Do higher fixed pay scales create better faculty?

I have been intrigued by the ongoing game of upmanship where the faculty of well-respected public institutions is clamouring for higher pay scales. Although there is near-universal agreement that academic salaries are too low in India, I am concerned about the hidden message that faculty members of prestigious institutions with the most opportunities to earn name, fame (and sometimes wealth) deserve to be paid more than their counterparts irrespective of their actual productivity. Not only is this sense of entitlement irrational, it is also counterproductive because it leads to jockeying for a few coveted spots. In absence of a system to link pay to performance, this is a recipe for disaster. We have a much more pressing need in India to attract professionals to rural settings. We should consider making such jobs financially more lucrative since they require sacrifice on many other fronts. In general, we must consider the fact that there is not just one type of coin for payment. The privileges associated with employment at top institutions in terms of facilities, exposure and perks have their own worth. I am fortunate to have been exposed to a series of elite academic institutions in my career, starting from MBBS at the All India Institute of Medical Sciences, to residency and fellowship at the Baylor College of Medicine in the United States. Academic salaries everywhere are lower than corresponding salaries in private practice. At least in medical specialties, the highest paying jobs in the US are often in small towns rather than high-profile centres. Many high-quality physicians choose to start their careers in such locations to get financial security. This translates into more equitable health care. This trend continues within academic institutions as well. In my limited experience, financial reimbursement is inversely proportional to academic opportunity. The starting salary at Harvard or Johns Hopkins for medical or research faculty is lower than at mid-level institutions. Yet, there is no shortage of highly qualified bright applicants because the financial disadvantages are counterbalanced by academic advantages. Over a long term, such researchers are given opportunities to convert their work into financial gains through commercialization. Faculty members looking to excel in their chosen sphere, and systems that facilitate and recognize performance, form the core of truly elite institutions. Until then, they are simply elitist.

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Teaching and research

The editorial 'Teaching and research: inventing a connection'[1] merits comment.

Teaching is dissemination of knowledge and research is about building a knowledge bank. So a 'good' teacher has to be a researcher and vice-versa. Particularly, in India, as rightly pointed out in the editorial, where scientific research is lagging behind much (as documented data and facts show) research needs to be pulled up. However, if good researchers or would-be researchers do not take up teaching, how is the knowledge transferred to society? After your excellent article on IISc it is clear that 'where good researchers are also teachers, the institution ranks high'. And the contradiction is very much highlighted in Anderson's book, *Building Scientific Institutions in India: Saha and Bhabha* (1971).

The Sarkar Commission in 1951 initiated the IITs in India for engineering research but they became primarily undergraduate teaching institutes, with many of the students preferring foreign shores. However, I am not belittling the contribution of IITs to research. We know, these are the only Indian institutes to figure in THES or under Shanghai ranking. Do we really have to invent a connection or strengthen the connection?

1. Balaram, P., *Curr. Sci.*, 2009, **97**, 5–6.

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Guazuma ulmifolia, an abundant tree species in Chennai

Guazuma ulmifolia (Lamarck, 1789), belonging to the family Sterculiaceae and commonly called Bastard cedar, is native to tropical American countries. It was introduced into India more than 100 years ago[1] and now it has naturalized to the local climatic conditions. It is locally called *uthraksham* in Tamil and *kanika chettu* in Telugu. This species has high economic importance. Its wood is used as fuel wood and charcoal, and its leaves are used as fodder for livestock. A beverage prepared from crushed seeds soaked in water is used to treat ailments like diarrhoea, dysentery, cold, cough and venereal disease. It is also used as a diuretic and astringent[2]. Fleshy portion of the fruit is consumed by tribal people of Andhra Pradesh, India[3]. Rope and twine are made from the tough, fibrous bark and young stems[4].

Figure 1. *Guazuma ulmifolia* tree.

This tree species grows to a height of 15 m; leaves are lanceolate, margin serrulate with apex acuminate or acute. Flowers are yellow with five petals arranged in cyme inflorescence and maximum flowering occurs during August and September. Fruit is a capsule sub-globose, woody and indehiscent[5]. Germination is epigeal and begins in about eight days. The seeds secrete a gelatinous coating that inhibits germination. It has been observed that without treatment only 5% germination is obtained. The best treatment procedure is to immerse the seed in boiling water for 30 s which results in 87% germination. Scarification and acid treatment were also found to be effective[6].

Chennai is one of the Indian metropolitan cites facing a high degree of urbanization leading to shrinkage of open lands. In Chennai city, *G. ulmifolia* trees are found planted as avenue trees along roadsides. This species is spreading to all parts of the city along the sewage channels and open spaces. Although natural regeneration is slow, surprisingly the plant population is increasing in the city as climatic factors seem to be favourable for its growth. In future, the Chennai city vegetation may be dominated by this species.

1. Mark H. Powell, 1997; http://www.winrock.org/fnrm/factnet/factpub/FACTSH/gulmifol.htm
2. Vallejo, M. A. and Oveido, F. J., *Arboles y arbustos forrajeros en América Central*, 1994, **2**, 676–677.
3. Reddy, K, N., Pattanaik, C., Reddy, C. S. and Raju, V. S., *Indian J. Traditional Knowledge*, 2007, **6**, 223–229.
4. Little, E. L. and Wadsworth, F. H., *Agricultural Handbook*, 1964, pp. 338–340.
5. Matthew, K. M., *The Flora of the Tamil Nadu Carnatic*, The Rapinat Herbarium, St Joseph's College, Tiruchirapalli, 1983, vol. 1, p. 143.
6. Stewart, J. L. and Gosling, P. G., *Commonw. For. Rev.*, 1988, **67**, 187–190.

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Mangrove forest cover of Visakhapatnam coast is under threat

Mangroves, the only woody halophytes growing at the confluence of land and sea, have been extensively used traditionally for food, timber, fuel and medicine[1]. They presently occupy about 4445 sq. km of area along the coastline, which accounts for 5% of the world's mangrove vegetation[2]. Mangroves are valuable ecological and economic resources as they are important nursery grounds and breeding sites for birds, fish, crustaceans, shellfish, reptiles and mammals[3]; a renewable source of wood[4]; accumulation sites for sediment, contaminants, carbon and nutrients[5]; and offer protection against coastal erosion[6] and tsunami[7]. Mangroves have been particularly vulnerable to exploitation because they contain valuable wood and fisheries resources, and occupy coastal land that is easily converted to other uses. The scale of human impact on mangroves has increased dramatically over the past three decades, with many countries showing losses of 60–80% or more of the mangrove forest cover[8] that existed in the 1960s but most data show variable loss rates and there is considerable margin of error in most estimates. The destruction of mangroves is usually proportional to human population density. Major reasons for destruction are urban development, aquaculture, mining, agriculture and overexploitation for timber, fish, crustaceans and shellfish[9–11]. The remaining mangrove forests are under immense pressure from clear cutting, encroachment, hydrological alterations, chemical spills, storms and climate change disaster[12].

The topic of our discussion is a small patch of mangrove forest near the Meghadrigedda creek of Visakhapatnam coast of Andhra Pradesh. There is no mention of these mangroves in the Forest Survey of India report, which has been carrying out regular mapping and monitoring of the forest resources of India every two years[13]. Venkanna *et al.*[14] and Venkateswarlu *et al.*[15] reported the occurrence of mangroves and their associates in Meghadrigedda creek but these studies do not give a detailed floristic account of mangroves and their habitats.

The creek located in Visakhapatnam (17°42′30″–17°43′11″N and 83°14′45″–83°15′50″E) on the east coast is flushed by the seasonal Meghadrigedda stream. The Meghadrigedda reservoir is the main water supply reservoir to Visakhapat-