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Personal Information

Date of Birth: January 9th, 1992
Citizenship: US permanent resident

Undergraduate Studies:

B.A.(H), Economics, Delhi University, 2013

Masters Level Work:

M.Sc., Economics, LSE, 2015
M.A., Economics, University of Pennsylvania, 2017

Graduate Studies:

University of Pennsylvania, 2016 to present.
Thesis Title: "Essays in the market for IPv4 addresses"
Expected Completion Date: May 2022

Thesis Committee and References:

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Research Fields:

Industrial Organization, Applied Microeconomics

Teaching Experience:

Spring, 2021	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Fall, 2020	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Spring, 2020	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Fall, 2019	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Spring, 2019	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Fall, 2018	<i>Introduction to Economics</i> , University of Pennsylvania, Head Teaching Assistant for Professor Anne Duchene
Spring, 2018	<i>Introduction to Economics</i> , University of Pennsylvania, Teaching Assistant for Professor Anne Duchene
Fall, 2017	<i>Intermediate Economics</i> , University of Pennsylvania, Teaching Assistant for Professor Rakesh Vohra

Research Experience and Other Employment:

2018	University of Pennsylvania, Research Assistant for Professor Corinne Low
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Professional Activities:

<u>Presentations</u>	University of Pennsylvania (2021), CAIDA Workshop for Internet Economics (2020)
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Honors, Scholarships, and Fellowships:

2021	NABE student scholarship for annual meeting
2016-2021	Fellowship, University of Pennsylvania

Research Papers:

“Technology transition with frictions: Evidence from the IP address market” (**Job Market Paper**)

In this paper I study the market for internet addresses - a market created to mitigate short term scarcity of IPv4 addresses as firms transitioned to the next protocol. I analyze the inefficiencies that arise from the decentralized transition from IPv4 to IPv6. Inefficiencies arise due to the presence of adjustment costs, switching costs and network effects which are frictions in the market. Towards this end, I develop a dynamic model of firm behavior in the IPv4 market and IPv6 adoption. Then I collect a novel data to estimate the main parameters using simulated method of moments and use this to predict prices and IPv6 adoption. This model can explain the striking increase in prices observed and in the current environment near complete IPv6 adoption will take 33 years. I also find that enterprise firms (universities and companies that are mostly users) have 58% higher per-unit switching costs and content provider firms 24% higher

compared to ISPs. In counterfactual simulations, I find that in the absence of switching and adjustment costs prices are lower and IPv6 adoption happens almost 20 years faster. I find that the producer surplus is 88% higher than in the baseline. In the second counterfactual I find that with inter-operable network effects across both protocols firms would adopt IPv6 almost immediately whereas prices reach a peak and fall within three years. Producer surplus in this scenario is lower than the baseline by 1%. In the third counterfactual I find the optimal adoption path that maximizes aggregate producer surplus and find that the surplus is higher than the baseline by 35%.

Computer Skills: Python, MATLAB, STATA, R, SQL, Latex