Digital Economics & AI Tutorial Application*

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I am a third-year Ph.D. student in Economics at the University of Toronto. My fields of study are Labor Economics (major) and Industrial Organization (minor).

I have taken graduate field courses in: Topics in Growth and Development (A+), The Economics of Algorithms (A), Industrial Organization I & II (A+; A), Labor Economics (A+), Advanced Topics in Urban and Real Estates Economics (A).

I am broadly interested in:

1. **The "intangible revolution"**: specifically, how the rise of non-rival intangible capital (e.g., intellectual property, software, brand equity) has fundamentally altered the behavior of multinational enterprises and the efficacy of traditional tax policies.

2. **Barriers to labor mobility and adoption of new technologies**: specifically, how labor regulation, such as occupational licensing, impact the mobility of workers. This friction hampers the diffusion of technology and innovation because tacit knowledge is often "embodied" in workers. When experts cannot easily move to high-growth clusters, the cross-pollination of ideas that drives agglomeration effects is stifled. Furthermore, rigid licensing definitions can lock in incumbent methods, slowing the adoption of disruptive technologies or new business models that do not fit neatly into traditional regulatory frameworks.

Selected Ongoing Work

A Quantitative Theory of the Intangible Revolution with Sebastian Dyrda, Guangbin Hong, & Joseph B. Steinberg

We analyze the cross-country spillover effects of corporate tax reforms. Combining firm-level evidence on the 2017 U.S. Tax Cuts and Jobs Act (TCJA) with a quantitative general-equilibrium

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model, we show how multinational enterprises (MNEs) propagate local policy shocks throughout the global economy. Our framework emphasizes three properties of intangible capital: nonrivalry, mobile ownership, and technology spillovers. We find the TCJA generated positive outward spillovers: First, it boosted U.S. MNEs' intangible investment, raising their foreign subsidiaries' output. Second, it increased tangible investment of foreign MNEs' U.S. subsidiaries, incentivizing them to expand intangible investment at home. Conversely, a Global Minimum Tax (GMT) in the rest of the world generates negative inward spillovers for the United States. It raises the effective tax rate on U.S. MNEs' foreign income, depressing their intangible investment, while simultaneously reducing foreign MNEs' intangible investment and thus their U.S. subsidiaries' output. These findings illustrate the complex trade-offs between tax-base protection and real economic activity in an interconnected policy environment.

Global Ripple Effects of Corporate Tax Reforms with Sebastian Dyrda, Guangbin Hong, & Joseph B. Steinberg

Over the past three decades, the global economy has experienced three key trends: the rise of intangible capital, the expansion of multinational enterprises (MNEs), and the increasing prevalence of international profit shifting. In this paper, we demonstrate that these trends are both empirically and structurally interconnected, reinforcing one another over time. Using cross-sectional evidence and event studies, we show that intangible intensity covaries positively with the scale of MNE activities and firm-level profit-shifting indicators. To rationalize these relationships, we develop a general equilibrium model that highlights scalable complementarity: reductions in intangible costs and trade barriers together amplify intangible investment and multinational expansion, with these effects further magnified by the nonrival nature of intangible capital. Profit shifting, in turn, rises superlinearly as tax differentials, enforcement costs, globalization, and intangible scalability shape firm behavior. Through counterfactual analysis, we quantify the contributions of technological change, globalization, and tax policy, demonstrating that their interdependence contributes significantly to the rise of intangible-intensive MNEs engaged in profit shifting.

License to Heal: Balancing Standards and Supply in Healthcare

Occupational licensing in healthcare involves a fundamental trade-off: stricter requirements may improve practitioner quality but inevitably restrict the supply of providers. I study this trade-off by exploiting a major policy reform in Canada that increased the mandatory pre-licensure residency training for family physicians from one to two years. Using administrative data in a staggered difference-in-differences framework, I find that the reform caused a sharp contraction in supply: the number of family physicians per 100,000 population declined by approximately 11.55, and the family physician share of the workforce dropped by 4.3 percentage points. To evaluate the welfare implications, I estimate a health production function using a shift-share instrument based on residency quota expansions. The estimates imply that a 10% decrease in physician supply requires a 0.08 standard deviation increase in practitioner quality to maintain constant mortality rates. Reduced-form evidence, however, finds statistically insignificant effects on quality, suggesting that the intensive margin of licensing stringency may yield diminishing returns while exacerbating pri-

mary care shortages.