

Observational and reinforcement pattern-learning: An exploratory study

Nobuyuki Hanaki, Alan Kirman, Paul Pezanis-Christou

PII: S0014-2921(18)30018-7
DOI: [10.1016/j.euroecorev.2018.01.009](https://doi.org/10.1016/j.euroecorev.2018.01.009)
Reference: EER 3112

To appear in: *European Economic Review*

Received date: 31 July 2017
Accepted date: 12 January 2018

Please cite this article as: Nobuyuki Hanaki, Alan Kirman, Paul Pezanis-Christou, Observational and reinforcement pattern-learning: An exploratory study, *European Economic Review* (2018), doi: [10.1016/j.euroecorev.2018.01.009](https://doi.org/10.1016/j.euroecorev.2018.01.009)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Observational and reinforcement pattern-learning: An exploratory study*

Nobuyuki Hanaki[†] Alan Kirman[‡] Paul Pezanis-Christou[§]

February 13, 2018

Abstract

Understanding how individuals learn in an unknown environment is an important problem in economics. We model and examine experimentally behavior in a very simple multi-armed bandit framework in which participants do not know the inter-temporal payoff structure. We propose a baseline reinforcement learning model that allows for pattern-recognition and change in the strategy space. We also analyse three augmented versions that accommodate observational learning from the actions and/or payoffs of another player. The models successfully reproduce the distributional properties of observed discovery times and total payoffs. Our study further shows that when one of the pair discovers the hidden pattern, observing another's actions and/or payoffs improves discovery time compared to the baseline case.

Keywords: multi-armed bandit, reinforcement learning, payoff patterns, observational learning

JEL Code: D81,D83

*An earlier version of this paper was circulated under the title of “Counter intuitive learning: An exploratory study.” We thank two anonymous referees, Ido Erev, Mamoru Kaneko, Rajiv Sethi, Christos Ioannou, Aidas Masilunas, members of the Behavior Discussion Group at the Santa Fe Institute, and audiences at SAET 2014 (Tokyo), ASSET 2014 (Aix-en-Provence), and the Universities of Nice (GREDEG) and Toulouse for useful comments and suggestions, as well as Jade Wong and Justin Cheong for assistance with conducting the experiments. Support from the School of Economics of the University of New South Wales where the experiments were conducted, a LABEX OT-MED grant (ANR-11-LABX-0061), a JSPS-ANR bilateral “BECOA” grant (ANR-11-FRJA-0002), a ANR ORA-Plus “BEAM” grant (ANR-15-ORAR-0004), an IDEX *UCA^{JEDI}* grant (ANR-15-IDEX-01) in particular the “UCAinACTION” project, and the Australian Research Council (DP140102949) are gratefully acknowledged. The usual disclaimer applies.

[†]Université Côte d’Azur, CNRS and GREDEG. Email: nobuyuki.hanaki@unice.fr

[‡]CAMS, EHESS, and Aix Marseille University. Email: alan.kirman@ehess.fr [Corresponding author]

[§]School of Economics, University of Adelaide. Email: paul.pezanis-christou@adelaide.edu.au

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات