A Toy Model to Probe Career Mobility

A new model could predict the impacts of policy changes on career progression prior to their implementation.

By **Katherine Wright**

Life is a series of decisions—especially when it comes to a person's career path. Now, researchers have developed a statistical model to study the influence of these decisions on the career mobility of individuals and groups [**1**]. They say that the model could be used by universities to test the impacts of a policy prior to implementation.

The model resembles a game in which a person moves across a hexagonal lattice. At every turn, they take a step to the right, either horizontally or diagonally up or down. Upward steps represent career advances; downward steps, the opposite. Which path is taken is determined by a binomial probability distribution.

This up-or-down probability changes permanently—for better or worse—if a person undergoes an "epiphany," such as an insight about their lifegoals or their current situation. A person can also experience a "quantum leap," which is a multistep jump up the lattice in a single turn. A quantum leap happens when the person's career benefits from circumstances beyond their control, such as the institution of affirmative action programs. The game ends after a predefined number of turns, which marks retirement or death.

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Analyzing the outcomes of hundreds of games, Rafael Bittencourt of Centro Universitário SENAI-Cimatec, Brazil, and his colleagues found that for an epiphany to have a significant positive impact on a person's future trajectory—causing them to climb the lattice over their lifetime—it must happen in childhood. Meanwhile, quantum leaps only impact career level at retirement if they come after an epiphany; otherwise, they rarely stick. This could reflect the person making the most of external support only if an internal resolution has made them suitably receptive.

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REFERENCES

1. R. A. Bittencourt *et al.*, "Interplay of self, epiphany, and positive actions in shaping individual careers," **Phys. Rev. E 108, 024314 (2023).**