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**Does Parental Education Investment Increase when Parental Perception of Children's Ability  
Increases?**

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## 1. Introduction

- Classic parental investment model treats parental human capital investment as the intergenerational transfer. It indicates that parents are willing to invest on child's education until the marginal benefits is equal to the marginal cost. (Glomm, 1997)
- As child's marginal earnings are negatively related to parental education investment and positively related to his/her talent, education investment on child is positively correlated with kids' talent. (Raut & Tran, 2005)
- However, there is a phenomenon that parents of students with relative poor performance always invest more energy, time, and money on child's studying: (Jacob and Lefgren, 2002; Heckman, 2006; Bharadwaj et al., 2013; Dizon-Ross, 2013)
- Therefore, the classic model cannot explain this phenomenon

## 2. Objectives

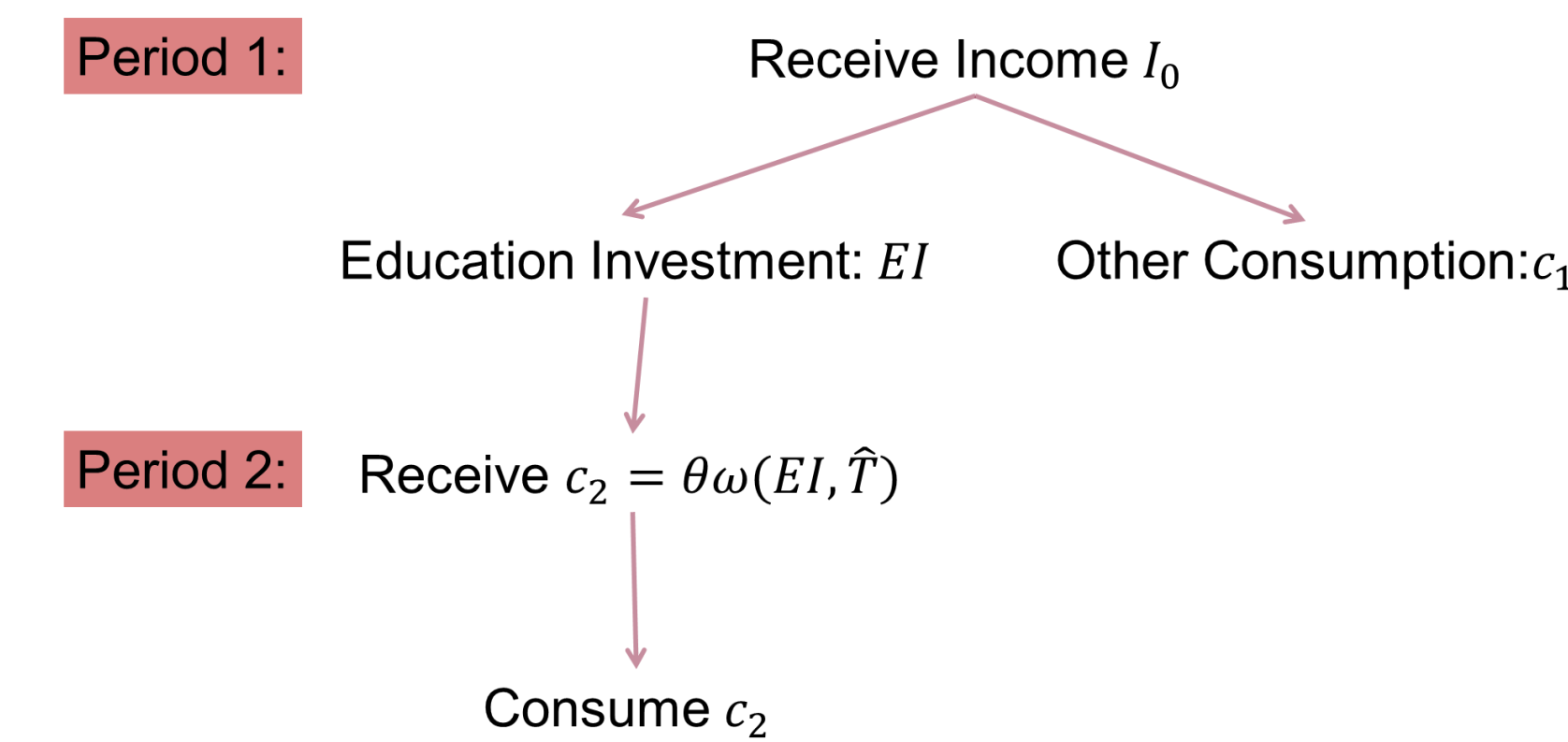
- This paper introduces the reference-dependent utility theory into parental education investment problem and constructs a theoretical model for parental education investment decision.
- The paper also adds to the literature on parental education investment in the way that it emphasizes that it is the parents' belief of their children's talent decides parental investment rather than children's real talent or ability.



Source: www.usnews.com

## 3. Methods

- Reference-dependent Model
- two periods



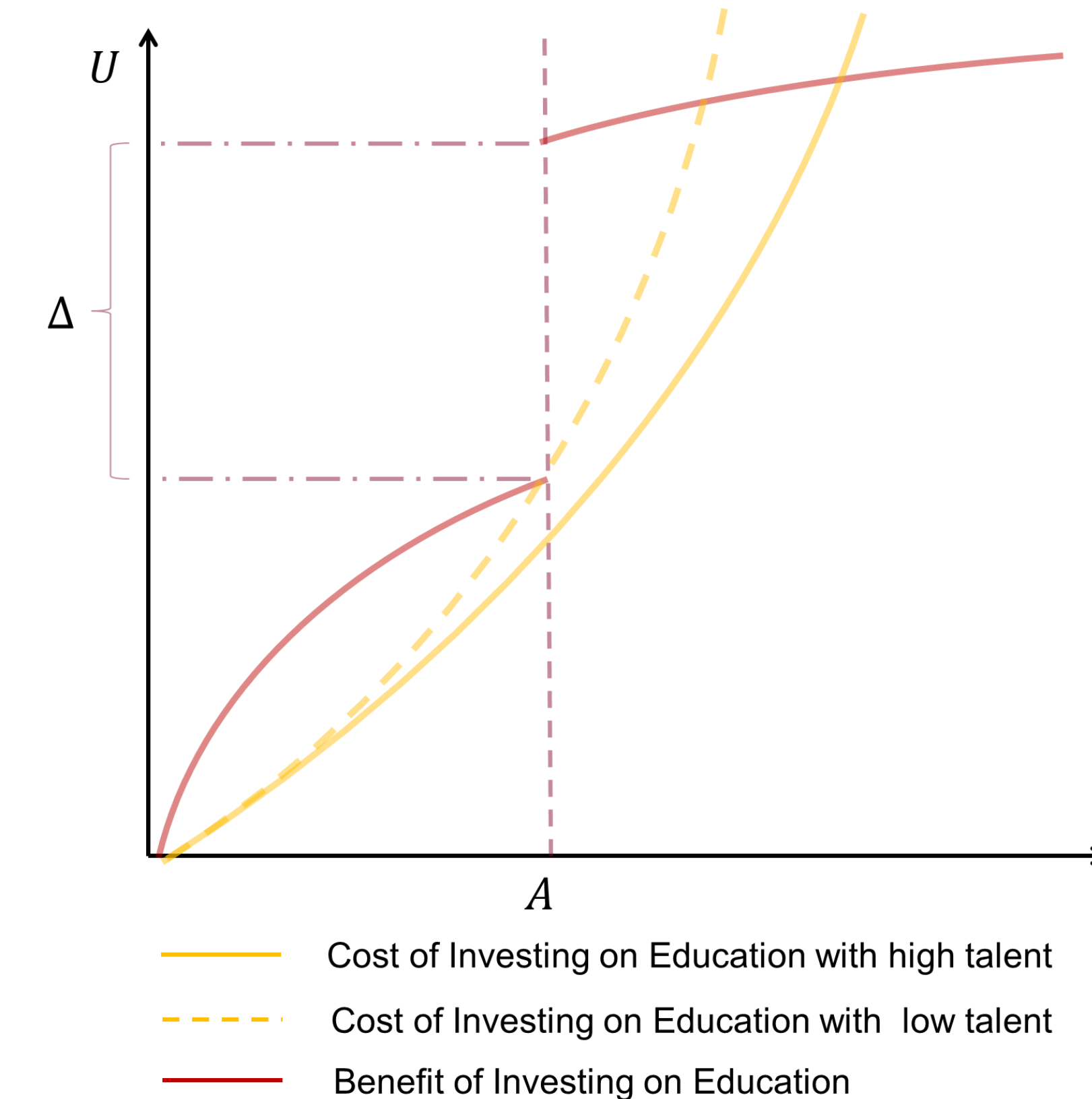
$$U = \begin{cases} u(c_1) + \beta_1 u(c_2), & \text{if } \omega(EI, \hat{T}) \leq A \\ u(c_1) + \beta_2 u(c_2) + \Delta, & \text{if } \omega(EI, \hat{T}) > A \end{cases}$$

s.t.  $c_1 + EI \leq I_0$

where:

- $u(\cdot)$  is the utility function of parents
- $c_1$  and  $c_2$  represent parents' consumption in period 1 and period 2 respectively, and  $c_2 = \theta \omega(EI, \hat{T})$
- $EI$  is the education investment in period 1
- $\hat{T}$  is parents' expectation of the child's talent in studying
- $\omega(EI, \hat{T})$  is the expected wage function which indicates the expected wage in period 2 of a child
- $\Delta$  is the amount of utility loss if child fails to reach parents' expectation
- $I_0$  is parents' exogenous income in period 1
- We assume that  $\beta_1 > \beta_2$

- The parents' decision can be represented by the graph below:



## 1. Results & Discussion

- The education investment increases as the expected talent decreases if the expected wage is lower than  $A$  (the threshold).**

- From the graph we can find that when  $\Delta$  is large enough, the optimal point will be  $A$ . Since the cost curve will be steeper as the talent decreases, the expected cost curve will also be steeper when the expected talent decreases. From the graph we observe a negative relationship between expected talent and the equilibrium education investment. That is to say, when the parents' expectation of the child's talent in studying decrease, they will end up with investing more on the child's education.
- The same conclusion holds when the difference between the  $\beta_1$  and  $\beta_2$  is large enough and  $\Delta=0$ .

- The education investment will be positively correlated with the expected talent if the expected wage is higher than  $A$ .**

- If the expected talent is already over the threshold, the equilibrium wage will be higher than  $A$ . In this case, the equilibrium point will be the place where the marginal cost from the education investment is equal to the marginal benefit from it. So the parents' education investment decision is similar to the classic model, which means the correlation between the expected talent and the education investment will be positive.

- How does the school performance come to play?**

- Although the mechanism of the expectation of child's talent is still ambiguous yet, the expected talent should depend on child's performance in school and will be updated when the parents are informed with the latest performance.
- It is reasonable to assume that the expected talent has positive correlation with the school performance. Therefore, when the expected wage is lower than the threshold, a poor performance in school will result in a decrease of expectation of child's talent, and then an increase of education investment on the child so that he/she can end up gain wage  $A$  in the second period. For kids who are likely to gain high salary in the future, a bad school performance in school will also decrease parents' expectation of their talents, yet it will decrease the parental education investments.

## 1. Conclusions

- A reference –dependent model allows the parental education investment to be negatively correlated with the expected talent in specific conditions.
- When assume a positive effects of school performance on expectation of talent, we can derive a negative relationship between school performance and the education investment in specific conditions. It offers us a way to explain the phenomenon we observed in real life.
- The conclusion will be true in two conditions:
  - Parents experience a significant welfare loss if the child's expected wage is lower than a threshold;
  - Parents' marginal utility from child's future wage decrease significantly at the threshold.

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