Research Statement

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This is an overview of the research questions I am interested in. I intend to further develop my expertise in network formation study and apply my understanding in that field to other relevant strands of economic analysis.

I have two ongoing projects:

1. The Formation of Multi-functional Networks: This is joint work with Marcin Dziubinski and Sanjeev Goyal where we try to understand how agents form networks that serve multiple purposes. The interactions between different functions can shed light on ways of strategic reasoning and features of a network that we do not capture with most existing models that assume agents create a network for one specific objective.

2. Network Formation Dynamics and its Policy Implications: This is a normative exercise where I ask how policymakers can foster a desirable network from an empty one. Policy makers can choose to subsidize a few starting links, based on which agents update by adding new links and sever existing links until no one has an incentive to deviate. I aim to obtain an understanding of how different starting conditions lead to different stable network structures and make policy suggestions accordingly. The analysis of the question requires a characterization of network formation dynamics. The work has implications for leaders of start-ups and tutors of new classes of students.

There are several other topics I am eager to explore. Any comments and proposals of collaboration are very welcome:

1. Empirical Analysis of Network Formation Based on the CES Link Formation Assumption: I am interested in empirical analysis based on my job market paper "The Formation of Links and the Formation of Networks", where I propose to use a general and flexible link formation assumption built upon the CES production function to study network formation and I show that the degree of link investment substitutability has strong implications on the network formation behaviour and welfare of agents. Two empirical questions can be asked from the paper. One, as the degree of link investment substitutability has important effects, it can be worthwhile to estimate it for different scenarios. Two, the more general framework suggested by the paper can correct possible specification error resulting from the

strong link formation assumptions existing literature adopt. We can use the approach to improve the performance of estimators. As the CES function is widely employed in empirical Macro analysis, we believe it should be feasible to incorporate it into empirical network analysis as well.

2. Behavioural Patterns of Network Formation: I am interested in understanding if agents have any intrinsic preference for network structure and network positions. That is, ruling out the possible strategic advantages from a network, do agents favour certain kinds of structure and want to be situated in certain positions? There are two hypotheses I want to test. First, would players prefer an equal contribution to a link even though the different endowments of players suggest an unequal contribution to be the equilibrium? Second, do some players enjoy being under the spotlight (situated in more central positions) even though the position leads to lower economic benefit than other positions?

3. Network Formation and Industrial Organization: There are a number of studies on networked markets. They analyze how firms collaborate in R&D, form trade relationships, create joint ventures, etc. I am interested in how firms make joint promotions of products. For example, how airlines, car rental firms, hotels and insurance companies refer each other's products to customers? When would a firm make an agreement with others such that it needs to reduce the cost of its product when a customer purchase from a participating entity? What is the efficient cooperation structure and what is the stable cooperation structure?

4. Network Formation and Education: Students in school form networks that can significantly affect their education outcomes due to peer effects and externalities from learning activity. Schools can intervene in the network formation process by allocating students to different classes, assigning group projects, and holding social events. I am interested in modelling, testing, and making policy suggestions on this topic.