

Supplementary information

1. Relates to the “Introduction”: A [blog](#) by an IIT Bombay graduate captures the essence of this argument: *“Last year, I asked the director of IIT Bombay about the institute’s opinion on most undergrads taking up careers not even remotely related to their core fields of study. He replied that the institute was fine as long as students continued to contribute to the society in a meaningful way. Although it’s an admirably liberal and pragmatic position to take, it’s also a bit complacent one as it glosses over the issues we face. We can’t be okay with so many of our students studying stuff they don’t care about.”*

2. Relates to data presented in Figure 1 of the paper: The following figure describes the extent and nature of the preferences towards higher education. The right hand side bar chart of Figure A shows the number of students, in selected departments, who have indicated “higher education” within their top two preferences; also shown in parentheses is the total number of respondents for each department.

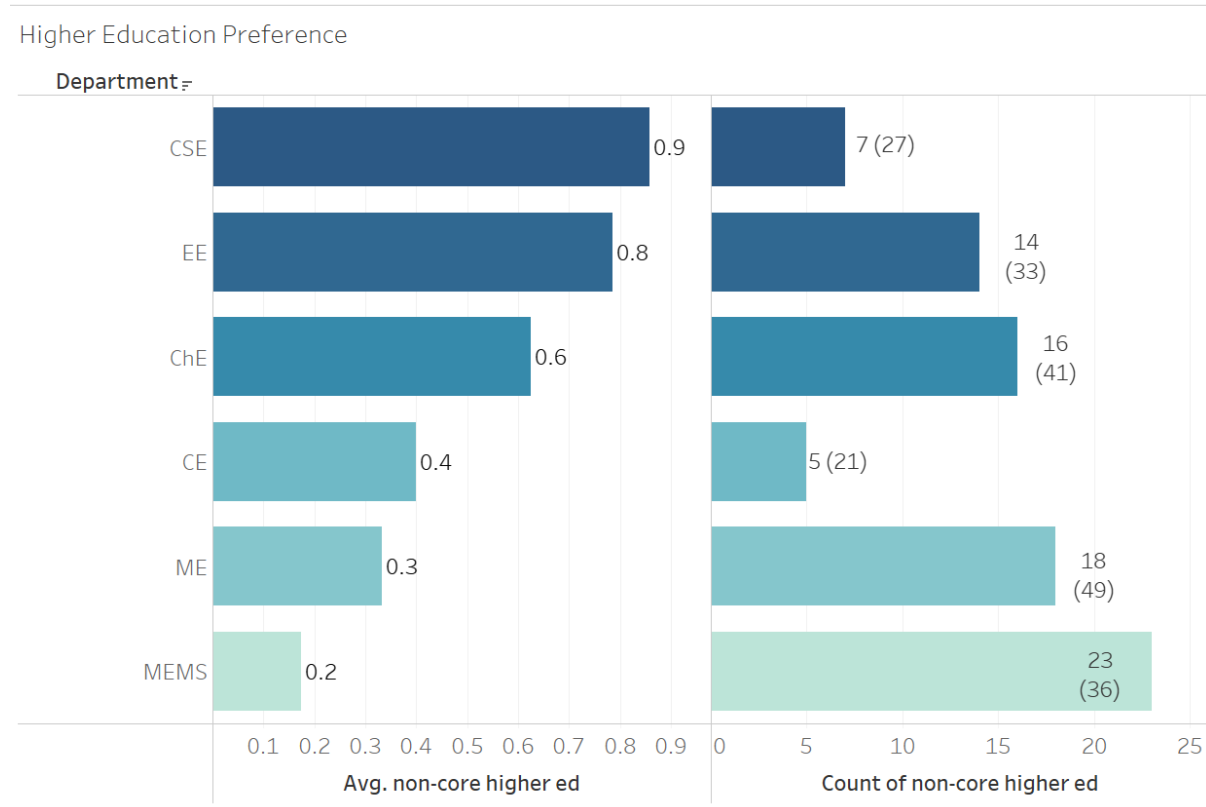


Figure A: Preference for “Higher Education” and further division into core and non-core options. Number in the brackets shows the total respondents from the department

Interestingly, only a quarter of respondents from CSE and a fifth from CE had “higher education” in their top two preferences. Also, the sample size of students interested in “higher education” in these departments is too low from the point of view of statistical significance so these are not analyzed any further. The greatest preference

for “higher education” is in MEMS - almost two-thirds of the respondents have “higher education” in their top two preferences. In ME and ChE almost 40% of the respondents have a preference for “higher education” and for EE this value is 50%.

The bar charts on the left side of Figure A delineate how the interest in “higher education” is divided between core and non-core categories. For this purpose we define a variable “non-core higher ed”; it is given a value of 0 if the preference is for higher education in a core area; it is assigned a value of 1 if the preference is for higher education in a non-core area. Students from MEMS have the greatest interest in higher education in core areas. When correlated with their high preference for non-core jobs (Figure 2 in paper) it suggests that there are many students interested in core MEMS but not enough job opportunities to accommodate them so they then plan to pursue a core higher education. This is borne out by the actual placement data discussed in the paper. In contrast, in EE, the opposite trend is seen in that those intending to pursue higher education seem to have more interest in non-core areas. For ME and ChE the interest in higher education seems to be more evenly divided between core and non-core areas, though in the former the interest leans towards core while in the latter the interest in non-core areas is higher.

3. Relates to data presented in Figure 2 of the paper: The following graphs illustrate the difference in preference of core and non-core students. **Scale used: 1 = no impact, 5 = deciding factor. For simplification, responses indicating 1 or 2 were combined; similarly, 4 or 5 were combined. Density ball represents the average value.**

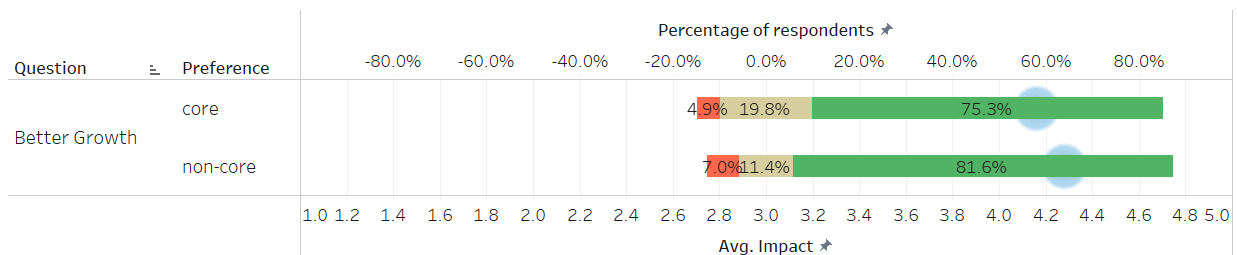


Figure B: “Better growth” as a driving factor for students having core and non-core job preferences.

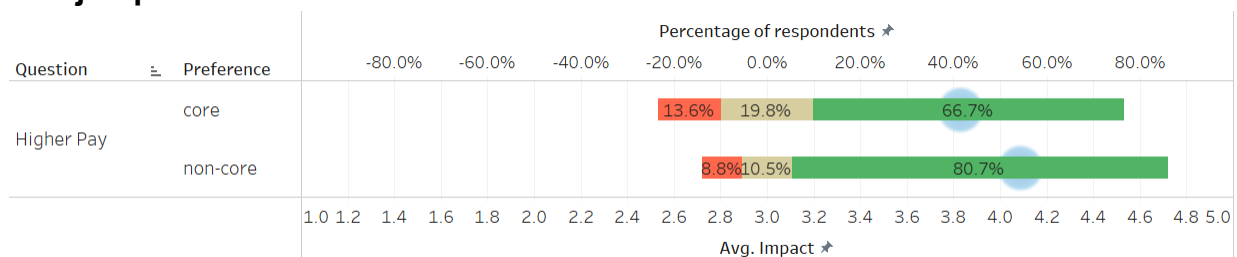


Figure C: “Higher pay” as a driving factor for students having a core and non-core job preferences.

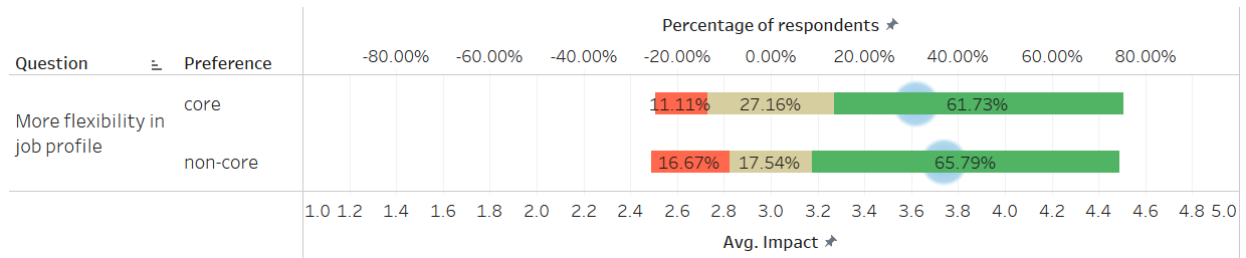


Figure D: “Flexibility in job profile” as a driving factor for students having a core and non-core job preferences.

4. Relates to Figure 9 in the paper: The following graph shows the time trends of sector preferences across departments.

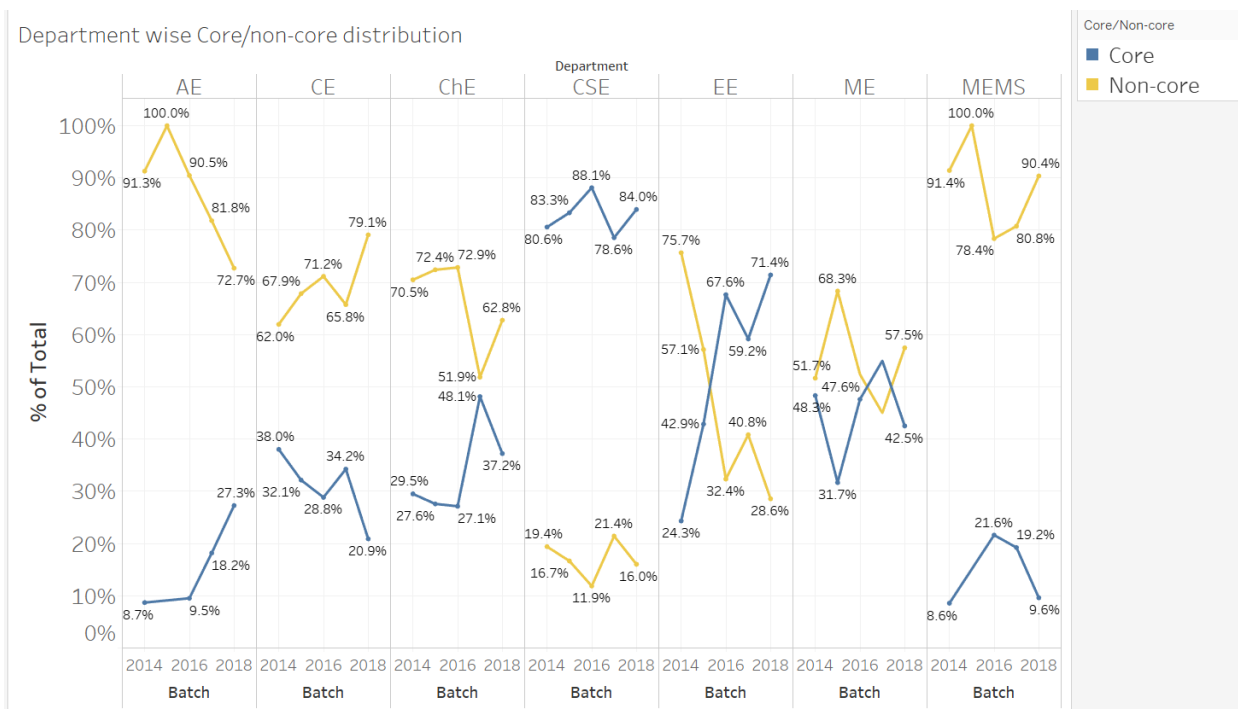


Figure E: Percentage of core and non-core jobs in select departments, across all years.

Figure E shows in departments like ChE and CE non-core placements are much higher than core, for every year, touching as high as 70-80%. In ME core and non-core placements are more evenly placed with a share of around 50% each. EE seems to have moved from a dominance of non-core to core jobs perhaps because of the growing connection between computer hardware (electrical/electronics) and software (computers). CSE shows a perpetual dominance of core jobs which perhaps is simply a reflection of how “computerized” the world is.

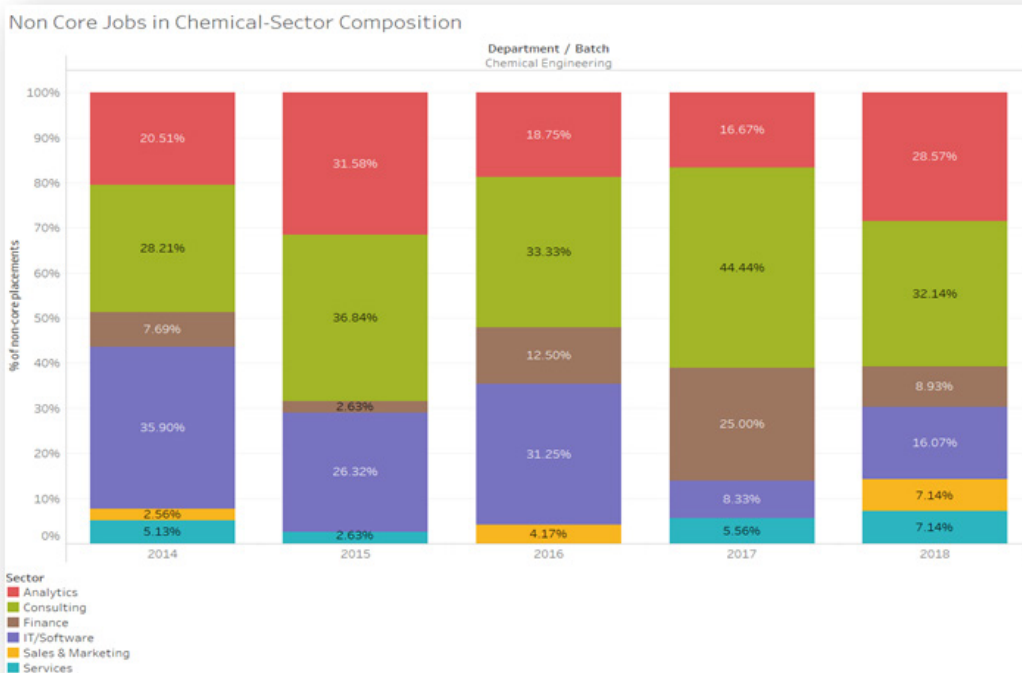


Figure F: Bar chart depicting sector composition of non-core placements in Chemical Engineering, aggregated over all the years.

In Figure F, one can see the shrinking of the IT/Software contribution and a corresponding increase of the Analytics share with time

5. Relates to Figure 10 in the paper: Median CPIs do not show much variation across departments.

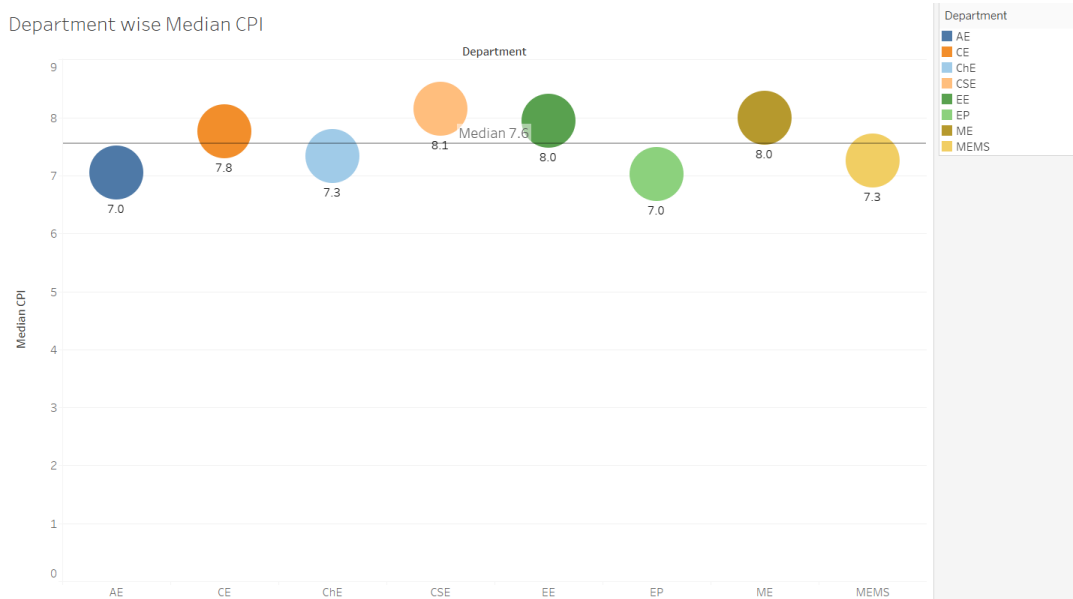


Figure G: Median CPI in selected departments aggregated over all years.

6. Relates to Figure 11 in the paper. The sector distribution among non-core jobs, for high scorers, across the years, is shown in Figure H. “Consulting” sector is the most significant; by 2018 “Analytics” has caught up. “Consulting” and “Analytics” sectors dominate. Interestingly, “Finance” seems to be a favorite of CSE students opting for non-core jobs. Apparently, many finance profiles demand coding skills and are among the highest paying. Therefore, these are quite sought after.

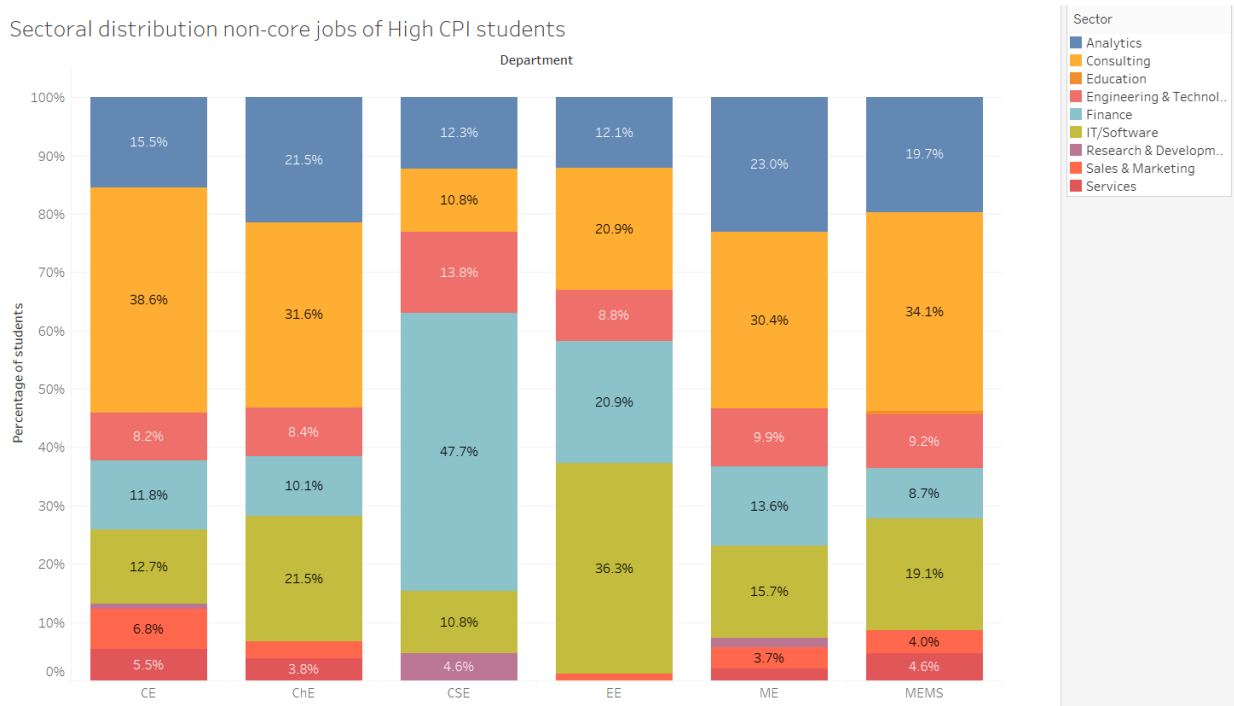


Figure H: Bar chart depicting sectoral composition of non-core jobs taken up by high CPI scorers, across all years.

7. Relates to “Data and Methodology”: Survey of BTech (JEE entrants) Students on Career Choices. The survey was floated from 15 Dec - 23 Dec 2020 among the third, fourth and fifth year students, and the total number of students surveyed was 2109. The Survey Form is given below:

Survey of BTech (JEE entrants) Students on Career Choices (Form)

Objective: The objective of this study is to identify the various factors that affect the career choices made by students, especially with respect to core versus non-core jobs.

For this study, we define core jobs as those that require domain knowledge taught in a given branch. The definition used here may differ from the definition used by the placement office. Please note the distinction when answering the following questions.

Examples:

- A chemical engineer in the chemical production industry, consulting for the chemical sector, or in the process control/automation sector that caters to the chemical industry: classified as core for chemical engineering.
- A mechanical or electrical engineer in a chemical industry who maintains equipment (sector is chemical but job profile is that mechanical/electrical): classified as core for mechanical engineering.

- Computer science engineering is a unique case as software and computers are used in almost every sector. Thus, the definitions are less rigid for CSE students, and the ambiguities should be resolved on a case-by-case basis keeping the details of the job profile, in mind.

Section 1: Personal Particulars [will be kept confidential]

1. Name
2. Roll No
3. Department (selection from a list)
4. Year of admission (selection from a list)
5. Year of Graduation
6. Programme (selection from a list)

Section 2: Career Choices

7. Career Path (in order of preference)
 - (a) core job
 - (b) non-core job
 - (c) higher education
 - (d) start up
 - (e) others
8. If your top 2 preferences include (b) non-core job, choose from the list below what best describes your preference
 - i. Finance
 - ii. Analytics
 - iii. Consulting
 - iv. Marketing
 - v. Software development (this maybe core for CSE - in that case please use the "core" option in item 8)
 - vi. Product Management
 - vii. General Management
 - viii. UPSC/Policy related profiles
 - ix. Others: Briefly describe: what kind of job, why do you prefer it
9. If your top 2 preferences include (a) core job, describe in a few words - what kind of job, why do you prefer it
10. If your top 2 preferences includes (c) higher education, choose from the list below what best describes your preference
 - i. PhD (core/non-core)
 - ii. Masters (core/non-core)
 - iii. Some other course: Briefly describe your choice.
11. If your top 2 preferences include (d) start-up and/or (e) others, describe your choice in a few words

Section 3: Influencing Factors

Job profile related factors

1. Lack of core opportunities
 - a. Scale 1- no impact; 5 - a deciding factor
2. Higher pay
 - a. Scale 1- no impact; 5 - a deciding factor
3. Better growth
 - a. Scale 1- no impact; 5 - a deciding factor
4. Genuine interest in the non-core
 - a. Scale 1- no impact; 5 - a deciding factor
5. More flexibility in the job profile
 - a. Scale 1- no impact; 5 - a deciding factor

Personal

- 6. Family Pressure
 - a. Scale 1- no impact; 5 - a deciding factor
- 7. Financial constraints like student loans
 - . Scale 1- no impact; 5 - a deciding factor
- 8. Peer pressure
 - . Scale 1- no impact; 5 - a deciding factor

Institute/Profession specific

- 9. The skill gap between curriculum and industry demands
 - a. Scale 1- no impact; 5 - a deciding factor
- 10. Internship or self-learning projects
 - . Scale 1- no impact; 5 - a deciding factor
- 11. Institute culture glorifying PoRs, extracurriculars etc (traditionally activities looked at by non-core recruiters)
 - . Scale 1- no impact; 5 - a deciding factor
- 12. Non-core courses taken
 - . Scale 1- no impact; 5 - a deciding factor

Section 4: Skill development for non-core interests

Did you make any specific efforts to learn skills related to non-core jobs? If yes, please indicate what resources you use(d).

Section 5: Comments & Suggestions

Any comments that you would like to add:

Any ideas to increase student interest in the core sector