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Education Abroad: engineering, privatization, and the new middle class in neoliberalizing India

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In this essay, I examine ‘Education Abroad’ – the large-scale migration of engineering students from India to the USA for seeking graduate education. I argue that Education Abroad in contemporary India is articulated at the intersection of multiple factors at different scales. These include imaginations of successful careers and lifestyles as well as frustrations with state-sponsored higher education in India – factors which, in turn, are themselves located within particular histories of (post)colonialism, developmentalism, and more recently, neoliberalism. Drawing on historical analysis and ethnographic research conducted among engineering students in Mumbai, India, and various parts of the USA, I trace ways in which Indian engineers make sense of and navigate through the intersections of these various historical and contemporary currents and the particular shape of Education Abroad that emerges as a result. Moreover, I suggest, in pursuing Education Abroad, these engineers inadvertently undermine the very systems of higher education of which they are legacy beneficiaries.

Keywords: education; engineers; India; middle class; migration; multi-sited ethnography; neoliberalism; privatization; USA

Introduction

In recent history, the USA has been the premier destination for higher education for Indians. Over the past decade, India has been consistently among the top source countries (alongside China and South Korea) for international students seeking university-level education in the USA. In recent years that figure has been in excess of 100,000 students annually;¹ roughly, half of whom are engineering students, mostly at the graduate level. Of late, the number of students seeking graduate degrees in management-related fields has slightly surpassed those seeking graduate degrees in engineering. But, even then, it is important to note that many of those students have also been previously trained as engineers – at the undergraduate level, at the very least. In addition to the USA, other countries too have started receiving large contingents of Indian students seeking higher education. For example, Australia, where higher education is among the top contributors to the national GDP, is now the second largest receiver of Indian students (after the USA). Canada and the UK, and more recently, Singapore, are also countries that receive large contingents of Indian students. And increasingly, as many European universities have started offering education with English as the primary language of instruction, these too are becoming attractive destinations for

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¹Bhandari and Chow, *Open Doors 2008*.

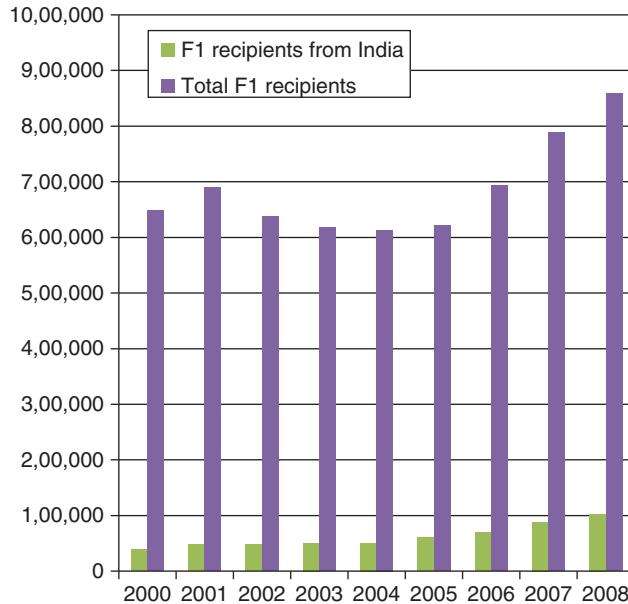


Figure 1. Student migration between India and the USA, 2000–2008. ('F1' is the visa category on which most Indian students enter the USA.)

Source: These statistics are compiled from the following sources: US Immigration and Naturalization Service, *Statistical Yearbook*, 2002, 2003; US Department of Homeland Security, *Yearbook of Immigration Statistics*, 2003–2009.

Indian students. In this essay, I refer to this phenomenon of overseas education, specifically among Indian engineers, as 'Education Abroad.'

What is it that drives so many Indian students to seek educational opportunities elsewhere? What forces – historically and in the present – shape the migration of Indian engineering students from India to the USA? How is it that the Indian educational apparatus prepares so many students to seek educational and employment opportunities elsewhere? Answering these questions is the primary aim of this essay. A second goal is to question the implications of such movements. That is to say, what can 'Education Abroad' tell us about broader political-economic shifts in India? How can engineering practice, in other words, provide a window onto broader social, cultural, and political-economic transformations?

I argue that Education Abroad in contemporary India is shaped at the intersection of multiple forces at various scales: middle-class imaginations of successful careers and lifestyles, themselves variously situated in histories of postcolonialism, developmentalism, and more recently, neoliberalism articulate to together shape Education Abroad. Tracing these dynamics constitutes the bulk of this essay. In the section that follows, I provide a brief history of the emergence of India's 'new middle class' in order to provide a context for the discussion that follows. The core analysis consists of historical analysis based on secondary sources, as well as ethnographic data collected as part of my larger research project.² The operative model is that of a case study – I develop an understanding of the contemporary dynamics of Education Abroad by focusing on four dynamics in particular: (i) The uneven growth of higher education in post-independent India, (ii) the centrality of science and

²Khandekar, "Engineering the Global Indian."

technology to Indian envisionings of modernity, (iii) the perceived supremacy of the US educational system in relation to engineering disciplines among Indian students, and (iv) Ongoing frustrations among Indian engineers with Indian political culture, which they then circumvent by pursuing Education Abroad. Moreover, it is my contention that understanding the motivations of Indian engineers provides insights into the everyday workings of neoliberalism in contemporary Indian political culture. I develop this argument further in the conclusion.

To answer the questions I raise here, I draw on data derived from approximately three years of multi-sited ethnographic research³ (2007–2010) conducted among Indian engineering students and professionals in Mumbai, India and various parts of the USA. In-depth ethnographic interviews (30 formal, many more informal interviews) with Indian engineering students and professionals and participant observation at a wide range of events and gatherings – including an annual diaspora conference – the *Pravasi Bharatiya Divas* – organized by the Indian state, formal and informal gatherings among Indians in the USA – comprise the primary data sources. For this essay, I draw heavily on interviews conducted during the early phases of my fieldwork in Winter 2008–2009 with third-year engineering students in Mumbai who were in the process of preparing their application documents toward seeking admissions in US universities at the graduate level. Formally, I interviewed 15 students (and many more informally) during this phase of my research. At the same time, I also rely on interviews, biographical accounts of Indian engineers, and other data collected during the later stages of the research when necessary. A host of documents – such as student application essays, various reports produced by state actors such as the Ministry of External Affairs of the Government of India, immigration statistics and analysis provided by the US Department of Homeland Security, and Immigration Reports authored by the International Labour Organization – also inform the analysis in crucial ways. Other online and offline sources such as Indian matrimonial websites, branding commercials produced by Indian multinational companies, and accounts of migration authored by Indian professionals also inform the larger analysis. The emphasis here, however, is not to develop rich ethnographic sketches of my interlocutors,⁴ but rather identify rationales that they articulated for pursuing Education Abroad.

Student interviewees in Mumbai were enrolled in various engineering disciplines at two institutions – Mumbai University (MU) and Indian Institute of Technology (IIT) Bombay. MU is a state-level institution funded through the state of Maharashtra, of which Mumbai is the capital. As an educational institution, it is highly decentralized, with about 50 different engineering colleges spread across the greater Mumbai region that are affiliated with the university. Instruction, staffing, etc. are responsibilities of individual colleges, while the university itself serves primarily an administrative function in coordinating curricula, examinations, and the like. IIT Bombay, on the other hand, is an autonomous institution funded by the central government of India. While a number of IITs have been established in different parts of India, each institution manages various aspects of its education, research, and administration almost independently. MU is primarily an educational institution, while IIT Bombay has a significant research profile in addition to its educational functions. During the time this research was conducted, there were approximately 18,000 engineering students enrolled at the bachelor's level at MU. The 17 IITs spread across India accept in excess of 9000 new engineering students annually. The IITs, since their establishment in the 1950s, have enjoyed an excellent reputation as being premier engineering institutions globally.

³Marcus, "Ethnography in/of the World System."

⁴I do so elsewhere, see: Khandekar, *Vasudhaiva Kutumbakam*, forthcoming.

Interviews that I conducted with students at MU and IIT Bombay focused exclusively on third- and final-year engineering students who were in the process of applying for further education overseas, almost always at US-based universities.

A few caveats are in order before I proceed further. I recognize the tremendous diversity among Indian engineers based on social class, background, gender, and specialization: yet, my point in this essay is not to analyze how these differences matter. Here, I merely focus on the various forces that impel Indian engineers to a graduate education in the USA. I hence continue to use ‘Indian engineers’ as a useful shorthand, while being aware that it is a highly fractured category. Second, my point in bringing out the divergent institutional settings for MU and IIT Bombay is not to set up a comparison between the two: indeed, doing so is well beyond the scope of the present essay and needs a much more careful investigation of the historical evolution of both institutions. At present, I am merely interested in bringing out a wider range of perspectives and trajectories that shape articulations of Education Abroad.

Privatizing strategies of India’s ‘new middle class’

Fernandes⁵ traces the origins of India’s ‘new middle class’ to colonial educational policies, which through the introduction of English-language education, sought to cultivate a class of low-level clerks and bureaucrats for the purposes of day-to-day administration of the colonial state. This mostly urban, English-educated new middle class, however, went on to deploy the very Enlightenment ideals of its education to challenge the legitimacy of colonial rule instead. Thus, from the very outset, this class was characterized by a politics of distinction: the educational and employment opportunities afforded to it as a result of its English education meant that it was invested in differentiating itself from the vernacular elites and indigenous populations on the one hand, while at the same time, its claim to cultural leadership of the Indian masses positioned it in tension with the (colonial) state as well. The structural dependencies between the new middle class and the state established during the colonial era, nonetheless, continued into the postcolonial period as well: under Nehruvian⁶ ideals of state-led socialist models of development, the new middle classes figured as administrators and technocrats in India’s path to modernity. Among other things, this resulted in the selective consolidation of the socio-economic bases of the middle class: for example, many more resources were allocated to higher education than to primary and secondary education.⁷

Two factors, however, interrupted this trajectory: a stagnating economy with few employment opportunities set into motion a massive wave of emigration among the highly educated – India’s first ‘brain drain’⁸ – and a constitutional commitment to social justice meant that formerly subjugated groups were now more assertive in staking their claims over a limited supply of state-managed resources. Such contestations intensified further over the next two decades, increasingly pitting the middle class *against* the state, fostering feelings of minoritization and victimization among them, and a more generalized sense of disenchantment with Nehruvian ideals of state-led socialist development.

⁵Fernandes, *India’s New Middle Class*.

⁶Jawaharlal Nehru, a central leader in the anti-colonial nationalist struggle, went on to become independent India’s first Prime Minister.

⁷Rudolph and Rudolph, *In Pursuit of Lakshmi*; Kohli, *State-Directed Development*.

⁸Khadria, “Tracing the Genesis of Brain Drain in India.”

A notable instance that is often cited as evidence of middle-class interests being sacrificed by the state to appease the minorities are the spectacular protests surrounding the implementation of the *Mandal Commission* report in 1989 by then Prime Minister V. P. Singh. The commission, under the chairmanship of B. P. Mandal, had documented systemic inequities of access and opportunity in education for several social groups that would together constitute the ‘other backward classes’ (OBCs). Having documented such inequities, the commission’s report then went on to recommend that approximately 50% of all educational and employment capacity in state-sponsored institutions be reserved for individuals belonging to OBC groups and the already existing social groupings categorized as scheduled classes (SCs) and scheduled tribes (STs); (SCs and STs are together often referred to as backward classes (BCs)) – a number that would more closely resemble the proportion of the actual population of India that they comprised.⁹ When the report was finally implemented 10 years after it was first tabled, it led to significant violent resistance in many parts of India, including a series of highly publicized self-immolations by high caste students.¹⁰

In effect, an ‘anti-politics’¹¹ that fundamentally othered the state-bureaucratic apparatus and its many corruptions and contestations as its ‘profane antithesis’¹² took hold in middle-class public discourse, circulated ever more widely through various mass media.¹³ Thus, by the time of the economic crisis in the early 1990s which necessitated neoliberal economic restructuring,¹⁴ the Indian middle class was already a hugely enthusiastic proponent of policies of economic liberalization: in privatization, market-oriented reforms, and

⁹The commission identified 3428 communities, which constituted about 54.4% of India’s population, as constituting the category of OBCs. The Mandal Commission recommended that public sector organizations, institutions receiving financial assistance from the government of India, and institutions of higher education, traditionally dominated by members of the upper classes, reserve a percentage of their capacity for OBCs so as to more accurately reflect the actual constitution of Indian society. In conformity with the constitutional mandate of reservations not exceeding 50%, therefore, the implementation of the Mandal Commission report brought net reservation in the system to 49.5%, from the existing 22.5% which was already reserved for those belonging to the Scheduled Castes (SCs) and Scheduled Tribes (STs). Bayly, *Caste, Society, and Politics in India*.

Reservation in many Indian states, however, routinely exceeds this number. This is allowable given the political structure of India, and the distribution of authority between the federal government and various state governments. Caste-based reservations in the southern state of Tamil Nadu, for example, are now over 70%.

¹⁰In recent years, with the election of the Congress-led government of Dr Manmohan Singh in 2004, there have also been proposals to extend the job quotas to private sector jobs and to certain institutions of higher education (such as the IITs) which had heretofore been exempted from reservations for OBC candidates. Private industry has been extremely resistant to the idea of introducing caste-based reservations in their workforce, and some have suggested voluntary programs toward increasing the representation of people belonging to BC and OBC categories among their employees.

¹¹Chatterjee, *Politics of the Governed*; Lukose, *Liberalization’s Children*.

¹²Hansen, *The Saffron Wave*, 56.

¹³Mankekar, *Screening Culture, Viewing Politics*; Rajagopal, *Politics after Television*; Chaudhuri, “Indian Media and Its Transformed Public.”

¹⁴The summer of 1991 marked the transition from a state-managed to a market-driven, liberalized model of political-economy in India. Years of political instability, with the concomitant absence of coherent budgets and spiraling fiscal deficits, had resulted in economic stagnation and an inability to service India’s international debt. Foreign debt had risen three-fold over the last decade, making India the third largest debtor in the global economy, after Brazil and Mexico. By the end of June 1991, hard-currency reserves were estimated at merely \$1.2 billion, which would last only two weeks. The prospect of bankruptcy looming large, the government turned to the IMF for an emergency loan, which was conditional upon India agreeing to neoliberal economic restructuring. Budget passed, reforms promised, the Indian government succeeded in averting immediate crisis.

mass consumerism, it sought to overcome the apparent failings of the Nehruvian model of development.¹⁵ The subjectivity of the Indian middle class, as Deshpande argues, had been thoroughly transformed: from the Nehruvian ‘patriot-producer’ to the outward-looking, cosmopolitan ‘citizen-consumer’.¹⁶

Neoliberal discourses of market reforms position the middle class both as the prime beneficiary of policies of liberalization as well as the social group in whose name such policies are legitimized in the first place.¹⁷ The middle class thus acquires a renewed cultural and political salience: not because it comes to dominate once more the landscape of formal electoral politics from which it had earlier turned away, but rather, because it articulates a new model of consumer citizenship that ‘contests the formal model of citizenship that the middle class has perceived as being captured by the politics of votebanks’ and, in effect, ‘provides a distinctive mechanism that links the middle classes with state power’.¹⁸

A second set of practices through which the middle class rearticulates contemporary Indian politics is through what Fernandes identifies as ‘privatiz[ing] strategies’: ‘*individualized* attempts [by various sections of the middle class] to acquire various forms of capital [in areas such as the labor market, education, and health care] to gain specific advantages in the context of liberalization’.¹⁹ A generalized distrust of the state-bureaucratic apparatus among the middle class has resulted in an ‘unplanned privatization’ of everyday life,²⁰ whereby individuals and private collectives seek to circumvent the seeming inability of the state to provide for even basic resources such as sewer, water, electricity, and education by arranging for these by themselves (through electric generators rather than the grid or through tankers delivering water instead of the municipal supply, for example). Such individualized strategies, as Fernandes demonstrates, synchronize well with large-scale projects of market liberalization, lending such policies further credibility.²¹

It remains to be noted that the Indian middle class is an extremely heterogeneous group which is numerically very difficult to characterize. Depending on the indicators used, its size varies anywhere in between 30 million and 300 million;²² politically and ideologically also it encompasses a wide array of viewpoints.²³ The new middle class is thus less a sociologically accurate descriptor and more a “‘marker of identification, aspiration, and critique in contemporary Indian public culture”, a demarcation of a discursive-performative space whose practices constitute both class and its emergent politics’.²⁴ The privatizing strategies and ongoing redefinitions of citizenship that Fernandes identifies, then, consolidate

¹⁵Mazzarella, *Shoveling Smoke*; Mazzarella, “Middle Class.” For a more comprehensive overview of the new middle class, see: Khandekar and Reddy, “An Indian Summer.”

¹⁶Deshapnde, “Imagined Economies.”

¹⁷Fernandes, *India’s New Middle Class*.

¹⁸*Ibid.*, p. 195.

¹⁹*Ibid.*, emphasis added.

²⁰*Ibid.*, p. 132.

²¹*Ibid.*

²²Beteille, “The Social Character of the Indian Middle Class”; Sridharan, “The Growth and Composition of India’s Middle Class”; Vanaik, “Consumerism and New Classes in India.”

²³Sitapati, “What Anna Hazare’s Movement and India’s Middle Classes say about Each Other.”

²⁴Khandekar and Reddy, “An Indian Summer.” The anthropology of class generally approaches the study of class as simultaneously a cultural and a structural entity. Drawing on Marx and Weber, Liechty provides a particularly insightful discussion into the production of the cultural space of the emerging middle class in Kathmandu as being articulated primarily through consumerist idioms, given their ‘ambiguous relationship to the productive economy’: neither ‘sellers of labor (workers) [n]or owners of capital (the capitalist elite)’, but ‘consumers of goods in the market place’. Liechty, *Suitably Modern*, 16, 18.

this discursive-performative space, making it possible to seamlessly manage the incredible diversity that characterizes this social group.

A second point of note here is about the articulation between the cultural space of the new middle class and engineering (and medicine), in particular, as a profession. This emphasis implicitly underscores a foundational argument in the interdisciplinary field of science and technology studies: in many cultural contexts, scientists and engineers are key cultural actors.²⁵ My point here, however, is to go beyond stressing that various technoscience and engineering-based professions often enjoy relatively high social status. That is certainly true, but more importantly, I want to highlight here, that in postcolonial contexts such as those of India, science is core to the very imagination of modern nationhood.²⁶ Scientists and engineers, as I argue in the following section, become not just the managers and technocrats directing state development, but also come to signify such development themselves. They come to embody the very promise of modernity – the promise of secure middle-class careers and livelihoods. Thus it is that engineers – software engineers and Information Technology professionals in contemporary Indian contexts in particular – are often central to the growing body of scholarship on the new Indian middle class,²⁷ even though this literature seldom problematizes that equation. The cultural authority vested in the figure of the Indian engineer is most readily witnessed, for example, in Nair’s writings about IIT engineers: ‘The IITian-turned-NRI’,²⁸ writes Nair, ‘represents a dream figure in the subconscious of the Indian bourgeoisie’.²⁹

Education abroad: convergences

Brain drain

Under Nehruvian ideals of state-directed development, a well-educated middle class was to administer and manage India’s modernization. Toward that end, successive five-year plans³⁰ allocated significant resources toward establishing a sophisticated infrastructure of higher education, without proportionately strengthening primary and secondary education – resulting in a lop-sided development of the educational system. Fernandes, for example, reports that in 1955–1956 enrolment growth rates in higher education increased by 74% compared to 31% in primary education and 42% in secondary education.³¹ Corresponding figures in 1970–1971 were 67%, 12%, and 19%, respectively. In a similar time span (1950–1975), the number of universities in India had grown from 27 to 119.³²

²⁵Scholarship that focuses on the emergence of engineering in different cultural contexts, for example, emphasizes the central social status afforded to engineers in many national contexts. cf. Downey and Lucena, “Knowledge and Professional Identity in Engineering.”

²⁶Prakash, *Another Reason*; Abraham, *The Making of the Indian Atomic Bomb*.

²⁷To name just a few examples: Aneesh, *Virtual Migration*; Xiang, *Global Body-Shopping*; Nadeem, *Dead Ringers*; Radhakrishnan, *Appropriately Indian*. Engineers also get implicitly equated with being middle-class in various other works. cf. Fernandes, “Restructuring the New Middle Class,” 95, 97; Fuller and Narasimhan, “Information Technology Professionals.”

²⁸NRI, a term often encountered in Indian popular discourse, stands for Non Resident Indian, an administrative-bureaucratic category used to refer to diasporic Indians.

²⁹Nair, *Technocrat*, 149.

³⁰Five-year plans have been instruments of planning government policies in relation to various sectors of the Indian economy since the earliest years of the post-independent Indian state. The first five-year plan was enacted between 1951–1956.

³¹Fernandes, *India’s New Middle Class*, 21.

³²Rudolph and Rudolph, *In Pursuit of Lakshmi*, 296.

This was in spite of the lack of corresponding employment opportunities. The disproportionate emphasis on higher education – underfunding primary and secondary education on the one hand and the lack of employment opportunities on the other – was apparent as early as the final years of British colonial rule in India. The Sargent Report of 1944, for example, had labeled the Indian educational system as being ‘top-heavy’.³³ This top-heaviness of the system and the need to enact corrective measures was also acknowledged in various five-year policy plans adapted by successive governments in independent India. Nehru’s reliance on the managerial and technocratic abilities of the new middle class, however, implied that state-subsidized higher education was a significant site for the consolidation and social reproduction of the middle class and a politically salient domain in which the relationship of the middle class to the postcolonial state was continually rearticulated. Hence, even after recognizing the lop-sidedness of the educational system, considerations of political expediency dictated that the expansion of higher education continued to be actively promoted. The third five-year plan adopted in 1960, for example, stated:

It has been suggested earlier that admissions should be regulated on the basis of adjudged capacity of students to benefit from education, but this would be possible only after the techniques of guidance, examination and selection have been perfected and this alone may take years of planned effort. It will not be realistic to expect that admissions will be regulated right from the start of the Third Plan and allowances will, therefore, have to be made for the normal expected increase.³⁴

While official documents cite considerations of practicality, Rudolph and Rudolph draw out the interplay of regional and caste-based politics and middle-class concerns over employment and social status in order to explain the continued expansion of Indian higher education.

[S]tate governments responded to the insistent demands of influential urban middle class and rural notable constituents for more college seats by creating intellectually and physically jerry-built institutions or underfunding expanding enrollments in existing ones. State legislators responded by demanding that government sanction both neighborhood colleges in their districts and regional state universities. Educational entrepreneurs and sect and caste based benefactors took advantage of the degree boom by founding private colleges that entailed government subventions. Motives of profit, influence and political power conspired to accelerate foundings as local politicians created colleges to secure the reliable political machine a loyal staff and students could provide. Parents, who wanted their children to have the higher more secure incomes and social status that degrees sought to provide, fueled the demand for seats in increasingly malleable institutions. The number of universities multiplied from 27 in 1950 to 119 in 1975.³⁵

Such continuing expansion of the system resulted in massive figures of unemployment. Thus reports Khadria:

[...] in 1967 there were about half a million ‘educated unemployed’, a number equal to 6–7 percent of the total stock of Indian educated labor in 1967, or to one in fifteen of all matriculates and graduates who were working or looking for work. It was also equal to nearly two-thirds of the annual output of matriculates and graduates. Furthermore, if one included (as looking for work) all the educated people registered with employment exchanges – some of whom had part-time or full-time jobs – the figure was 900,000, nearly twice as high.³⁶

³³Quoted in Khadria, “Tracing the Genesis of Brain Drain in India,” 274.

³⁴Quoted in Khadria, “Tracing the Genesis of Brain Drain in India,” 274.

³⁵Rudolph and Rudolph, *In Pursuit of Lakshmi*, 296.

³⁶Khadria, “Tracing the Genesis of Brain Drain in India,” 277.

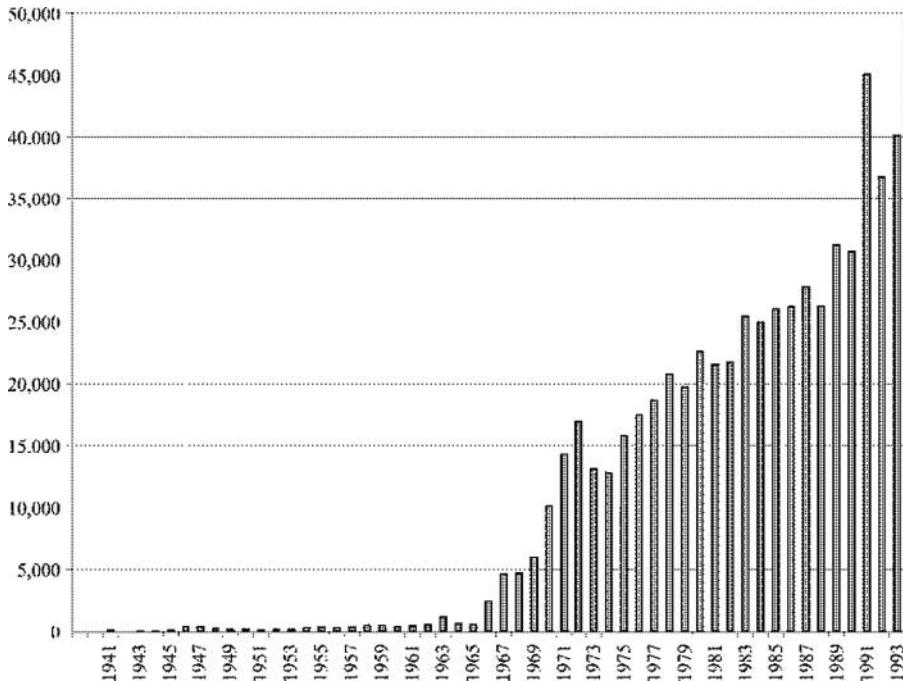


Figure 2. Total student migration between India and the USA, 1941–1993.

Source: Bassett, 'Aligning India in the Cold War Era', 2009, p. 804.

It is this mismatch between the expansion of higher education and the lack of corresponding employment opportunities, Khadria argues, that led to massive outmigration among highly educated, yet unemployed Indians (Figure 2).³⁷

Historically, this moment coincides with the overhaul of US immigration law (Immigration Act of 1965), which allowed for Asian immigration into the USA for the first time in over three quarters of a century.³⁸ The simultaneous existence of a high number of 'educated unemployed' in India, the technological supremacy of the USA established in the aftermath of World War II, and a liberalized legal regime of immigration in the USA seeking to enable greater skilled immigration into the country³⁹ set into motion a massive wave of migration between India and the USA, a trend which remains strong to this day.

Science, technology, and an Indian modernity: the case of IIT Kanpur

Much before independence, Indian intellectuals were already vigorously debating the possible shape that the independent Indian nation might assume.⁴⁰ These debates centered

³⁷Thus, the "brain drain," as this massive outmigration has come to be called, Khadria argues, became a "safety valve" for the Indian economy.

³⁸Immigration from India and many other Asian countries into the USA was virtually banned after the passage of the Chinese Exclusion Act of 1882 and the Barred Zone Act of 1917. It was only after the enactment of the Immigration and Nationality Act of 1965 (proposed by John F. Kennedy, and enacted by the Lyndon Johnson administration) that immigration from India to the USA picked up in any significant way.

³⁹Park and Park, *Probationary Americans*.

⁴⁰Chatterjee, *The Nation and Its Fragments*; Zachariah, *Developing India*.

on choosing between plausible political models and the teleologies of development that they encoded – everything from Soviet-style socialism and European-style democracy to Gandhian-style village republicanism and even Stalinistic fascism were considered at various points. The task, writes Zachariah, was to articulate a vision for India – at once modern and yet definitively non-Western:

It was not possible, however, to base an argument at the time on a rejection of ‘modernity’. Unlike in much present day writing in which modernity and West are equated and regarded as negative ‘modernity’ was viewed as extremely empowering, and carried with it extremely positive connotations for a people called ‘primitive’ and ‘backward’ ... In the political discourse of the time, the emotive significance [of modernity] had already been well-established; of the two sets of the terms, the first was desirable, the second to be avoided. A legitimate position, therefore, had to be based on something which was ‘modern’, but not ‘Western’.⁴¹

In the end, Nehruvian ideals of a ‘scientific socialism’ were to win the day. Under Nehru’s leadership, planned scientific and technological progress was to become the basis on which the development of India as a modern nation was to be directed. Planned scientific and industrial growth – as evidenced through the establishment of a sophisticated network of scientific and industrial research and development labs and educational institutions and the implementation of large-scale infrastructural projects such as the construction of large dams and steel plants – was to become the cornerstone of such a modernity.⁴² Displacing religion and tradition as predominant modes of social organization, these dams and steel plants – and the scientific temper and rationality that they embodied – were envisioned to be the (new) ‘temples of modern India’. And yet, as the history of ‘Education Abroad’ suggests, these visions of rapid technoscientific advancement were largely out-of-joints with existing realities of the day, with highly uneven consequences.⁴³ The case of IIT Kanpur is telling.

Given that science and technology were so central to the Nehruvian imagination, it is no surprise that technical education, in particular, was to get a strong boost under the overall emphasis on higher education. As early as 1947, the Sarkar Committee had recommended the setting up of ‘no less than four higher technical institutes’ in various parts of India. This was realized through the passage of the IITs Act in 1956, which led to the creation of five IITs in different parts of the country – Kharagpur near Calcutta (now Kolkata) was the first to be established, followed by the IITs in Bombay (now Mumbai), Madras (now Chennai), Delhi, and Kanpur.⁴⁴

IIT Kanpur was modeled after, and established with the help of, Massachusetts Institute of Technology in the northern Indian city of Kanpur. Established in 1960, IIT Kanpur was home to India’s first computer and quickly became a prime destination for Indians to seek college-level education in computer science. However, skills developed through such education were by-and-large of no value to local industries. Leslie and Kargon describe the out-of-jointedness that resulted from this elite education thus:

⁴¹Zachariah, *Developing India*, 159. A foundational argument in Indian historiography is that articulating an *Indian* modernity based on an essential *difference* from the modernity of the West was foundational to Indian anti-colonial nationalism, and hence, the very imagination of the new nation that was to be. This literature is vast; for a starting point, see: Chatterjee, *The Nation and Its Fragments*.

⁴²Abraham, *The Making of the Indian Atomic Bomb*; Prakash, *Another Reason*.

⁴³Gupta, *Postcolonial Developments*; Fortun, *Advocacy after Bhopal*; Visvanathan, *A Carnival for Science*.

⁴⁴The latter four IITs were established one each in collaboration with various international partners: IIT at Bombay with the help of the former Soviet Union, Madras with the help of Germany, Delhi with the help of the UK, and Kanpur with the help of the USA.

Would-be faculty consultants [at IIT Kanpur] discovered that local companies ‘manufacture the way they always have manufactured. Or if they adopt a new process or a new machine, they usually bring process, machine, and even know-how in from the outside’. An ‘electronics park’ to take advantage of IIT Kanpur’s growing strength in electrical engineering – ‘With encouragement there might be repeated at Kanpur the type of industrial development that has occurred around M.I.T. in Boston and around Stanford in Palo Alto’ – went nowhere. So did a proposal to create a center of excellence in nuclear engineering. Pioneering programs in aeronautical engineering, computer science, and materials science, so effective at M.I.T., turned out Indian students overqualified for jobs at home and best prepared for graduate training and eventual employment abroad.⁴⁵

It was no surprise, then, that a significant number of students of the first graduating class at IIT Kanpur headed to the USA right after graduation. In the case of IIT Kanpur, Leslie and Kargon suggest that the mismatch between the skills required by domestic industries, local industrial practices, and the training offered at IIT Kanpur was responsible for students at the institute heading to the USA.

IIT Kanpur had not yet established its independent identity as an *Indian* Institute of Technology attuned to local or national challenges in 1972 [...]. Nor has it done so since, sending up to four-fifths of its computer science graduates on to the United States. More than three decades after the founding of IIT Kanpur, its graduates remained ‘the only high-tech products in which India is internationally competitive’. As a common witticism in India holds, ‘When a student enrolls at an IIT, his spirit is said to ascend to America. After graduation, his body follows’.⁴⁶

Migrating overseas for education and employment among the Indian middle class thus emerged as a response to the lack of adequate employment opportunities domestically. By the 1960s, India was second only to Canada in terms of the number of graduate students that it sent to the USA.

Historically, then, at least three different trajectories converge in configuring Education Abroad: a particularly prominent emphasis on science and technology in articulating modern Indian nationhood, the lack of adequate employment opportunities domestically, and an increasing frustration with an apparently corrupt and inefficient state-bureaucratic apparatus resulting in a wholesale disavowal of formal electoral politics and the state machinery more generally. As I am about to show next, these trajectories continue to echo – although not always self-consciously – in the narratives of contemporary Indian engineers.

The allure of the foreign

A recurrent theme during my interviews was the perception of the US educational system as an unquestionably better model of higher education than the one prevalent in India. These perceptions were typically elaborated on the basis of three interrelated rationales: better integration of research into the curriculum in the USA, stronger linkages between universities and industries in the USA, and the relative scarcity and difficulty of getting into quality educational institutions domestically.

Viraj, a 21-year-old male student at MU in his final year of a bachelor’s program in Electrical Engineering, for example, was in the process of application for graduate education in the USA. Viraj had recently completed an internship at a big multinational consumer electronics firm, Worldwide Electronics.⁴⁷ Stressing the difficulty of pursuing this experience,

⁴⁵Leslie and Kargon, “Exporting MIT,” 117.

⁴⁶Ibid., 118.

⁴⁷Pseudonym.

Viraj explained: ‘The curriculum [at MU] does not offer any practical experience. The only reason I could undertake this internship was because I already knew someone at Worldwide Electronics. [Our] curriculum hardly offers any opportunities or support in this’. He went on to explain that among the reasons for pursuing graduate education in the USA was that research was much more integrated into the educational curriculum than it was in India – and that educational institutions themselves were more integrated with local industries – and that he hoped to benefit from such experience. Viraj was still unsure of his eventual goals: considerations of family, he reported, would probably mean that he would choose to return to India after a few years of staying in the USA for education and employment experience. Even so, the sheer fact of having an educational degree from the USA would already better his employment prospects in India, both in terms of salary and position in the corporate hierarchy, as well as the nature of work itself.⁴⁸

While research opportunities at MU were limited, IIT Bombay had many more research opportunities integrated into its educational curriculum. In contrast to MU, which is primarily an educational institution, the IITs position themselves as research and educational institutions. There is, hence, a greater incidence of industry and government-sponsored research being carried out at various IIT-based laboratories, offering students greater opportunities to participate in supervised research. Equally, as Niraj, a 21-year male student enrolled in a bachelor’s program in Mechanical Engineering, reports, taking up international internships was an increasingly common practice among his fellow IITians. Niraj himself had recently returned from a summer internship in Grenoble, France and this experience, in part at least, is what inspired Niraj to pursue further education internationally. Two experiences particularly stood out for Niraj: the first was the less hierarchical character of professor–student interactions. Niraj reported having been invited to his professor’s house several times for dinner, offering greater opportunities for interacting, and that this ‘could never happen here [in India]’. Equally, Niraj was impressed by what he thought to be a more ‘open’ society generally: in contrast to the conservativeness of Indian society, ‘even kids [were] given more space to make their own decisions’. He was, however, also critical of the lack of strong interpersonal relationships in Western society: his own professor, for example, was not on good terms with his own son – a fact difficult for Niraj to reconcile within the parameters of his own cultural frames of kinship. Education Abroad for Niraj, then, was in equal parts about honing his technical skills as it was about cosmopolitan explorations toward articulating ‘balance[d]’ identity frameworks situated between India and the West.⁴⁹

⁴⁸With India’s economic boom, a significant theme of inquiry has been on the possibility of “return migration” among diasporic Indians. While there is definite evidence that more Indians have been returning back to India after living elsewhere for extended periods of time, whether this is an established pattern – and the magnitude of the phenomenon – remains disputed; cf. Fuller and Narasimhan, “Information Technology Professionals.” During my extended fieldwork, many interlocutors have confirmed that they indeed consider returning to India after spending a few years in the USA. The reasons are dominantly three-fold: fulfilling their filial responsibilities of caring for their (aging) parents is difficult when the physical separation is so large; for bringing up their own children in a more culturally authentic manner; and more recently, many report that various multinationals are relocating high-end research positions – and not just service-sector work – to India. This creates both more and diverse employment possibilities in India, but equally, preemptively relocating to India themselves implies that diasporic Indians are able to return on more lucrative expat-salary packages rather than the domestic wages that they would otherwise be offered.

⁴⁹The notion of finding a “balance” between “tradition” and “modernity,” “India” and the “West” is a long-standing discussion in Indianist scholarship. Recent works that trace middle-class inflected

A persistent refrain during my interviews was also about the lack of adequate capacity and quality institutions of higher education in India. ‘There are simply not enough good engineering schools in India’, complained Girish, another student enrolled in the Electrical Engineering curriculum at MU. ‘The only place[s] worth getting a[n engineering] graduate degree in India are the IITs. And it is much more difficult to get into the IITs than it is to get into many US universities’, he continued. Here, Girish was referring to the process of getting admitted into the IITs at the graduate level: admission into graduate programs in science and engineering in India are regulated through a national-level examination, the *Graduate Aptitude Test Examination* (GATE). The GATE, an examination focusing on technical skills and engineering knowledge, is widely regarded as a difficult examination, especially in comparison to the *Graduate Record Examination* (GRE) that focuses on verbal and analytical skills – which students have to take toward applying for US-based university education. Like Girish, hence, many interlocutors perceive the GRE as being far easier than the GATE and the admissions process to US universities as generally being much simpler.

This process of admissions is facilitated further by the existence of a growing niche of ‘Education Abroad’ counselors in India. Advertized as a ‘one stop solution[] to [...] higher education needs’,⁵⁰ an increasing number of ‘Education Abroad’ consultancies offer a broad range of services that include intensive coaching for students to take standardized tests such as the GRE and TOEFL (Test of English as a Foreign Language), assistance in shortlisting potential universities based on student interests, assistance in preparing application documents such as personal essays and letters of recommendation, liaising with banks to obtain educational loans, compiling various immigration-related documents, and even conducting mock interviews for acquiring necessary clearances (usually in the form of educational visas) at the US Consulate. Mr. Rao, one such counselor that I met in Mumbai in 2008, claims to provide counseling services to about 3000 students annually, a figure he says has been increasing about 20% p.a. At the time of our meeting, Mr. Rao’s organization was expanding: he then had five offices in the city of Mumbai employing 2–3 personnel per office, and was in the process of franchising his business to other cities as well. Mr. Rao was about one of four or five consultants of similar scope in Mumbai. While most of these consultancies are geared toward US university education, they increasingly offer counseling services for universities in Australia, Singapore, the UK, and other Western European countries.

The primary value of such consultancies for the students themselves was to come to grips with an unfamiliar educational system. Many students already knew a lot about the US educational system through their existing peer networks: Reports Girish, for example:

Most Indian [engineering] students are really familiar with the U.S. educational system by the time they start thinking about graduate education. Many of our seniors [students at the same university/curriculum from previous years] are already in the U.S. And many of us have family there as well.

Indeed, everyone I have interviewed during my fieldwork has had some close family members in the USA, with whom they are in regular communication. The vast network of families, peers, and friends that spans the two countries ensures that students understand the US educational system quite well, in spite of having been part of a very different system

notions of (global) Indianness that seek to reconcile these contradictory pulls into a reformulated cosmopolitan selfhood hone in on the notion of “balance” prominently. See, in particular, Radhakrishnan, *Appropriately Indian*.

⁵⁰Oak, *GRE Coaching and Preparation*.

themselves. Through his peer networks, Girish had substantial information on particular departments, labs, professors, research grants that they had, and even whether or not they were looking to hire research assistants. Girish also told me that it was not uncommon for students to look up other Indian graduate students at particular departments and email them seeking information and advice on their respective graduate programs.

Nonetheless, student interviewees echoed a lot of uncertainty over the precise criteria for admissions at US universities and deployed the services of Education Abroad counselors to overcome such uncertainties. Based on past experience and on considerations of student interests, academic grades, and GRE scores, Education Abroad counselors would help students shortlist potential programs that they could apply to. Typically, students applied to about 8–10 graduate programs, classified on the basis of the likelihood of their getting admitted: from ‘very unlikely’ to ‘safe choice[s]’. Another way in which students said that they benefited from these consultancies was in crafting their letters of application. The value of such consultancies, as one interlocutor put it, was in ‘their [accumulated] experience of dealing with US universities’.

Of course, not all students use these consultancies. At IIT Bombay, students derisively referred to these as ‘a waste of money’. Simit, another interlocutor enrolled in the Mechanical Engineering curriculum at IIT Bombay, explained that there already existed an ‘apping cell’ – a repository of information akin to the informational databases that Education Abroad counselors were likely maintaining – at his institution. The student collective at IIT Bombay had organized together to maintain a database of alumni information specifically geared toward maintaining information about higher education in the USA. Equally, demonstrating a self-awareness of the high esteem in which an IIT education is held internationally, Simit also claimed that the ‘IIT brand’ ensured that students at IIT Bombay had a much easier time securing admissions into the very best of US universities.

The dominant rationality that oriented student thinking about higher education, in general, was overwhelmingly instrumental. While individual career imaginations and trajectories have varied widely, the value of education itself was always described in terms of getting good jobs. Girish’s example highlights one aspect of this. In spite of being unsure of wanting to pursue a career trajectory that involved much technical work, Girish was still planning on acquiring a graduate degree in Electrical Engineering because it would make a subsequent managerial career more feasible for him. Thus, even while expressing uncertainty about his inclination to engage in the kinds of work an electrical engineer would generally carry out professionally, Girish was still choosing to pursue a graduate degree in the field as a stepping stone into something different altogether. Viraj’s example mentioned above is another case in point, where the value of an American degree is described predominantly in terms of the employment opportunities that it opens up. This instrumentality was further highlighted by the willingness of my interlocutors in Mumbai to pay for their Master’s education – usually through some mix of parental sponsorship and educational loans. A practice virtually unthinkable even a decade ago given the high costs of US education, Viraj nonetheless reported that everyone he knew was very willing and able to pay for their own education. While certainly expensive, Viraj reasoned that his Master’s education was an investment and that he would probably recover all the money that he had invested in his graduate education in no time once he got a job in the USA.

Generally, positive impressions of the US educational system, combined with the existence of historically entrenched connections between India and the USA and a sophisticated infrastructure of ‘Education Abroad’ counseling geared toward making the admissions process itself more manageable and secure, are thus one set of convergences that shape contemporary configurations of Education Abroad. A second set of convergences, as I show

next, are the continuing frustrations of these (middle-class) engineering students with the Indian educational system and the political culture in which it is embedded.

Minoritization and victimization

Persistent frustrations with the nature of education and the political culture in which it is embedded continue to be echoed, in different ways, by students at MU and IIT Bombay. Students at MU tended to foreground frustrations with the quality of education that they received. Says Girish, for example,

I mean, it's not difficult to find a job or anything. [I] ... and most of my friends already have job offers. This [his engineering college in MU] is the best engineering college in Mumbai, and you have to work really hard to get in here. But the education here is pathetic ... I think the institution gets really good students because of its reputation. And [in turn] they do well because they get good students to begin with. But the institution hardly does anything for that ... Half of my lectures don't even take place because there is no[t enough] staff ... And we have gotten used to bunking [skipping] our lectures too ... We can all do well in our final exams anyway ... there are crash courses for that.

Girish is explaining here what he sees to be the shortcomings of this educational experience. Girish's institution, in accordance with Mandal-like reservation policies, reserves 50% of its educational and staff capacity for individuals hailing from the BC and OBC categories. However, his institution has been unable to attract and retain enough personnel from these categories, with the effect that some of its departments are operating at as much as 50% below their allocated capacities. Effectively, this means that students often receive very little and poor quality instruction in some subjects. This has also resulted in the parallel emergence of private 'coaching classes' which offer intensive instruction in particular subject matters which a significant number of students then subscribe to. Through these support mechanisms, students are still able to do well in their end-of-semester examinations, which allow them to secure good grades, and eventually good opportunities for further education and employment. Hence, argues Girish, his institution is able to keep up its reputation as a quality institution – not because it affords a good educational experience for its students, but rather because the students, by performing well on various fronts, help shore up the reputation of the institution. All of this has resulted in severe disappointment for Girish and is the reason why he seeks to sidestep the Indian educational system altogether by looking toward the USA.

Even when good educational facilities do exist, at IIT Bombay, for example, students are increasingly more aware of ways in which engineering education and practice is organized differently in other countries – often perceived to be of a superior quality. Students at IIT Bombay, as mentioned above, are increasingly taking up (international) internships – a model of education that was nearly absent until recently. Even otherwise, students, by-and-large, are highly knowledgeable of other university systems – in the USA in particular, which is considered to be home to the best universities in the world. A common refrain in my interviews, for example, was that universities in the USA were much better integrated with local industries, giving students the opportunity to integrate research into their everyday educational experiences to a much greater degree. In comparison, the absence of any research avenues as part of their curriculum at MU stood in stark contrast.

Already foreshadowed in Girish's comments is also a critique of Mandal-like quota systems in education and employment. Almost universally, in the eyes of my mostly urban, upper class, upper caste male interviewees, the system of reservation seems antithetical to a system of meritocracy to which they strongly subscribe. In part, their frustrations are a

product of the very systemic logics through which their education is organized: ‘merit lists’ that rank students based on their H.S.C. examination scores (state-wide end of high school examinations, also referred to as High School Certificate examination)⁵¹ are used to admit students into various curricula of their choice across the state of Maharashtra. Differential treatment for individuals from reserved categories then often implies that cut-off scores for the same courses tend to be lower for these students than those belonging to the ‘open’ caste categories, provoking great indignation among the latter, as they effectively feel victimized by a system that is not of their making – a system that seemingly violates the very system of merit on the basis of which it seeks to organize itself.

Even more damning was Niraj’s evaluation of the system of reservation. Up until recently, the IITs, as ‘institutes of national interest’, were exempt from most reservation policies (other than the 22.5% reservation for individuals belonging to the BC category). But the recent imposition of extending the 50% reservation policy to the IITs as well was a source of significant resentment on the university campus. Remarking that the individuals from the reserved categories who get admitted into the IITs are rarely able to benefit from them, Niraj hinted that the system might be doing them a disservice by admitting them into positions that they were ill-prepared for in the first place.

Even if you admit them [into the IITs], are they [individuals belonging to reserved categories] really going to benefit? Most of them tend to fail courses and drop out within the first year of college, because they do not have the necessary background [skills/training] to succeed.

Niraj’s claim, of course, is simplistic at best and highly dubitable at worst, yet the perception is one that is shared more generally among his peers. That historically marginalized groups need to be brought into the societal mainstream has never been a matter of dispute in my conversations – and many favor the provision of economic incentives in order to do so. Their commitment to not lowering the standards for admission for education and employment for such groups, however, was absolute – even when those very standards of access were often the subject of intense criticism by them.⁵² It is perhaps no surprise then that the move to possibly extend such reservation policies to faculty members at various IITs as well was generating significant controversy both on IIT campuses and across various national media at the time of this research: ‘the golden days of the IITs are over’, lamented Niraj, indicating that reservations being extended to students and faculty at the IITs would inevitably effect the educational and research quality of the IITs for the worse and irreparably tarnish its reputation as an internationally acclaimed institution.

Conclusion: education abroad as privatizing strategy

My goal in this essay has been twofold. The first involves explicating the various convergences that shape the phenomenon of Education Abroad. To this end, I have suggested that

⁵¹This practice has changed somewhat since the data for this paper was gathered. A state-level entrance examination specifically for students seeking to pursue a degree in engineering, in addition to H.S.C. examination scores now regulates admissions into engineering colleges across the state of Maharashtra. Admissions to the IITs has always been regulated by a national-level examination, the IIT-JEE (IIT Joint Entrance Examination).

⁵²So, for example, quite a few of my student interlocutors complained that the end-of-semester examination system in place at MU encourages rote learning and an excessive focus on passing one single examination rather than semester-long learning that encouraged practical experience (as opposed to theoretical knowledge) as part of their curricula.

middle-class imaginations of successful careers and lifestyles that have historically privileged engineering as a profession and whose (anti-) politics has positioned itself as strongly critical of the state-bureaucratic apparatus converge in shaping contemporary articulations of 'Education Abroad' among Indian engineers. A strong investment in technoscience has rendered engineering as a particularly potent site of contestation between the Indian middle class and the state. Continuing frustrations with the quality and nature of higher education in the country combined with a perceived supremacy of the American educational system has resulted in many Indian engineering students turning to the USA for graduate education. Entrenched linkages between the two places in the form of peer networks and family ties and a sophisticated infrastructure of 'Education Abroad' counseling, then, further renders the US educational system more accessible.

To turn to my other question, then, what can the worlds of these engineers tell us about broader cultural and structural transformations? I want to suggest that the worlds of Indian engineers can provide insights into the dynamics of economic liberalization in contemporary India. Massive student migration from India can be interpreted as one instance of what Leela Fernandes calls the 'privatizing strategies' of the 'new Indian middle class'.⁵³ Privatization, here, refers not so much to state-driven programs of large-scale disinvestment, i.e. neoliberalism, but rather to informal, individualized, and unplanned strategies that are enacted to manage the exigencies of everyday life.

The emergence of niche entrepreneurial sectors such as 'Education Abroad' counseling attests to the perceived need for middle men who can make such exigencies manageable. In many cases, a highly sophisticated range of small-scale entrepreneurs have arisen in response, providing an array of services, often serving as mediators between individuals and various state agencies: 'agents' who help navigate various government bureaucracies; real estate developers who provide not only luxury housing enclaves, but also arrange for, among other things, uninterrupted electricity and water supply;⁵⁴ and 'Education Abroad' counselors who manage various aspects of getting into universities elsewhere – everything from shortlisting universities, helping to craft admissions essays, coaching toward scoring highly on the GREs, and securing bank loans to support an expensive education to navigating through immigration apparatuses. Together, these niche entrepreneurs broker the possibilities through which the middle class can circumvent everyday interactions with the state-bureaucratic apparatus to the maximum extent possible.

To the extent that such privatizing practices further legitimize the middle class' 'anti-politics'⁵⁵ and consolidates a model of consumer citizenship that displaces earlier models

⁵³Fernandes, *India's New Middle Class*.

⁵⁴For a particularly poignant description, see: Yardley, "In India, Dynamism Wrestles with Dysfunction." Yardley paints a picture of Gurgaon, a city 15 miles South of New Delhi, which often stands in as an icon of India's economic success story in recent years. As home to India's nouveau rich, Gurgaon has transformed from a city that barely existed two decades ago, to one that is home to 26 shopping malls, seven golf courses, luxury automobile showrooms for Mercedes-Benzes and BMWs, and designer brands such as Chanel and Louis Vuitton. And yet, Yardley portrays an equal sense of dysfunction: until recently, the district of Gurgaon had no government at the local level at all. Public utilities that have been traditionally provided for by the Indian state are often provided in Gurgaon through a wide range of arrangements, and in some cases, not provided at all. Electricity is often provided through diesel-powered generators. Water is provided through private borewells. Policing functions have been assumed by private security firms, of which there are many. The local post-office collects mail from private courier services only, given the unreliability of the national postal services in these parts. And sewage and garbage disposal facilities are largely unavailable. Indeed, until recently, even the heart of the city's commercial enterprises were almost entirely off the grid.

⁵⁵Chatterjee, *Politics of the Governed*; Lukose, *Liberalization's Children*.

of formal citizenship, it furthers neoliberal discourses in support of economic liberalization. That the privatizing strategies deployed by Indian engineers synchronize with broader trends of economic liberalization is certainly true; but, from the perspective of the engineers that I have worked with, these synergies result not so much from an ideological commitment to particular economic policies, but rather from a search for strategies to ensure personal well-being and success – in the face of extreme governmental dysfunction. Furthermore, viewed through historical lenses, student migration from India figures as constitutive of a longer process stemming from the structurally ambivalent position that the Indian middle class has historically occupied. The irony of pursuing such privatizing strategies, however, is that these engineers and the larger middle class that they belong to are actively undermining the legitimacy of the very state apparatus of which they are legacy beneficiaries.

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