

problema con la contabilizzazione delle sostituzioni; al momento la soluzione (vedere *** p.2) è considerare l'onere delle sostituzioni come parte degli interessi lordi.

Paradosso: un bene produttivo durevole di durata 1 anno e di importo K costerebbe $i \cdot K$ e mai K che invece è speso ogni anno; segue a p.2

Altro problema: commisurare wage e cost of capital all'unità di tempo usata, vedere appunto a p.3

Fried Chicken Arbitration Award

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September 2023

1 A premise: the Diano d'Alba arbitration award

The 2019 model, with Marco and Matteo, is grounded on the Diano d'Alba¹ arbitration award:

(Mazzoli *et al.*, 2019, p.3) In our model, the agent-based technique allows us to emphasize the role of strategic interaction among oligopolistic firms, as the consequence of subjective decision making, formalizing in the most appropriate way the implication and results of these decisions. We produce all the actions and reactions designed by the model equations via the behavior of heterogeneous agents actually acting in the simulated time. We remark that between (a) the formal presentation of the model in the equation based way, strictly necessary to be consistent with the literature upon which our work is grounded, and (b) the agent-based implementation, the consistency is deeply satisfied, but with a few inevitable distinctions. The same kind of differences that we run up against when we compare (a) the formalization of a phenomenon and (b) the related observation of the reality (here: an artificial one, simulated).

At Diano d'Alba, we discussed the difference between the agent behavior within simulation implementation and the economic theory formalization, finally agreeing that a similar disparity exists between the actual individuals and the theory describing their behavior.

Now, a new arbitration award to clarify the meaning we ascribe to the cost of productive capital and how we value the latter as an asset of a firm.

2 The fried chicken arbitration award

The inspiring food was an excellent fried chicken prepared by Leo.

The basis: each firm has a certain amount of labor, L , and productive capital, K , to be employed according to a ratio specific to that firm, i.e., its productive recipe $\frac{K}{L}$.

Considering the *balance sheet* of that firm, we have the scheme at Table 1

¹Ideal place for great food and wine.

assets	liabilities
productive capital K	...

Table 1: The productive capital as an element of the balance sheet

We set the initial amount of K at the time of firm creation. For each m time unit (months, weeks,...), the firm verifies if the quantity of workers L is consistent with the last m received orders, considering the work productivity. Consistently, the firm hires new workers or fires some of the present ones, adapting L . In the same direction, it would be reasonable to adapt K , considering the firm recipe.

We can increase the productive capital of any amount by purchasing additional assets. Instead, the way to decrease the productive assets is (1) by selling them if a transaction is possible or (2) by waiting for substitutions due to physical or economic obsolescence and not realizing them. We follow the option (2).

We do not follow the accounting practice of the amortization, considering directly the substitutions, as in national accounts.

In Table 2 we have the *income statement* of the firm.

	costs	revenues	
	gross compensation of productive capital	...	
nuova impostazione §	wages		
	§ substitutions (if any)		
	markup		

NB se $\Delta K >$ substitutions, ΔK will increase future substitutions and it is non considered as a current cost

Table 2: The cost of the productive capital as an element of the *income statement*

*** The *gross compensation of productive capital* is the sum of interests, rents, and **substitution costs** (which replace the amortizations). We calculate it as $K r$ with r as *cost of capital*, e.g., 0.10.

Considering the assets' useful life u expressed in years and a *time unit* as a fraction n of one year, the substitution quota per time unit t is $\frac{K_t}{u n}$.

References

Mazzoli, M., Morini, M. and Terna, P. (2019). *Rethinking Macroeconomics with Endogenous Market Structure*. Cambridge University Press.

considerazioni su wage e cost of capital

wage 1 per unità di tempo

se la recipe è 5 K sarà 5 per ogni unità L e costerà $5 \cdot \text{cost of capital}$, nel nostro caso 0,5 con 0,10 cost of capital per unità di capitale e unità di tempo; se l'unità di tempo è il mese, il tasso è $0.10 \cdot 12$ (interesse semplice) cioè 120% all'anno, che non va bene

occorre che K/L , ricetta, sia un numero ben più grande e che il cost of capital per unità di tempo sia “valore annuo”/timeFraction

chiamo i il “valore annuo” e f il valore di timeFraction

nella produzione per unità di tempo la proporzione tra compenso del lavoro e compenso del capitale deve essere nell'ordine di 1 a 1 (?)

se sì, occorre che KK (valore ideale) sia tale che

$$L \cdot 1 = (KK/L) \cdot (i/f)$$

$$1 = KK \cdot i/f$$

$$KK = f/i$$

se $f=12$ e $i=0.10$ allora $KK=120$

se $K > KK$ il reddito va più al capitale che al lavoro e viceversa