Increasing the size of fashion models?

Luca Savorelli
and
Davide Dragone
contact: l.savorelli@lse.ac.uk

The facts

- Since 2006 the **governments** of Italy, Germany, and Spain have signed **agreements** with **the fashion industry** to **increase the size of fashion models** and of mannequins in the shops.
- These measures intend to **reduce eating misbehavior** by increasing the ideal body weight perceived by the youth, in particular **young females.**
- The global fashion industry sells **$750 billion/year**, thus these measures can be paramount at world level.

What do we do? We…

- **provide a theoretical economic model of eating behavior**
- **illustrate the role of social pressure in determining outcomes associated to underweightness and undereating**
- **consider the effect of increasing the ideal weight of a group of agents**
- **provide policy implications studying the impact of** these policies on the aggregate **welfare** and **health** of a target group (e.g. **female teenagers**)

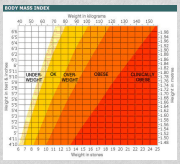
1. An economic model of individual eating behavior

The dynamic choice

- The individual chooses the level of food consumption at each time *t*, taking into account the cost of having a non-healthy weight, and of not conforming to the ideal body weight of his reference group.
- The figure below shows the maximization problem we solve with the optimal control techinque, and how the ingredients of the problem are captured by the utility function of the individual.

Satiation

Health



Beauty

$$\max_{\{c(t)\}} \int_0^{\infty} e^{-\rho t} \left[c(t) \left(c^i - \frac{c(t)}{2} \right) - \frac{\left(w(t) - w^{\phi} \right)^2}{2} \frac{\beta \left(w(t) - w^S \right)^2}{2} \right] dt$$

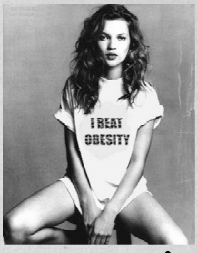
Weight variation · Food intake · Burnt calories

$$\text{subject to } \dot{w}(t) = c(t) - \delta w(t)$$

$$w(0) = w_0.$$

2. Policy implications for welfare and health

We aggregate the utility of a target group made up of all the individuals sharing the same social reference on weight, but heterogenous in healthy weight and satiation levels.



- We study from the policy maker stance what would be the optimal social reference on weight:

$$\max_{w^G} \int \int U_{i,G}(w_i^*, c_i^*) f_G(w^H, c^F) dw^H dc^F$$

- We also study when the optimal social welfare minimizes as well the health costs of the target group:

$$\min_{w^G} \int \int \left(w_i^* - w_i^H \right)^2 f_G(w^H, c^F) dw^H dc^F$$

Result 1: Behavior

The solution of the maximization problem is a stable steady state, which depending on the parameters of the individual can belong to one of the four cases:

- Overweight and undereating
- Overweight and overeating
- Underweight and overeating
- Underweight and undereating

Result 2: Policy

1) If in steady state the representative agent is underweight and undereating, the group on average improves both its overall utility and its health condition. This result supports increasing the models' size.
2) If in steady state the representative agent is overweight and undereating, increasing the social reference improves overall utility, but not health. If the target of the policies is people health, increasing the models' size is not the right tool.

3. Future research: empirical evaluations

Creating a data set with data on weight, eating behavior and social references to fine tune and evaluate these kind of policies.

Contact details:
Luca Savorelli
E-mail: l.savorelli@lse.ac.uk
Address
London School of Economics
Department of Economics, STICERD
Houghton Street
London WC2A 2AE
United Kingdom

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