Publications in Economics of Science

"At the Origins of Learning: Absorbing Knowledge Flows from Within the Team'' (co-authors Charles Ayoubi and Michele Pezzoni). *Journal of Economic Behavior & Organization*, Volume 134, Pages 374-387

Empirical studies document a positive effect of collaboration on team productivity. However, little has been done to assess how knowledge flows among team members. Our study addresses this issue by exploring unique rich data on a Swiss funding program promoting research team collaboration. We find that being involved in an established collaboration and team size foster the probability of an individual learning from the other team members. We also find that team members with limited experience are more likely to learn from experienced peers. Moreover, there is an inverted U-shaped effect of cognitive distance on the probability of learning from other team members.

"The Productivity of Science & Engineering PhD Students Hired from Supervisors' Networks" (co-authors Stefano Baruffaldi and Annamaria Conti). *Research Policy*, Volume 45, Issue 4, Pages 785-796

*Paper awarded by the Research Incentive Program of Collegio Carlo Alberto, September 2016

We compare the scientific productivity of PhD students who are hired from a fine-grained set of mutually exclusive affiliation types: a PhD supervisor's affiliation, an external affiliation from which the supervisor derives her coauthors, and an external affiliation with which the supervisor has no coauthorship ties. Using a novel dataset of science and engineering PhD students who graduated from two major Swiss universities, we find that the most productive PhD category is the one made of students who are affiliated with universities other than their supervisors' affiliation, but from which the PhD supervisors derive their coauthors. This result suggests an inverted U-shaped relationship between PhD students' productivity and the social distance from their supervisors. Additionally, we find evidence consistent with the role of supervisors' coauthor networks in resolving information asymmetries regarding PhD talent.

"A Revealed Preference Analysis of PhD Students' Choices Over Employment Outcomes" (co-author Annamaria Conti). *Research Policy*, Volume 44, Issue 10, December 2015, Pages 1931-1947

We develop a revealed preference approach to elicit PhDs' preferences over employment outcomes, exploiting cohort size variations. Increments in cohort size reduce the expected monetary rewards of PhDs' ideal employment choices, making them less attractive. Thus, these choices are less frequently observed when a PhD cohort is large and more frequently so when it is small. Examining two major European universities, we find that PhDs equally value employment in R&D-intensive companies and highly-ranked universities. Moreover, these employment categories are preferred to low-ranked universities and non-R&D-intensive firms. There is preference heterogeneity across PhDs depending on their research field.

"Science and Engineering Ph.D. Students' Career Outcomes, by Gender" (co-author Annamaria Conti). *PlosOne*, **August 2015**

We examine differences in the careers of men and women Ph.D.s from two major European universities. Having performed regression analysis, we find that women are more likely than men to be employed in public administration when the alternatives are either academia or industry. Between the latter two alternatives, women are more likely to be employed in academia. These gender differences persist after accounting for Ph.D.s' and their supervisors' characteristics. Gender gaps are smaller for Ph.D.s with large research outputs and for those who conducted applied research. Restricting the analysis to Ph.D.s who pursued postdoc training, women are less likely than men to be employed in highly ranked universities, even after controlling for their research outputs. Finally, we find gender differences in Ph.D.s' appointment to professorship, which are explained by the Ph.D.s' publication output and the quality of their postdoc training.

"Knowledge Specialization in PhD Student Groups." (co-authors Annamaria Conti and Olgert Denas). *IEEE Transactions on Engineering Management*, **61(1):52-67 (2014)**

Abstract—Researchers have argued that specialization within groups yields productivity gains. We evaluate this statement with a focus on groups of Ph.D. students. Using an established technique in computer science called Latent Dirichlet Allocation, we construct a novel measure of the dispersion of Ph.D. students' research interests based on their dissertation abstracts. We then relate this measure to Ph.D. group publications. For our study, we use a rich dataset on groups of Ph.D. students who studied at a major Swiss University, during the 1993–2008 period. We find robust evidence that within-group knowledge specialization is associated with a larger number of publications. However, when specialization increases beyond a critical level, it hinders the group's publication output. We interpret these results as an indication that gains, in the amount of research output, can be achieved if Ph.D. students specialize according to their comparative advantages. However, beyond a certain level, knowledge specialization has a detrimental impact on research output, due to increasing communication costs and an increased likelihood of conflict insurgence.