cent, whereas their growth rate was 5.7 per cent during the 1990s.

Enrolment in higher education has grown by more than six times during the last four decades. The gross enrolment ratio approached 18 per cent in 2011-12 and 19.4 per cent in 2013-14. The target for expansion of higher education in India is 30 per cent gross enrolment ratio by 2020. The average annual growth rate of enrolment in higher education was 7.3 per cent during the last decade; it was 5.5 per cent in the 1990s (see Figure 3).



The private sector is now the leading provider of higher education in India. In terms of number of institutions, the share of the private sector in higher education was around 64 per cent in 2011-12; around 59 per cent of enrolment was in the private higher education institutions. General – non-professional/technical courses of study - account for the largest share of enrolment in higher education. Professional/technical courses account for one-third of the total enrolment in higher education. Enrolment in professional and technical courses like engineering and medicine has registered significant growth during the last five years. Expansion of engineering, education and medicine faculties was phenomenal between 2007-08 and 2011-12. The average annual growth rate of enrolment in engineering was as high as 25 per cent during this period; it was 16 per cent for education and 15 per cent in medicine. Commerce and management programmes have also expanded significantly during this period registering 8.5 per cent annual growth in enrolment (see Table 1). It may also be stated that in higher education as a whole, undergraduate degree programmes account for more

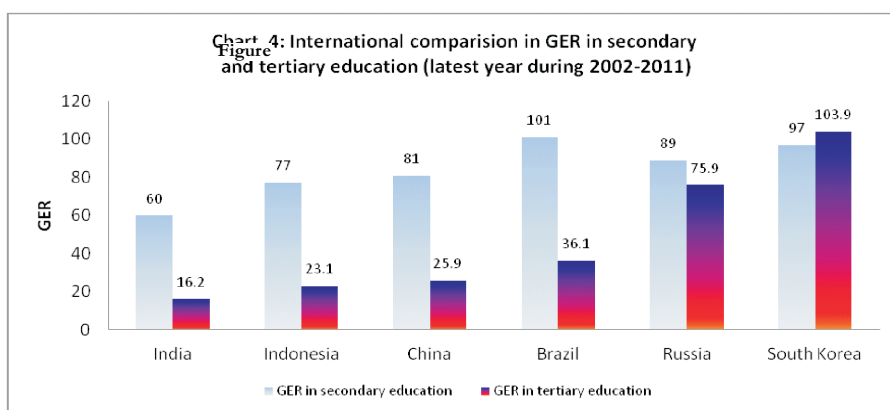
**Table 1: Faculty-wise growth in enrolment in India, 2006-07 to 2011-12**

Faculty	Total Enrolment in 2006-07 (in million)	Percentage of Total Enrolment in 2006-07	Total Enrolment in 2011-12 (in million)	% of Total Enrolment in 2011-12	Average annual Growth Rate in Enrolment, 2006-07 to 2011-12 (%)
Arts	5.5	39.60	6.6	30.20	3.70
Science	2.5	18.40	3.1	14.00	3.80
Commerce and Management	2.3	16.50	3.4	15.80	8.50
Education	0.6	4.50	1.3	6.00	15.90
Engineering	1.8	13.00	5.5	25.00	24.80
Medicine, Nursing and Pharmacy	0.6	4.30	1.2	5.50	15.00
Agriculture and Veterinary Science	0.1	0.70	0.1	0.60	5.40
Law	0.3	2.20	0.3	1.60	3.00
Others	0.1	0.80	0.3	1.30	19.10
Total	13.9	100	21.8	100	9.5

Source: MHRD, *Selected Educational Statistics*, various years.

than 87 per cent of the total enrolment in higher education in the country. Master's and research programmes account for the rest.

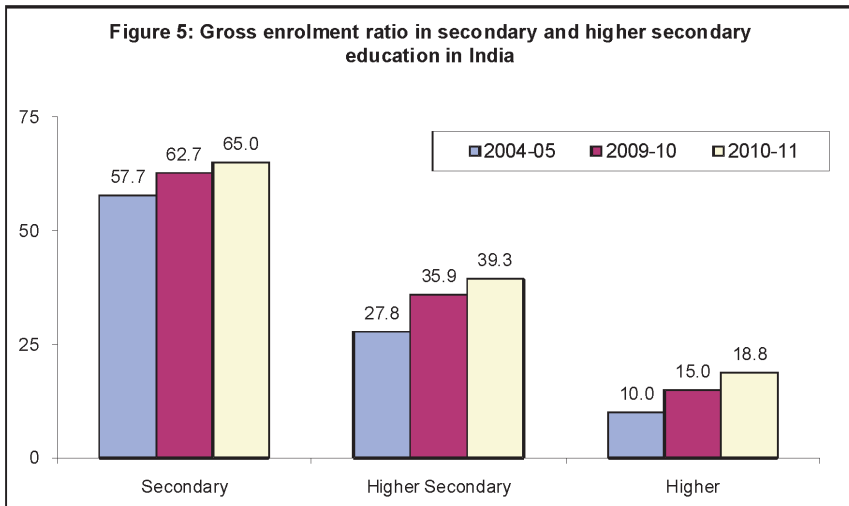
While in terms of absolute numbers, the performance of the system has been impressive. The total enrolment in higher education is about 20 million – which



Source: UNDP (2013), *Human Development Report, 2013*

exceeds the total population of many countries. But in terms of gross enrolment ratios, secondary and tertiary levels have not developed much, particularly when compared to BRICS countries and countries in South-East Asia. The ratios in India are much lower than the average of the developed countries, the average of the developing countries and world averages. (see Figure 4)

An important point worth noting in India is the difference in the gross enrolment ratio between secondary and higher education, which is very high. The ratio in higher secondary is nearly 40 per cent, while in higher education it is below 20 per cent in 2010-11 (see Figure 5).

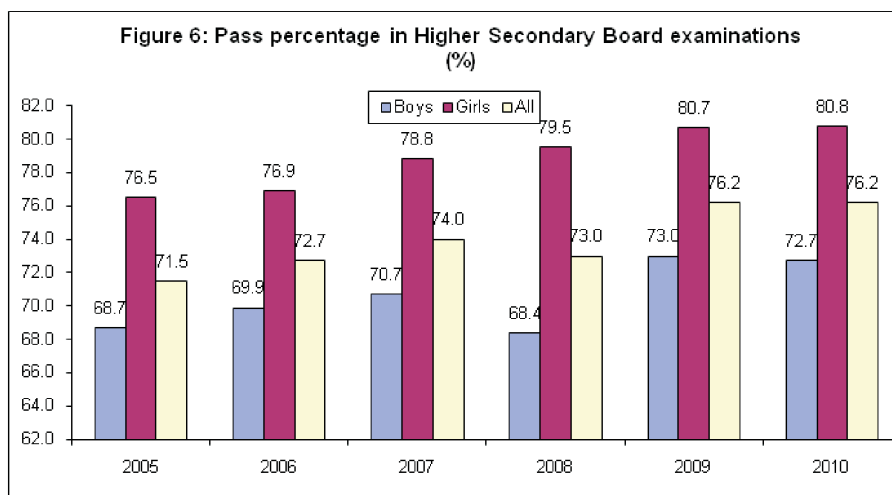


Source: MHRD, *Selected Educational Statistics and Statics on Higher Education, various years.*

These figures imply low transition from secondary to higher education though the rate of passes in higher secondary level-end examinations is reasonably high, as shown in Figure 6. It may be underlined that the graduation rate or rate of pass percentage at higher secondary level ranged between 64 per cent in 2006 to 77 per cent in 2010. Among women, the ratio crosses 80 per cent.

It is also necessary in this context to note that the dropout rates are very high in school education. Nearly 50 per cent of the children who enrol in grade I drop out before completing Grade X, that is, lower secondary. High rates of dropout at secondary level mean low transition rates to and low gross enrolment ratios in higher education.





Source: MHRD, *Results of High School and Higher Secondary Examinations*, New Delhi:

## 2. Transition to Post-Secondary Education

There have been limited attempts to study transition to higher education in India. The few studies on transition to higher education are based on household data collected in various NSS rounds. These studies also use different methods to estimate transition rates to higher education. Almost all of these studies find either low transition rates or low transition probabilities to higher education, both in rural and urban areas and across socio-religious groups.

Azam and Blom (2009) have attempted to study transition to higher education by analyzing the employment-unemployment schedule data collected in various NSS rounds from 1983 to 2004. They find that the transition rate<sup>2</sup> from higher secondary to tertiary education was 71.2 per cent for all categories; it was 79.8 per cent in urban India and 62.6 per cent in rural India; and there was not much difference in transition rates of males and females. Moreover, differences in the transition rates across states and between socio-religious groups are due to differences in higher secondary graduation rates.

The economic status of the household is a key determinant of the transition to higher education. In fact, it explains participation in school education. In 2004,

2. Their definition of Transition Rate =  $[(\text{Total population in the age group 18-23 who either attend or completed higher education}) / (\text{Total population in age group 18-23 who have completed higher secondary education})] * 100$ .

the transition rate from the bottom income quintile was only 52 per cent, and for the top income quintile it was 79 per cent. Moreover, students from the top quintile are more likely to attend technical and professional courses.

In their attempt to study access to higher education in India, Basant and Sen (2011) find that lower participation in higher education results both from household circumstances and the presence of supply-side constraints. Interestingly, 'deficits' in the participation in higher education among marginalized groups are not significant. Moreover, deficits for the underprivileged groups are found to be significantly lower among the eligible population, even after accounting for a variety of factors that influence participation in higher education. This implies that when persons from an underprivileged group cross the school threshold, their chance of going to college is very high. These findings have important implications for the rationale for implementing affirmative action in higher education.

Another study by Bhaumik and Chakrabarty (2011) attempts to study the transition probabilities to higher education in India on the basis of data from various NSS rounds on employment and unemployment data and using a sequential logit model. They argue that transition probabilities in education are a function of individual and household characteristics and also the economic environment. Their results indicate very low overall transition probabilities to higher education in both rural and urban areas. They find that transition probabilities for males are higher than those of females for all educational levels in both rural and urban areas. In urban India, a male has a 13.06 per cent probability of making the transition to tertiary education, while the corresponding probability for a rural male is just 5.04 per cent. The corresponding transition probabilities for females are 5.88 per cent in urban areas and less than 1 per cent in rural areas. Further, the impact of caste and religion on the transition probabilities of males and females are roughly similar.

The present study, however, attempts to estimate transition rates to higher education on the basis of enrolment data collected as part of school education statistics, and not on the basis of household data. Limitations of data in India do not make it possible to make accurate estimates of transition rates from higher secondary education to the first cycle of higher education, that is, undergraduate, post-school diploma and certificate programmes. The data required for estimating the transition rate to higher education are: grade-wise enrolment at the higher secondary level of education and graduates of higher secondary education; new admissions in the undergraduate programmes, including data on lateral entry for

a given academic year; and enrolment in post-school diploma. However, such detailed data on higher education are not available in India. Enrolments in higher secondary are available by grades. So we have data on enrolment in grade XII. Data on enrolment in higher education in the first year of undergraduate courses are not available. We have enrolment in higher education as a whole in all years of study put together, without year-wise break-up. As the required disaggregated data are not available, it is not possible to make precise estimates of transition rates.

In the absence of the required disaggregated data, an attempt has been made here to assess the transition to higher education in two ways as follows:

**Transition Rate:** Generally the transition rate in higher education is simply defined as the percentage of students enrolled in the last year of higher secondary level going into higher education.<sup>3</sup> As actual data on admissions or enrolments in the first year of higher education are not available, they are estimated here, taking the total enrolment in each course of undergraduate courses, some of which (e.g. general arts, science, commerce courses) are of three years duration and some (e.g. professional) are of four and five years. By dividing the faculty-wise enrolment by the respective average duration of the programme, we get an estimate of enrolments in the first year of study. Although students may, after joining a course, drop out during and/or after the first year and before completing the course in higher education, it has been assumed that enrolments in higher education are equally distributed across all the years. These estimated enrolments are compared with enrolments in grade XII, the final year of higher secondary level, to arrive at an estimate of the transition rate in higher education. Perhaps, given the limitations of data, these can be considered as the best estimates.

Although this seems to be the best way to estimate the rate of transition to higher education, it suffers from major limitations. After all, all students do not graduate from higher secondary level. Some drop out before the final year-end board examination and some do not succeed in the examination. In fact, in many schools, private in particular, all students in grade XII are not even allowed to appear at the year-end final board examination. They are screened by a pre-final board examination conducted internally. Only those who succeed or succeed well are allowed to proceed for the final board examination. This helps these schools claim a high performance because of high pass percentages. Pass

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3. Transition Rate = (Enrolment in grade XII year t/Enrolment in the first cycle of higher education in year t+1)\* 100, without making any adjustments for repeaters in the first cycle of higher education.

percentages are calculated based on the number of students appearing in the examination not the total number of students enrolled in Grade XII, and who pass the examination,

**‘Eligible’ Transition Rate:** Alternatively, one can think of a different transition rate, which for convenience is called here ‘eligible transition rate’, which takes into account some of the above problems. To take into account the eligibility condition for transiting to higher education, one has to consider higher secondary graduates (not enrolment in grade XII) and compare the same with the estimated enrolment in the first year of degree programmes. The eligible transition rate is thus defined as the number of students enrolled in the first year of higher education as a proportion of the number of students who graduated from the higher secondary level. This is called here the eligible transition rate as it is based on the number of students who are actually *eligible* to enter higher education, having passed the higher secondary level examination. This ratio can be higher than the normal transition rate as it excludes dropouts and failures in grade XII in the denominator.

Such estimated transition rates are given below in Table 2.

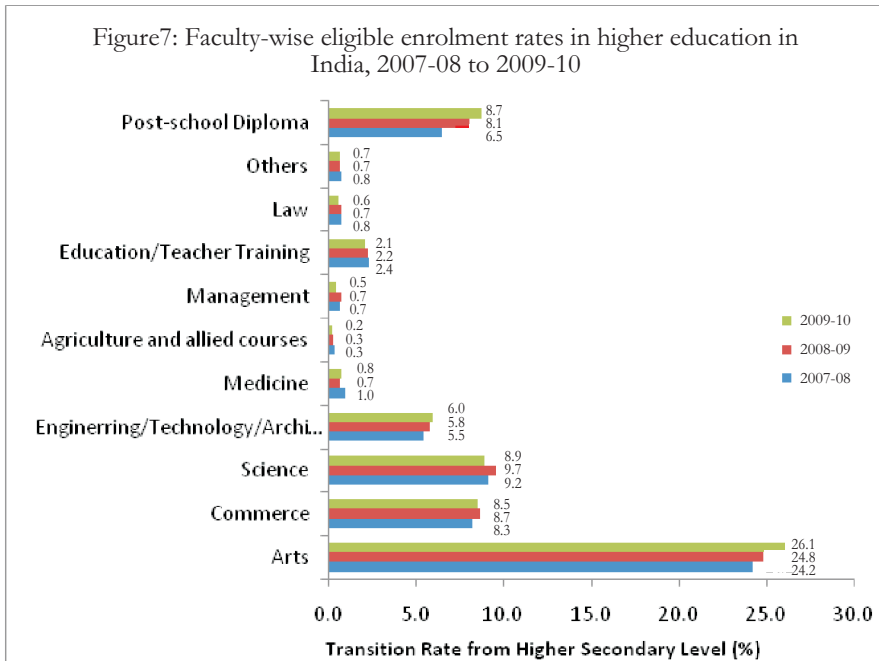
**Table 2. Transition rates in higher education in India (%)**

Year	Transition Rate	Eligible Transition Rate
2007-08	60.0	60
2008-09	58.1	62
2009-10	63.9	63

These estimated eligible transition rates are surprisingly not higher than the normal transition rates. This is because enrolment in the first cycle of higher education may include some students who sat higher secondary board/intermediate examinations as private candidates which are not reported as part of the higher secondary school pass-outs in the regular school statistics. It could also be because of limitations in disaggregating enrolment data in higher education to get the estimated enrolment data for the first cycle/year of tertiary education.

The estimates in Table 2 can be considered as providing very crude clues about the student flow to higher education. They are not precise rates of transition from higher secondary to higher education. Apparently, the transition rate from higher secondary to higher education in India varied between 60 per cent and 63 per cent during 2007-08 and 2009-10. These findings are very close to what have been found in studies based on NSS data by Azam and Blom (2009).

It is interesting to note that most of the higher secondary graduates transit to a few streams of higher education - Arts, Science, and Commerce (generally known as general education streams), Engineering/Technology, and Education/Teacher Training; while transition to other streams, particularly, medicine, management and law is meagre (see Figure 7). This can be understood to some extent by the admission procedures.



### 3. Selection in, and Admission to, Higher Education

Admission in higher education in India is guided by two major considerations: (a) cognitive abilities of the students and (b) protective discrimination policies simply known as ‘reservation’. While the former criterion promotes merit and excellence in higher education, the latter aims at promoting equality and diversity in participation in higher education.

First, merit as the criterion for admission. Admission to general higher education (e.g. B.A., B.Sc., B.Com) is usually done by the respective universities and colleges based on the merit of the students measured by the percentage of marks obtained in the higher secondary board examination. For example, the University of Delhi announces cut-off marks in the higher secondary board examination for admission to each first degree course and college. Students who

secure marks above the cut-off are almost automatically given admission to the courses of study and colleges of their choice. Sometimes personal interviews are conducted as an additional method to confirm the abilities of the students. Entrance examinations for admission to general courses at the undergraduate level are rare. But wide variations exist in admission criteria adopted by different institutions of higher education both at undergraduate and master's level courses of study. Merit based selection policies are based on the premise that a strong performance in the final year of secondary school is a good predictor of success in college/university.

It is also important to note in this context, that there are wide variations in the standard of examinations conducted by various boards of secondary education. Apart from two central boards of secondary education – the Central Board of Secondary Education (CBSE) and the Council for Indian School Certificate Examination (CISCE) - there are as many as 32 boards of examinations conducted by the various state governments. There are no uniform standards and no formulae for equalizing the scores secured by students in different board examinations. So students with a similar percentage of marks in the higher secondary board examination from different states have different levels of cognitive ability.

Hence, some feel the need for a single national level common entrance examination. In the area of professional/technical and medical education, a few national level common entrance examinations are conducted. These national level examinations are widely used in the context of admissions to central government institutions of higher education. But as mentioned already, there are also entrance examinations conducted by various state governments mainly used for admission to the institutions of higher education in the given state. Further, some universities and institutions of higher education conduct their own entrance examinations. A few major entrance tests conducted for admission into higher professional education are listed in Box 1 and their salient features are described in brief in Table 3.

**Box 1. A few major entrance examinations for admission in higher and professional education**

- All India Engineering Entrance Examination (AIEEE)/ Joint entrance Examination (JEE) conducted by CBSE for admission to various undergraduate engineering and architecture courses;
- All India Pre-Medical Test (AIPMT) conducted by CBSE for admission to various MBBS and BDS courses;

- Common Admission Test (CAT) conducted by IIMs for selecting students for their business administration programmes;
- Common Law Admission Test (CLAT) conducted jointly by National Law Universities for admission to various undergraduate and post-graduate programmes in law;
- Common Management Admission Test (CMAT) conducted by the All India Council for Technical Education (AICTE) for admission to all management programmes approved by AICTE;
- Engineering Agricultural and Medical Common Entrance Test (EAMCET) conducted by the Jawaharlal Nehru Technological University, Hyderabad for admission to various engineering, medicine and agriculture courses in Andhra Pradesh;
- Graduate Aptitude Test in Engineering (GATE) conducted by the Indian institute of Science and IITs for admission to various undergraduate engineering and science courses;
- Indian Institute of Technology Joint Entrance Examination (IIT-JEE) and now Joint Entrance Examination (JET) conducted by IITs for admission to various engineering courses in IITs and Indian School of Mines;
- National Entrance Screening Test (NEST) conducted by the National Institute of Science Education and Research (NISER), Bhubaneswar and the Center for Excellence in Basic Sciences (UM-DAE CBS), Mumbai for admission to various undergraduate science courses in these two institutions; and
- Xavier Aptitude Test (XAT) conducted by Xavier Labour Relations Institute (XLRI), Jamshedpur for business administration courses.

#### **State Level Tests/Examinations**

- KEAM (Kerala Engineering Agricultural Medical) entrance examination conducted by the Office of the Commissioner of Entrance Exams, Government of Kerala for admission to various professional degree courses in Kerala;
- MP-PET (Madhya Pradesh Pre-Engineering Test) conducted by the Professional Examination Board of Madhya Pradesh for admission to engineering colleges in the state;

- Odisha Joint Entrance Examination (OJEE) is a state-government controlled centralized test for admission to many private and governmental medical, engineering & management institutions in Odisha;
- Rajasthan Pre-Engineering Test (RPET) conducted by the Board of Technical Education (BTER), Jodhpur for admission to undergraduate programmes in engineering colleges in the state;
- SEE-UPTU (State Entrance Examination - Uttar Pradesh Technical University) conducted by Gautam Buddha Technical University and Mahamaya Technical University for admission to engineering, architecture, pharmacy and management courses in institutions affiliated to these two universities in UP;
- Tamil Nadu Professional Courses Entrance Examination (TNPCEE) conducted by Anna University on behalf of the Government of Tamil Nadu for admission to engineering and medical colleges in the state; and
- West Bengal Joint Entrance Examination (WB-JEE) conducted by the state government for admission to private and governmental medical and engineering institutions in West Bengal.

Wide variations exist in admission policies adopted by various institutions of higher education, particularly technical and professional institutions resulting in great variations in the quality of students admitted. Some institutions admit students on the basis of a common entrance test of a high standard on an all India basis or at state level. Other institutions admit students on the basis of marks obtained in the qualifying examinations conducted by various state boards which are associated with wide variations in their course structure, teaching process and examination system. Also, cut off marks for admission fixed by various state governments are different and keep on changing every year.

It may also be mentioned that some institutions do not use any entrance examination to select students for admission. They are mainly guided by the marks obtained at the higher secondary level examination. In a sense, there is no uniformity at all in using merit as a criterion for admission. Merit is interpreted in different ways, but mainly in terms of examination scores in board examinations or entrance examinations or both.

But for a few institutions, the selection criteria in different fields and programmes of study are often decided by the government – central or state, leaving little space for the participation of individual institutions in the process.



As such, the process does not facilitate effective allocation of students to various fields and programmes of study by instructional capacity or student preference. Further, branding of institutions often distorts student preference and introduces institutional bias in admission to the courses being offered. The overall impact is a truncated or a distorted growth path and unequal access to higher education in the country.

In short, selection and admission to engineering, medicine and other programmes in the professions are mostly done on an all India basis and/or on a state basis with common/joint entrance tests, which are well structured and allocate students to institutions according to instructional capacity, students' location and their preferences. However, institutional distortions do exist with the provision of the management quota in admission to privately managed institutions which are very large in number. The management quota refers to a small number of admissions, which are completely at the discretion of the management bodies, not academic staff, of the institutions, and they can cause distortions of various kinds. This allows management bodies to offer admission to students who do not take/qualify in the entrance examination, and charge them any amount of tuition and other fees.

On the whole, the proportion of higher secondary graduates who experience the selection process to the professional/technical programme is very small, where performance in the qualifying examinations or student's capacity to pay (mostly in the private sector) matter. Admission to general higher education and teacher training/education is mostly done at the institutional level with university/college specific admission policies.

As mentioned earlier, there are entrance examinations for admission to professional higher education, particularly engineering, management and medicine; but no major similar entrance tests exist for general higher education – first degree or master's degree level. However, a few institutions do conduct entrance examinations for admission in master's level programmes in general education. For example, the Jawaharlal Nehru University (JNU), New Delhi conducts all India entrance tests to admit students mostly to postgraduate and research programmes. The Jawaharlal Nehru University (JNU), a central university, conducts an entrance examination every year. To appear in the examination a student needs to apply offline usually in February. Once shortlisted, candidates are required to sit the entrance examination in May. The examination is conducted in Hindi and English in all state capitals and is usually based on the curriculum of the respective subject areas/courses. It is criticized because in poorer states where

students use their vernacular language at school, they are underrepresented in the list of selected candidates for admission to JNU. On the basis of the scores obtained in the written test, a merit list is prepared for viva-voce. The final list of selected candidates on the basis of merit is prepared for admission to various courses in July every year. An important feature of the JNU admission policy is that it gives due preference to candidates from educationally backward states (5 and 3 points are added to the examination scores, depending upon the level of backwardness of the state) and from socially disadvantaged communities (women get 10 points as against 5 points for men). JNU aims at maintaining an all India character in its admissions.

**Table 3: Brief description of the standardized tests/entrance examinations for admission to higher education in India**

Name of the test/Exam.	Objectives, Organizing Authority and Key Features	Eligibility and structure	Future Prospects
1. All India Engineering Entrance Examination (AIEEE)/Joint Entrance Examination	Originally started in 1960, presently it is organized by the Central Board of Secondary Education (CBSE) in India since 2002. The national level test is for admission to various undergraduate engineering and architecture courses in institutes accepting the AIEEE/JEE score, mainly 30 National Institutes of Technology (NITs) and 5 Indian Institute of Information Technology (IIITs). Since April 2013, the examination has been replaced by a reformed Joint Entrance Examination (JEE) – into main and advanced..	The examination consists of only two papers: Paper 1 for B.E./B.Tech courses and Paper 2 for B.Arch courses. A candidate can opt for one or both the papers. Paper 1 has three sections: Mathematics, Physics and Chemistry with equal weight for each subject. Each section consists of multiple choice objective-type questions each of which has four choices. Out of the four choices for a given question, only one choice is correct. Paper 1 has a negative-marking scheme wherein an incorrect answer is negatively marked with one fourth of the maximum marks allotted to the question. Paper 2 has three sections: Mathematics, Drawing, and Aptitude. Mathematics, and Drawing sections have multiple choice objective-type questions and the Aptitude section has drawing-based questions. The	The Ministry of Human Resource Development has announced its plans to replace JEE by 2013 with a common entrance test for all government engineering colleges which will be called Indian Science Engineering Eligibility Test (ISEET).

Name of the test/ Exam.	Objectives, Organizing Authority and Key Features	Eligibility and structure	Future Prospects
		<p>duration of each paper is three hours. The questions are based on a syllabus that is common to syllabi of all the state boards in India and the Central Board of Secondary Education. Candidates can opt for question papers either in English or in Hindi language. The examination was conducted in offline pen and paper mode until 2010. The number of attempts which a candidate can avail at the examination is limited to three in consecutive years. Candidates are ranked on an all India basis and state basis. Thus, they have an All India Rank and a State Rank.</p>	
<p><b>2. Indian Institute of Technology Joint Entrance Examination (IIT-JEE)/Joint Entrance Examination (JEE)</b></p>	<p>Organized by IITs in India every year, it is used as the sole admission test by the fifteen Indian Institutes of Technology (IITs), Indian School of Mines and IIT BHU (which has been converted now to IIT, BHU).</p> <p>In 2013, it was replaced by the Joint Entrance Examination, held in two phases. Phase 1 is JEE Main and the second stage of the test is JEE Advanced.</p> <p>JEE, an all India common entrance examination is conducted for admission in various engineering courses like</p>	<p>JEE is being conducted in two parts- JEE-Main and JEE-Advanced. JEE-Main exam is for admission to NITs (National Institute of Technology), IITs (Indian Institute of Information Technology), other Central Funded Technical Institutes, etc. and JEE-Advanced is for admission in IITs (Indian Institutes of Technology), Banaras Hindu University (IIT-BHU) and the Indian School of Mines (ISM), Dhanbad.</p> <p>In September 2013, IIT Council approved the decision of the JAB (Advanced) to continue with the two-phase JEE pattern for 2014. The JAB of the Indian Institutes of Technology (IIT) have decided to continue with the offline format (paper and pencil) of JEE Advanced for 2014.</p>	

Name of the test/ Exam.	Objectives, Organizing Authority and Key Features	Eligibility and structure	Future Prospects
<p style="text-align: center;"><b>3. All India Pre-Medical Test (AIPMT)</b></p>	<p>B.Tech, B.E, B.Arch and B. Planning under the direction of the Ministry of Human Resource Development (MHRD).</p> <p>An annual all India entrance examination conducted by the Central Board of Secondary Education (CBSE), Delhi for admission to MBBS and BDS courses in several medical colleges around the country. Presently, 15% of the total seats in all medical and dental colleges run by the Union of India, state governments, municipal, or other local authorities in India, except in the states of Andhra Pradesh and Jammu and Kashmir, are reserved for candidates from other states who pass this examination. Since 2010, the examination has been modified.</p> <p>It aims at making medical education available on an equitable basis to all regions of the</p>	<p>JEE is criticized on the basis of the decision of the IIT Council to give a chance to students making the top 20% from various boards in the class 12 examinations. This decision, it is argued, would go against the poor, who do not have the opportunity to study in elite schools. Moreover, IIT-JEE is conducted only in English and Hindi, making it harder for students where regional languages are more prominent.</p> <p>There are two stages to the examination: Level 1 and Level 2. Level 1 consists of 200 questions based on NCERT books, especially, biology. Level 2 is the main examination, which tests the students on physics (25%), chemistry (25%), and biology (50%). Effective 2010, the pattern of AIPMT is being changed. Due to complaints about the unreliability of the subjective main examination, it has been made completely objective like the preliminary exam. The preliminary examination consists of 200 questions while the main exam consists of 120 questions. The duration for both the examinations is 3 hours.</p> <p>OBC reservation is being implemented under government directives, but only in central institutes (i.e. not in most of the colleges covered under AIPMT). About 1900 MBBS and approximately 250 dental seats are available through AIPMT.</p>	

Name of the test/ Exam.	Objectives, Organizing Authority and Key Features	Eligibility and structure	Future Prospects
<p style="text-align: center;"><b>4. Common Admission Test (CAT)</b></p>	<p>country and to foster inter-regional exchange. Since 2006, reservation for SC, ST and OBC have been introduced in AIPMT.</p> <p>It is a computer based test to assess students' quantitative ability, data interpretation, verbal ability and logical reasoning. The Indian Institutes of Management (IIMs) started this exam and use the test for selecting students for their business administration programmes. In August 2011, it was announced that IITs and IISc would also use the CAT scores, instead of the Joint Management Entrance Test (JMET) to select students for their management programmes from 2012-14 year.</p> <p>It is conducted by the Indian Institutes of Management (IIM) as a prerequisite for admission to various management programmes of IIMs, IITs, IISc, NITs, Faculty of Management Studies (FMS) and a few other institutions. A candidate can appear for CAT only once during the 20-day testing window. The test score is valid for admission to the forthcoming academic year only.</p>	<p>AIPMT is criticized for being conducted only in English and Hindi, making it harder for students where vernacular is more prominent.</p> <p>The CAT uses multiple versions of the test. Hence, there are two types of scores involved, raw score and scaled score. The raw score is calculated for each section based on the number of questions one answers correctly, incorrectly, or omitted. Candidates are given +3 points for each correct answer and -1 point for each incorrect answer. There are no points for questions that are not answered. The raw scores are then adjusted, as necessary, through a process called equating. Equated raw scores are then placed on a common scale or metric to ensure appropriate interpretation of the scores. This process is called scaling.</p> <p>Three scaled scores are presented for each candidate: an overall scaled score and two separate scaled scores for each section. As the two sections evaluate distinct sets of knowledge and skills, scores do not correlate across sections. A high score in one section does not guarantee a high score in another section. Percentile rankings are provided for each individual section as well as for the overall exam score.</p>	

The brief discussion on various key all India entrance examinations for admission to courses in engineering, management and medicine highlights one major concern: that they have become the basis for an ever growing coaching industry in the country and as such the tests are indirectly patronized. They generally keep students from disadvantaged communities out of the elite institutions as they lack the ability to pay the high fees for coaching. In addition, the languages (English and Hindi) in which these exams are conducted also discriminate against the disadvantaged. These examinations also use different interpretations of merit and accordingly, assessment methods. Because of branding, courses in IITS, NITs, IIMs and IISc are oversubscribed leading to fierce competition often making it difficult to select from the highly qualified pool of students. Courses in electronics engineering, IT and computer sciences in engineering faculties are also oversubscribed. In addition, uneven awareness about these tests and entrance examinations also make certain students disadvantaged in accessing higher education in these institutions.

There is an important effect of these entrance tests on students in secondary education. Students prepare for entrance tests, mainly in professional education, from grade VI onwards, that is, from the beginning of upper primary education (if not earlier) because many entrance examinations are tough and competition for admission in high quality, mainly public institutions is extremely severe. Further, as students prepare for multiple tests, they often neglect their main course of study at higher secondary level. Many private secondary schools which often offer coaching simultaneously also pay relatively less attention to secondary education (subject to normal average performance – a good pass mark in secondary board examination) and more to coaching in the subjects relevant for entrance examinations. Often the coaching system adds much stress to the already stressed students, and it imposes an extra financial burden on parents.

### **Reservation in Higher Education: A Policy to Promote Equity in Higher Education**

To correct historical disadvantages suffered by certain social groups of the population identified by caste categories, the Constitution of India provides for reservation (quotas) of a good proportion of seats in higher education to certain caste groups listed as Scheduled Castes, Scheduled Tribes and Other Backward

Communities.<sup>4</sup> Based on the composition of the total population, the following proportions are reserved for these respective groups:

Scheduled Castes	15%
Scheduled Tribes	7.5%
Other Backward Communities	27%
<i>Total constitutional reservation</i>	49.5%

These proportions are more or less proportionate to their representation in the total population. In addition, there is also reservation for physically challenged students to the extent of 3.0 per cent of the total admissions. In almost all cases, lower cut-offs in the scores in entrance tests and also in the qualifying examinations are used for admission of these less advantaged groups of students. Further, additional support in terms of extra teaching is offered in many public institutions; and support in the form of special educators and rehabilitation professionals (for physically challenged) are also available.

In addition, reservation is also provided in most state institutions, public and private, for a small number of admissions for students coming from other states in India. This is to promote national integration. Nearly 85 per cent of the admissions are reserved for students belonging to the state in which the institution is located while the remaining 15 per cent is for students from other states. Central institutions do not have such reservation as the admissions there are open to all. Institutions also have a similar provision for students from foreign countries, generally as a few additional seats.

These reservation policies are a matter of extensive research. Many studies have found that they have been very effective in improving access of the weaker sections of society to higher education in India (Weisskoff, 2004); while some studies have also noted that these policies have not been adequate in improving completion rates either at high school or university levels or both. There are also strong arguments against these reservation policies. They are argued to obstruct the fair selection of students to higher education on the basis of merit. It is argued that the social backwardness of these groups does not automatically establish the case for their 'unfair' access to higher education. Further, it is argued that the practice of reservation favours the elites' access to higher education excluding the really disadvantaged (Swaminathan 2006). In fact, it is well established

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4. In fact, the history of affirmative action of extending privileges to socially backward castes dates back to 1882 (as recommended by the Hunter Commission) and subsequently the Government of India Act IN 1935 (based on the Pune pact between Mahatma Gandhi and Dr. B.R. Ambedkar) (Basant and Sen, 2011). Southern states were the front runners in making their own list of backward castes. Moreover, the affirmative action through scholarship schemes to increase access to tertiary education became more visible during the ninth plan (1997-2002).



that the difference in deficits in households and the individual characteristics of eligible populations including those from socio-religious disadvantaged groups who cross the threshold of school education are negligible (e.g., Azam and Blom 2009). Hence affirmative action like reservation in tertiary education would favour the upper strata of the underprivileged who are not much different from those of the general population. Reservation in higher education would thus promote hierarchy and inequality among the underprivileged rather than improving equity in tertiary education. It is simply not possible to address the issue of social equity in tertiary education through affirmative action as it is conditional on the level of equity achieved in the school education sector.

Over the years, the overall size of the reserved categories in total admissions in higher education has increased. For example, ‘other backward castes’ was added as a group only in the 1990s. There have been demands and corresponding public action to add many other castes to the lists of scheduled castes or other backward castes. Further, while the Constitution of India (1950) had provided for reservation for only a 10-year period, that is, up to 1960, they are repeatedly extended and continued indefinitely. Vote bank politics is believed to be the main factor responsible for this situation — both for extension of the date and also for expanding the group of ‘backward classes’ (see Gupta 2006), while these are also equally arugements in favour of such caste base reservations and their continuation (Deshpande 2006; Ghosh 2006). Some (Mehta 2004) argue that there is no educational, economic or social rationale for the policy. Others (e.g., Bertrand et al 2010) argue strongly for replacing caste with income/economic level as the basis for reservation. Income is also viewed as a progressive measure compared to caste which is considered a social stigma. Exclusion of the ‘creamy layer’ (persons in the upper levels of backward sections of society) from the general reservation policy has not been very effective. Further, according to the opponents of reservations, as there is no educational reason reservation is argued (e.g., Indiresan 2009; Mahajan 2009) to result in dilution, if not serious erosion of the quality and standard of higher education and its overall competitive strength. Certainly, the reservation policy sows seeds of discontent among middle and upper castes and causes growth in class tensions. Given that demand exceeds supply for higher education in good quality institutions, and taking into account rising costs and the reservation policy, those who can afford it often travel to other countries for their higher education, though such numbers are small relative to the huge numbers relating to enrolments in higher education in the country.



## Conclusions

In the absence of reliable detailed data, a quick attempt has been made to estimate transition rates from secondary to higher education in India. The analysis shows that the estimated rates of transition to higher education from higher secondary level are reasonably high, above 75 per cent in recent years. But the gross enrolment ratio in higher education is rather low, below 20 per cent, which is considerably less than the ratio in advanced countries and rapidly growing developing countries like the BRICS countries and countries in East Asia. The Government of India has an objective of raising the enrolment ratio in higher education to about 30 per cent by 2020, which will also be much below the ratio in advanced countries. The ratios at secondary and higher secondary levels of education in India are respectively about 60 and 40 per cent – far from universal education. These estimates suggest that to improve transition rates to higher education, there is a need to increase the enrolment ratios in secondary and higher secondary levels by improving transition rates from elementary to secondary education, by reducing dropout rates in secondary education and by improving pass percentage rates in secondary board examinations. With nearly 50 per cent of the population being below 25 years of age and 65 per cent below 35 years of age, there is a huge need to expand secondary and higher education. If not, the so called demographic dividend could turn out to be a demographic problem, resulting in building stocks of less educated, unskilled and unemployable young people.

Another important issue that has implications for transition to higher education from secondary education refers to the availability of higher education facilities and the corresponding admission policies and procedures for higher education. While in terms of number of institutions and even in terms of number of students the higher education system in India is one of the largest in the world, demand for high quality higher education exceeds supply. As a consequence, the higher education system in general and higher education institutions in particular, adopt somewhat strict if not very tough admission procedures. While admission to first degree level general higher education is largely determined by the cognitive ability of the student measured in terms of performance in the qualifying higher secondary board examinations, admission to professional/technical education is largely decided by entrance examinations conducted at the all India level, or state level, or at the level of the institutions. The rationale for national level common entrance examinations lies in the fact that graduates of higher secondary education leave school after taking higher secondary board examinations which are conducted

by as many as 34 (two central and 32 state level) boards of education, with wide variations between them and no equalizing formulae of any kind to assess the performance of students at a common level. The national common entrance examinations are mostly used by central institutions of higher education like the IITs, IIMs and central universities in making admissions. But since education, including higher education, is a 'concurrent' subject in the Constitution of India, almost all state governments also conduct state level entrance examinations for admission to professional courses of study, which are mostly used by state level institutions for determining which students to admit. On the other hand, some institutions of higher education do not use either of these examinations and rely either on their own entrance examinations, and/or on the scores secured in the higher secondary board examinations only. Given all of this, one finds wide differences in standards and the quality of students admitted to different institutions of higher education – differences between students admitted to central versus state level institutions and between those admitted in different states.

The multiple entrance examinations create huge stress on students in secondary education. Private institutions have been established in large numbers all over India to coach secondary level students to face entrance examinations for admission to higher education. Facing stiff competition for admission to high quality public institutions, students resort to coaching not just after graduating from secondary education, but almost from the start of their secondary education. Excessive reliance on performance in entrance examinations makes students in secondary education and even the schools pay less attention to secondary education. Further, it is also felt that students spend so much time and effort in preparing for entrance examinations that by the time they get admitted to higher education, they, including meritorious students, are so stressed and exhausted they may not necessarily perform as well in higher education as much as they do in the entrance examinations. [<http://archive.indianexpress.com/news/pm-panel-slams-iit-entrance-test/970543/>] In addition to the stress these entrance examinations and coaching institutions create, they also add to the financial burden on the families as the phenomenon of coaching institutions has become big business. This, in addition, widens inequalities in access to coaching institutions and to higher education between those who can afford them and those who cannot. In recent years, the Government of India has initiated discussions on the need for a single common entrance test for admission to higher professional education, in place of multiple tests. The need for uniformity, transparency and predictive validity of the criteria adopted is being increasingly felt.

Admission to higher education is also further complicated by the protective discrimination policies that include quotas or reservation for specified groups of backward social groups of the population identified primarily by caste. These policies in higher education have their own varied effects both on secondary and higher education. There have been strong arguments both favouring and criticizing these policies. While they have been perceived to have significant positive effects on the mobility of weaker sections (Weisskopf 2004), it is widely felt that vote bank politics, and not any educational, social and economic rationale explain the continuation and even expansion of these policies. They are largely criticized for causing a fall in the quality and standard of higher education in India and for demotivating students belonging to backward sections of society about the value of secondary education.

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