CURRICULUM VITAE – GAURAV KHEMKA, PhD FIAA CERA

1. Personal Details:

Name:	Gaurav Khemka
Position:	Associate Professor in Actuarial Studies Convenor of the Bachelor of Actuarial Studies
Address:	Room 3.04, CBE Building 26C, Research School of Finance, Actuarial Studies & Statistics, Australian National University, Canberra, ACT 2601, Australia
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2. Education and Professional Qualifications

2017:	Chartered Enterprise Risk Actuary
2015:	Fellow of the Actuaries Institute of Australia (FIAA)
2013:	PhD in Actuarial Studies and Statistics *Australian National University, Canberra, Australia*
2008:	Master of Actuarial Studies *Australian National University, Canberra, Australia*
2006:	Bachelor of Arts (Hons.) in Economics *Jadavpur University, Kolkata, India*

PhD title: The Impact of Economic Changes on Disability Income Insurance and Health in Australia.
Supervisors: Professor Steven Roberts, Associate Professor Tim Higgins and Dr David Service.

3. Awards

2020:	ANU College of Business and Economics Teaching Commendation for Outstanding Teaching

4. Professional Experience

2017 - Present: **Australian National University**
Associate Professor, **Research School of Finance, Actuarial Studies and Statistics**
I commenced in January 2017. My responsibilities involve research, course co-ordination and teaching, administration and supervision of actuarial honours, masters and PhD student research projects. My current service roles include:

- 2020 – present: Convenor of the Bachelor of Actuarial Studies
- 2019 – present: ANU representative at the International Center for Asset Management, Insurance and Risk Management (iCAIR.

I have previously been involved in the following roles/initiatives:

- 2017 – 2020: Actuarial seminar co-ordinator.
- 2017 – 2020: RSFAS Summer research camp – Actuarial speaker organiser.
- 2017 – 2020: Development and execution of the RSFAS India Diversification Strategy.
- 2022: Organising committee of the 9th Australasian Actuarial Education and Research Symposium (AAERS), being held at the ANU.

2017 - Present: **TCW Actuarial and Rosson Costa Actuarial**
Consulting Actuary

2015 - 2016: **Bond University**
Senior Lecturer, **Bond Business School**

2015 - 2016: **NetActuary**
Consulting Actuary

2013 - 2015: **Australian National University**
Lecturer, **Research School of Finance, Actuarial Studies and Statistics**

<u>*Other Relevant Experience*</u>

2013:	**Senior Consultant**, *Macroeconomics*
2008 - 2012:	**Various Roles (Assistant Lecturer, Research Assistant, Tutor)** *Research School of Finance, Actuarial Studies and Statistics, Australian National University*
2008:	**Analyst/Consultant**, *NMG Financial Services Consulting* (Internship)

5. Other Professional Involvements

- Member of the Exemption Committee of the Actuaries Institute (CT3 exemptions).
- Course Leader for Investments in the Commercial Actuarial Practice (Part III – C10 course).
- Marker for Banking in the Commercial Actuarial Practice (Part III – C10 course).
- Member of the GRIS working group (Actuaries Institute C10 course)
- Assessing special consideration applications particularly for Fellows and Associates transferring over to Australia from other countries.
- University Accreditation panel member: Victoria University of Wellington

6. Research

a. Research Outputs

i. <u>Published</u>

1. **Khemka, G**., Pitt, D., & Zhang, J. (2022). On Fitting Probability Distribution to Univariate Grouped Actuarial Data with Both Group Mean and Relative Frequencies, *North American Actuarial Journal*, Forthcoming.
2. Butt, A., **Khemka, G.,** & Warren, G.J. (2022). Heterogeneity in optimal investment and drawdown strategies in retirement. *Pacific Basin Finance Journal*, 74, 101798**.**
3. Donnelly, C., **Khemka, G.**, & Lim, W. (2022). Investing for retirement: Terminal wealth constraints or a desired wealth target? *European Financial Management*, 28, 1283– 1307.
4. Chapman, B, & **Khemka, G.** (2022). Understanding recent HECS–HELP price misunderstandings. *Australian Journal of Public Administration,* 81: 53– 69.
5. **Khemka, G.,** Steffensen, M., & Warren, G.J. (2021). How sub-optimal are age-based life-cycle investment products?'. *International Review of Financial Analysis*, 73, 101619.
6. **Khemka, G.,** Tang, Y., &Warren, G.J. (2021). The 'right' level for the superannuation guarantee: identifying the key considerations. *Accounting and Finance*, 61: 4435-4474.
7. Butt, A., **Khemka, G.,** & Warren, G.J. (2019). What Dividend Imputation Means for Retirement Savers. *Economic Record,* 95: 181-199.
8. Lim, W., **Khemka, G.,** Pitt, D., & Browne, B. (2019). A method for calculating the implied no-recovery three-state transition matrix using observable population mortality incidence and disability prevalence rates for the elderly. *Journal of Population Research,* 36(3), 245-282.
9. Butt, A., **Khemka, G.,** & Strickland, L. (2018). How academic research can inform default superannuation fund design and individual financial decision-making. *AJAF (formerly known as JASSA): The Australasian Journal of Applied Finance*, 1, 40-49.
10. **Khemka, G.,** Roberts, S.P., & Higgins, T. (2017). The impact of changes to the unemployment rate on Australian disability income insurance claim incidence. *Risks*. 5(1), 17.
11. **Khemka, G.,** & Butt, A. (2017). Non-parametric integral estimation using data clustering in stochastic dynamic programming: an introduction using lifetime financial modelling. *Risks*. 5(4), 57.

12. **Khemka, G.,** & Roberts, S.P. (2015). Impact of Economic Cycles on Australian Mortality. *Journal of Population Research*, 32(2), 139-155.
13. Butt, A., & **Khemka, G.** (2015). The effect of objective formulation on retirement decision making. *Insurance: Mathematics and Economics*, 64, 385–395.

ii. Papers Submitted

1. Asher, A., Boonen, T.J., Chang, L., **Khemka, G.,** & Roberts, S.P. (2022). Heterogeneity in needs and purchases in retirement. Accounting and Finance. ***Revise and Resubmit.***

iii. Working Papers

1. Asher, A., **Khemka, G.,** & Roberts, S.P. (2020). Enhancing well-being in retirement: addressing negative shocks.
2. Asher, A., Butt, A., **Khemka, G.,** & Kayande, U. (2016). Formulating appropriate utility functions and personal financial plans.
3. Butt, A., **Khemka, G.,** & Warren, G.J. (2021). Principles and Rules for Translating Retirement Objectives into Strategies.

iv. Current Projects (that are close to finishing)

1. Butt, A., **Khemka, G.,** Lim, W., Warren, G.J., & Wu, S. (2022). Portfolio choice for retirement savings: The impact of market volatility during the COVID-19 pandemic.
2. Butt, A., **Khemka, G.,** Lim, W., & Warren, G.J. (2022). Primer on the Design and Evaluation of Strategies for Generating Retirement Income within Defined Contribution Pension Plans. *Society of Actuaries Research Paper*.
3. Donnelly, C., **Khemka, G.**, & Lim, W. (2022). Generalized Options-Based Portfolio Insurance.
4. Huang, T., **Khemka, G.,** & Chong, W. (2022/2023) Do fund managers add value in investing for retirement? An application of the method of endogenous gridpoints.
5. Escobar, M., & **Khemka, G.** (2022/2023). A life cycle problem with multiple constraints: Application to pension funds with borrowing costs.

b. Government Submissions

1. **Khemka, G.,** & Warren, G.J. Treasury Retirement Incomes Review. Submission 14th January 2020.
2. Butt, A., **Khemka, G.,** & Warren, G.J. House of Representatives Standing Committee on Economics, Inquiry into the Implications of Removing Refundable Franking Credits. Submission, 10 October 2018.

c. Opinion pieces

1. **Khemka, G.,** & Warren, G.J. The uncomfortable truth about super: there's no 'one-size-fits-all' contribution. *The Conversation*, January 31, 2020. https://theconversation.com/the-uncomfortable-truth-about-super-theres-no-one-size-fits-all-contribution-130193
2. Butt, A., **Khemka, G.,** & Warren, G.J. What Dividend Imputation Means for Retirement Savers. *Austaxpolicy*. September 26, 2019. https://www.austaxpolicy.com/what-dividend-imputation-means-for-retirement-savers/

d. Media mentions (selected)

1. Hike in uni fees to cost students less than $1 a day. *The Australian.* June 11, 2021. https://www.theaustralian.com.au/higher-education/uni-fee-hikes-cost-graduates-less-than-1-a-day-says-bruce-chapman/news-story/897715e8362038b34f2f69d66aad4b49
2. Rules for designing retirement incomes strategies. *Investor Strategy.* February 5, 2021. https://ioandc.com/rules-for-designing-retirement-incomes-strategies/

3. ISA slams ANU research as SG debate rears its head again. *Financial Standard*. January 20, 2020. https://www.financialstandard.com.au/news/isa-slams-anu-research-as-sg-debate-rears-its-head-152686150
4. No need for super to go up to 12 per cent: ANU academics. *Australian Financial Review*. January 18, 2020. https://www.afr.com/policy/tax-and-super/no-need-for-super-to-go-up-to-12-per-cent-anu-academics-20200117-p53sg8
5. Will Labor's dividend imputation policy overwhelmingly affect the low paid? *ABC News*. January 30, 2019. https://www.abc.net.au/news/2019-01-30/fact-check-labors-dividend-imputation-policy/10626204

e. Other

1. Development of a prototype retirement planning calculator. Available at https://draftfinplancalc.com/

f. Invited and Keynote Presentations

1. Macquarie University, 2019, 'Investing for retirement: how loss aversion risk preferences naturally leads to greater retirement income certainty'. *Invited*.
2. University of Copenhagen, 2019, 'How sub-optimal are age-based life-cycle investment products?'. *Invited*.
3. Enduring Value Education in a Technologically driven 21st Century, 2018, New Delhi India, 'Values in Technological Education'. *Keynote*.
4. Monash University and CSIRO, 2017, 'Optimisation in lifetime financial modelling'. *Invited*.
5. Data 61, CSIRO, 2017, 'Optimal decisions in retirement planning'. *Invited*.
6. China R Conference. Nanchang, 2015, 'The effect of objective formulation on retirement decision making'. *Keynote*.

g. Grants

2022	(with Adam Butt, Geoff Warren and William Lim) Investment Risk Metrics for Retirees and/or Considerations of Lifetime Income in Portfolio Design. Society of Actuaries, $44,767. *Co-Lead Investigator.*
2020-22	(with Adam Butt) Superannuation lifecycle modelling from a household perspective. Commonwealth Scientific and Industrial Research Organisation (CSIRO), Data61. $71,121. *Co-Lead Investigator.*
2019-22	House purchase decisions on life-cycle. Commonwealth Scientific and Industrial Research Organisation (CSIRO), Data61. $30,000. *Lead Investigator.*
2016	(with Adam Butt) Hybrid Bootstrap-Quadrature in Decision Functions Optimisations, 2016, Vice-Chancellor's Research Seed Grant, Bond University, $8,100. *Co-Lead Investigator.*
2015-16	(with Adam Butt) Simulation and Sampling in Dynamic Programming, 2015/16, Research School Internal Grant, ANU, $12,000. *Co-Lead Investigator.*
2014-15	(with Anthony Asher, Adam Butt and Ujwal Kayande) Developing coherent and usable decision support systems to improve financial wellbeing over an individual's lifecycle. Centre for International Finance and Regulation Research Grant, 2014/15, $112,996. *Co-Lead Investigator.*
2013-14	(with Adam Butt) Decision Making in Retirement using Dynamic Programming Techniques, 2013/14, Research School Internal Grant, $10,000. *Co-Lead Investigator.*

h. Journal Refereeing

- Risks *(Member of Reviewer Board)*
- Insurance: Mathematics and Economics
- Journal of Pension Economics and Finance
- European Actuarial Journal
- AJAF: The Australasian Journal of Applied Finance
- Mathematics
- International Journal of Environmental Research and Public Health

7. Teaching Experience

- At the **Australian National University**:
    - STAT 3058/8058: Risk Modelling 2 (2020-2022).
    - FINM3003/7003: Continuous Time Finance (2013, 2022).
    - ACST4060/8060: Enterprise Risk Management 1 (2018-2019).
    - ACST4061/8061: Enterprise Risk Management 2 (2017-2020).
    - ACST4033/8033: Actuarial Control Cycle B (2014).
    - STAT1003: Statistical Techniques (2014).
    - FINM7008: Applied Investments (2013).
- At **Bond University**

    Teaching:
    - ACSC 14-400: Actuarial Control Cycle I (2016).
    - ACSC 14-402: Investments and Asset Modelling (2016).
    - ACSC 71-200: Mathematical Statistics (2016).
    - STAT 11-112: Quantitative Methods (2016).

    Course Development:
    - ACSC 12/71-201: Financial Mathematics.
    - ACSC 13/71-300: Insurance Models.
    - ACSC 14-401: Actuarial Control Cycle II.

8. Student Supervision

i. PhD

2021 - present:	**Zheng Xu,** *PhD in Actuarial Studies*. Associate supervisor.
2020 - present:	**Tiancheng Huang,** *PhD in Actuarial Studies*. Chair and Primary Supervisor
2018 - present:	**Yifu Tang,** *PhD in Actuarial Studies*. Chair and Primary Supervisor.
2018 - present:	**William Lim,** *PhD in Actuarial Studies*. Chair and Primary Supervisor.
2018 - present:	**Zhuoran Liu,** *PhD in Actuarial Studies*. Associate supervisor.

ii. Honours

2023:	**Shams Mehry,** *Honours in Actuarial Studies*.
2023:	**Eugene Tan,** *Honours in Actuarial Studies*.
2017:	**Luke Strickland,** *Honours in Actuarial Studies*. Senior Associate at PwC, Brisbane. *Outcome: First Class Honours.*
2014:	**William Lim,** *Honours in Actuarial Studies*. Associate Lecturer at ANU. *Outcome: First Class Honours.*

iii. Masters

2022:	**Annika Schneider,** *Masters Thesis, Technical University of Munich.*
2022:	**Michael Lu,** *Masters Research Essay.*
2022:	**Olivia Ai,** *Masters Research Essay.*
2020:	**Zheng Xu,** *Masters Research Essay.*
2019:	**Tiancheng Huang,** *Masters Research Essay.*

2017: **Yifu Tang,** *Masters Research Essay*.
2017: **Zhuoran Liu,** *Masters Research Essay*.
2016: **Jani Siitarinen,** *Masters Research Essay*.

iv. Other

2020: **Zheng Xu,** *Summer Research Project.*
2019: **Tiancheng Huang,** *Summer Research Project.*
2019: **Justin Chan,** *CBE Student Internship*.
2019: **Dilhara De Silva,** *CBE Student Internship*.
2018: **Sergio Suarez Villa,** *Summer Research Project.*
2017: **Ze-Xi Gan,** *CBE Student Internship*.
2016: **James Todd,** *Special Topic in Bachelor of Actuarial Studies*.