Research Philosophy

In my own research, I have tried to follow the following principles:

1. Always put ideas first. Research should be about interesting ideas.
2. Always provide an intuitive interpretation. Think of each paper as telling a story about some economic phenomenon.
3. Do not be afraid to cross the boundaries of individual field if I have something interesting to say or an interesting way of looking at things.
4. Simplify as much as possible. Write clearly.

Research Agenda and Interests

I consider myself **an empirical economist with a focus on economic growth and behavioral economics and a general interest in many empirical issues in economics** and my work does not always fall neatly within my fields of specialization as I choose my projects based on whether I have something new or interesting to say about them instead of whether they fit into my "area." For me, it has always been about ideas. In my empirical work, I have generally tried to quantify things and test theories.

My research can be broadly classified into three main areas: economic growth and macroeconomics, behavioral economics, and applied econometrics that makes use of the regression discontinuity design. In what follows, I will briefly describe my research in each area. The following table lists my papers in each field, including published papers, working papers, and work in progress (or future research).

My Research Papers in Each Field

Economic growth & Macroeconomics

1. Wong, Wei-Kang. 2004. "How Good Are Trade and Telephone Call Traffic in Bridging Income Gaps and TFP Gaps?" *Journal of International Economics*, 64(2): 441-463.
2. Wong, Wei-Kang. 2006. "OECD Convergence: A Sectoral Decomposition Exercise." *Economics Letters*, 93(2): 210–214.

3. Wong, Wei-Kang. 2007. "Economic Growth: A Channel Accounting Exercise." *The B.E. Journals in Macroeconomics (Topics)*, 7(1): Article 4.
4. Wong, Wei-Kang. 2008. "Comparing the Fit of the Gravity Model for Different Cross-Border Flows." *Economics Letters*, 99(3): 474-477.
5. Wong, Wei-Kang. 2011. "Consumption Response to Government Transfers: Behavioral Motives Revealed by Savers and Spenders." *Contemporary Economic Policy (Accepted for Publication)*.
6. Koh, Melvin, and Wei-Kang Wong. "The Channels of Conditional Convergence: Allowing for Variable Capital Shares." *Work in Progress*.
7. Foo, Qixiang, and Wei-Kang Wong. "Does Central Bank Independence Reduce the Incidence or Severity of Banking Crises?" *Work in Progress*.

Behavioral Economics

1. Wong, Wei-Kang. 2007. "Nominal Increases and the Perception of Likelihood." *Economics Letters*, 95(3): 433-437.
2. Wong, Wei-Kang. 2008. "How Much Time-Inconsistency Is There and Does It Matter? Evidence on Self-Awareness, Size, and Effects." *Journal of Economic Behavior & Organization*, 68(3-4): 645-656.
3. Knetsch, Jack L., and Wei-Kang Wong. 2009. "The Endowment Effect and the Reference State: Evidence and Manipulation." *Journal of Economic Behavior & Organization,* 71(2): 407-413.
4. Koh, Weining, and Wei-Kang Wong. 2011. "The Endowment Effect and the Willingness to Accept-Willingness to Pay Gap: Subject Misconceptions or Reference Dependence?" *Working Paper*.
5. Wong, Wei-Kang. 2011. "Multiple Proposers in Ultimatum Game: Simultaneous Offer versus Sequential Offer." *Working Paper*.
6. Seah, Shawn, and Wei-Kang Wong. "Loss Aversion in the Singapore Housing Market." *Work in Progress.*
7. Liu, Haoming, and Wei-Kang Wong. "The Willingness to Pay for Superstition: What Matter May Be Your Beliefs About Others' Beliefs." *Work in Progress.*

Applied Econometrics using the Regression Discontinuity Design

1. Sue, Eddie, and Wei-Kang Wong. 2010. "The Political Economy of Housing Prices: Hedonic Pricing with Regression Discontinuity." *Journal of Housing Economics*, 19(2): 133-144.
2. Wong, Wei-Kang. 2011. "Parental Valuation of Priority Admission to Primary Schools: The Effects of Academic Reputation and Choices." *Working Paper*.
3. Khaw, Kaimin and Wei-Kang Wong. 2011. "Does An Additional Year of Schooling Improve Skills in Reading, Mathematics and Science? Regression Discontinuity due to Imprecise Control over Birthdates." *Working Paper*.
4. Pan, Jessica and Wei-Kang Wong, "Does A Better Class of Honours Raise Earnings?" *Work in Progress*.

Economic Growth & Macroeconomics

My research in this area empirically investigates the channels through which economic growth and productivity convergence are achieved, with a focus on the mechanisms that lead to cross-country diffusion of ideas and technology. These findings have implications on whether there is any tendency for developing countries to catch up with more developed countries, and how.

Frankel and Romer (AER, 1999) use the gravity model or geographic factors to investigate the causal effect of trade on economic growth. In **"How Good Are Trade and Telephone Call Traffic in Bridging Income Gaps and TFP Gaps?" (*Journal of International Economics*, 2004)**, I extend their methodology to compare trade and telephone call traffic as mechanisms for the cross-country diffusion of ideas and technology. Since the same geographic factors explain both cross-border flows, in using the gravity model to estimate trade's causal effect on income, it is necessary to also control for telephone traffic to avoid omitted variable bias. Using predicted trade and telephone traffic flows based on bilateral geographic, linguistic and colonial profiles between countries to instrument for actual trade and telephone call traffic, I find that telephone traffic has a quantitatively larger effect on cross-country income and productivity levels. If one accepts trade as a proxy measure of embodied idea flows and telephone traffic as a measure of disembodied flows, these results suggest

that disembodied idea flows rather than embodied object flows may be more important in bridging income gaps and idea gaps across countries.

Because there is some evidence that distance and a common language also affect bilateral merger and acquisition (M&A) activity, in **"Comparing the Fit of the Gravity Model for Different Cross-Border Flows" (*Economics Letters,* 2008)**, I extend the comparison to also include cross-country M&A flows, along with trade and telephone call traffic. The evidence suggests that the model works well for trade and telephone traffic, but less satisfactorily for merger and acquisition flows.

Frankel and Romer (AER, 1999) and Hall and Jones (QJE, 1999) investigate the channels through which trade and social infrastructure affect cross-country productivity differences, respectively. In **"Economic Growth: A Channel Accounting Exercise" (*The B.E. Journals in Macroeconomics,* 2007)**, I extend their methodology to systematically decompose the channels through which any determinant of economic growth could operate into three channels: by promoting physical capital accumulation, human capital accumulation, or TFP growth respectively. The methodology combines growth accounting with cross-country regression analysis in an intuitive and natural way. The evidence suggests that TFP growth, not physical or human capital accumulation, is the main channel of operation for most determinants and it is also the main channel of conditional convergence in labor productivity. This suggests that conditional convergence may not be due to diminishing returns to factor accumulation as it is commonly assumed. Instead, this finding lends support to models of growth that emphasize the role of technological diffusion in growth and convergence.

In **"The Channels of Conditional Convergence: Allowing for Variable Capital Shares" (*Work in Progress*)**, my former honors thesis student Melvin Koh and I investigate whether the previous results are sensitive to the assumption of constant capital share of income that is typically employed in the growth accounting exercise. We follow the research on income shares by Gollin (JPE, 2002) and Jones (2003). The evidence suggests that the results are robust to allowing variable capital shares.

In **"OECD Convergence: A Sectoral Decomposition Exercise" (*Economics Letters,* 2006)**, I extend this decomposition methodology to a related, but somewhat different setting: to decompose productivity convergence among OECD countries into

contributions of productivity growth from different industrial sectors (such as manufacturing and services) and contribution from employment shift or restructuring between these sectors. This paper is motivated by the controversy on whether the manufacturing sector did lead to aggregate productivity convergence among the OECD countries – see Bernard and Jones (AER and REStat, 1996a, b) and Sorensen (AER, 2001). The controversy arises because their methodology compares sectoral productivity levels across countries but sectoral Purchasing-Power-Parities (PPP's) that are needed for this comparison do not exist. My methodology bypasses this comparison and also allows us to estimate the contribution of employment shifts on aggregate productivity convergence. The evidence suggests that while productivity growth in the manufacturing sector has a large effect on OECD convergence, the effect is not statistically significant at the conventional levels. Furthermore, I find that the contribution to OECD convergence due to employment shift is economically small and statistically insignificant.

The paper titled **"Consumption Response to Government Transfers: Behavioral Motives Revealed by Savers and Spenders" (*Contemporary Economic Policy, Accepted for Publication*)** combines my interest in macroeconomics and behavioral economics. This paper uses survey to empirically investigate how different behavioral motives may have affected the consumption and saving decisions of recipients of actual government transfers (i.e., the 2006 Progress Package) in Singapore. The survey summarized eight standard behavioral motives governing saving and consumption decision in response to tax cuts or transfers in plain English, and asked the respondents to choose the statements that best described how they felt about the transfers. I find that savers were mostly motivated by precautionary saving, followed by Ricardian equivalence, while spenders were mainly driven by rule of thumb and present bias. The bequest motive turned out to be unimportant. Older, better educated, and economically more well off individuals who were not liquidity constraint were more likely to be savers.

In **"Does Central Bank Independence Reduce the Incidence or Severity of Banking Crises?" (*Work in Progress*)**, my former honors thesis student Foo Qixiang and I empirically investigate whether central bank independence (CBI) reduces the incidence or severity of a systemic banking crisis. We find no link between CBI and the incidence of banking crises. However, output loss following a systemic banking

crisis tends to be smaller with greater CBI. This appears to be driven by the interaction between two components of CBI related to governmental relationships and rules limiting lending to the state. This suggests that a more independent central bank that is less consumed by political interests and that refrains from financing unsustainable government debt may also be more effective in crisis resolution.

Behavioral Economics

My research in this area empirically investigates whether alternative behavioral assumptions and theories based on insights from psychology describe some economic choices more accurately than standard economic models.

In **"Nominal Increases and the Perception of Likelihood" (*Economics Letters*, 2007)**, I investigate whether people mistake nominal increases in likelihood as real increases in likelihood, in a way that is similar to money illusion documented by Fehr and Tyran (AER, 2001) and Shafir, Diamond, and Tversky (QJE, 1997). The reason may be counterfactual thought: a nominal increase in the absolute number of chances makes it easier to mentally simulate success, contributing to more favorable beliefs about the likelihood of success. I find that a nominal increase in likelihood has a relatively small effect on individual's own perception of likelihood, but a large and robust effect on beliefs about the perception of likelihood by others.

In **"How Much Time-Inconsistency Is There and Does It Matter? Evidence on Self-Awareness, Size, and Effects" (*Journal of Economic Behavior & Organization*, 2008)**, I investigate whether people are time-consistent, i.e., whether they behave according to plan, and they plan according to what is optimal from the long-run perspective. Classical theories assume that people always behave time-consistently. Using students' predicted and unpredicted delays in midterm preparation in the university as measures of time-inconsistency and self-awareness, I find that time-inconsistent behavior is prevalent and though most are at least partially aware of their time-inconsistency, time-inconsistency has real effect on class performance, which students tend to underestimate. This paper may be among the first to empirically identify all four types of time-consistent and time-inconsistent behaviors – time-consistency, naïve, partially naïve, and sophisticated time-inconsistency – and measure their size and effects. The identification strategies of

most existing studies – such as finding evidence of people voluntarily imposing self-limiting "commitment devices" on themselves (Wertenbroch, 1998; Trope and Fishbach, 2000; Ariely and Wertenbroch, 2002) or using survey evidence of people's ideal and predicted intertemporal allocation in a hypothetical two-period consumption problem (Ameriks, Caplin, Leahy, and Tyler, 2007) – while very convincing and interesting, cannot distinguish the time-consistent from the naifs, or the partial naifs from the sophisticates.

In two papers titled **"The Endowment Effect and the Reference State: Evidence and Manipulation" (*Journal of Economic Behavior & Organization,* 2009)** and **"The Endowment Effect and the Willingness to Accept-Willingness to Pay Gap: Subject Misconceptions or Reference Dependence" (*Working Paper*)**, my coauthors – Jack Knetsch in the first paper and my former honors thesis student Koh Weining in the second paper – and I revisit the laboratory findings of "endowment effect", i.e., the increased value of a good to an individual when the good becomes part of the individual's endowment. The endowment effect is often thought to be evidence for prospect theory, which posits an asymmetry in preferences for gains and losses such that changes in the domain of losses are valued more than commensurate changes in the domain of gains – a phenomenon known as loss aversion (Kahneman and Tversky, 1979). On the contrary, classical theory assumes no loss aversion. Recently, two papers by Plott and Zeiler (AER, 2005, 2007), or PZ henceforth, question this interpretation and report some evidence that these laboratory findings may be attributed to experimental procedures that fail to control for classical incentives and subject misconceptions. We argue that when PZ control for these confounds, their procedures may also have weakened the reference states from which gains and losses were evaluated and these procedurally induced weak reference states may also account for their findings of no endowment effect, despite people actually having asymmetric preferences for gains and losses.

To test this hypothesis, we examine two kinds of laboratory evidence for endowment effect: first, a statistically significant gap between willingness to accept (WTA) to give up a good and willingness to pay (WTP) to acquire a good **(Koh and Wong, 2011)**, and second, an exchange asymmetry in the form of a reluctance to exchange an arbitrarily endowed good for an otherwise comparable alternative good **(Knetsch and Wong, 2009)**. We strengthen the reference states while attempting to control for all

confounds suggested by PZ and we still find evidence of an endowment effect. Thus, our results suggest that the endowment effect may be turned on and off by different experimental procedures, not because different procedures induced or eliminated various subject misconceptions or classical incentives, but most likely because they strengthened or weakened the reference states, making gains and losses more or less salient.

In a standard ultimatum game, a "proposer" divides some amount of money between himself and a "recipient" by making a take-it-or-leave-it offer to the recipient (Guth et al., 1982; reviewed in Camerer, 2003). Some researchers have extended the game to the case of multiple proposers to investigate the effect of competition on sharing behavior (for example, Roth et al., 1991; Fischbacher et al., 2009). In **"Multiple Proposers in Ultimatum Game: Simultaneous Offer versus Sequential Offer" (*Working Paper*)**, I adopt their framework to compare sharing behavior when two proposers make offers to a single recipient simultaneously or sequentially, where Nash equilibrium predicts polar opposite sharing behavior. It turns out that the proposers' offers were quite insensitive to the different scenarios and they deviate significantly from the Nash predictions. Furthermore, the recipients seem to strategically reject even split by the first proposer in sequential offers, resulting in first mover disadvantage and inequity to the first proposer in the sequential setting.

The next two papers use transaction data of all private residential properties in Singapore. Following Genesove and Mayer (2001), in **"Loss Aversion in the Singapore Housing Market" (*Work in Progress*)**, my former honors thesis student Shawn Seah and I find evidence of loss aversion among sellers of private properties in Singapore. We differ from Genesove and Mayer (2001) in that we explicitly allow and test for different effects for gains and losses, as well as diminishing sensitivity as gains and losses become larger. The finding provides further support for loss aversion and prospect theory.

In **"The Willingness to Pay for Superstition: What Matter May Be Your Beliefs About Others' Beliefs" (*Work in Progress*)**, my colleague Liu Haoming and I investigate an important aspect of the Chinese customs where things are sought after or avoided because they sound auspicious or inauspicious. For example, the numbers "4" and "8" sound similar to "death" and "prosperity" and hence they are typically avoided or sought after, respectively. Specifically, we investigate whether private

properties with unit numbers ending with 4 are sold at a discount and those with unit numbers ending with 8 are sold at a premium in Singapore. We find that they do. We ask how these discounts and premiums may arise when a significant fraction of the population (e.g., the Malays and Indians) has no superstitious beliefs with regards to these numbers. We argue that when there are search frictions, even if the current buyers are not superstitious, they may nonetheless demand a discount or pay a premium (i.e., exhibit what seem like superstitious behaviors) because of the probability of future resale and their beliefs about the beliefs of future prospective buyers.

Applied Econometrics

I have been fascinated with the regression discontinuity (RD) design since I first heard of the idea in a labor economics class that Ken Chay taught at Berkeley, a class that I audited briefly near the end of my graduate study. A regression discontinuity design can be used to estimate the treatment effect when treatment is determined by whether an observed "assignment" variable exceeds an exogenous threshold, which typically arises from some institutional features or government policies. This design controls for omitted variable bias by comparing observations just above the threshold to those just below, which differ in their treatment status but tend to be similar in other dimensions.

My first application is on the political economy. The People's Action Party has ruled Singapore since independence. In its electoral campaign in recent years, the party has promised priority for public housing upgrading and higher quality estate management services in its constituencies. In **"The Political Economy of Housing Prices: Hedonic Pricing with Regression Discontinuity" (*Journal of Housing Economics*, 2010)**, my former honors thesis student Eddie Sue and I use the RD design to empirically estimate the value of publicly provided local goods and services in the constituencies of the ruling party relative to those of the opposition parties. To improve control for omitted variables that change smoothly over space, we compare the resale prices of public flats (i.e., HDB flats) that are near the electoral boundaries separating the constituencies of the ruling party and opposition parties. In some cases

we find a moderate but highly statistically significant difference in housing prices across the electoral boundaries.

Similarly, in **"Parental Valuation of Priority Admission to Primary Schools: The Effects of Academic Reputation and Choices" (*Working Paper*)**, I estimate the value of priority admission to good primary schools in Singapore. I exploit a balloting rule governing primary school admission in Singapore that creates a discontinuous change in admission probability at the 1km and 2km perimeters of popular primary schools where the demand for vacancy exceeds supply. To improve control for omitted variables that change smoothly across space, I compare resale prices of public flats that fall just inside the 1km and 2km perimeters of good schools to those that fall just outside. The evidence suggests that parents value schools with good performance or good progress in academic achievement.

In **"Does An Additional Year of Schooling Improve Skills in Reading, Mathematics and Science? Regression Discontinuity due to Imprecise Control over Birthdates" (*Working Paper*)**, my former honors thesis student Khaw Kaimin and I investigate whether an additional year of schooling leads to significant skills and knowledge accumulation. We exploit exogenous variation in student birthdates around the school entry cut-off date, causing students of similar age but different grade to take the same international standardized test. The evidence suggests that schooling does lead to skill and knowledge accumulation. Furthermore, students with more educated parents gain more from schooling, suggesting complementarity between human capital accumulation at home and in school.

Finally, in **"Does A Better Class of honours Raise Earnings?" (*Work in Progress*)**, my colleague Jessica Pan and I empirically investigate the value of getting a better class of honours to a university graduate in the labor market. The identification problem arises because a graduate with a better class of honours is also likely to have higher unobserved ability. Thus, it is difficult to disentangle their effects on wages and earnings. We have found a way to control for unobserved ability and other omitted variable bias using a regression discontinuity design, which exploits an institutional feature governing the award of different classes of honours at a large public university.