

'Bio-Models' vs. 'Incentive Models' of Industrial Sickness

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by Rahel Falk

In India, the concept of 'sick units' pertains to economically unviable firms which are kept alive 'in the public interest' through massive subsidies of all kinds. When in the 1980s this practice became more than a casual phenomenon, the media began to talk about industrial sickness. The phenomenon of industrial sickness did not arise by surprise, but eventually emerged from four decades of unhealthy policies. Protected market structures and politics reflected in import substitution, industrial licensing, product reservation, massive subsidization of the small scale industrial sector and the like had contributed to cost inefficiencies and damped the incentive to restructure. Estimates of the Reserve Bank of India (RBI) figure the amount of outstanding credit locked up in sick units to have increased at an impressive rate of 17.8 per cent per year during the 1982-1990 period. At the end of 1980 there were 24,550 sick companies, eight years later the nationwide figure amounts to 218,608 which translates to an increase of 890 percent.¹

In light of both, the dynamic development and the dramatic penetration of industrial sickness throughout the whole industry, academic research on this topic is surprisingly thin, if not disappointing. With some minor exceptions previous research has been either institutional or descriptive in nature. Only very few studies apply econometric methods, and a micro-theoretic foundation of the sick firm is completely missing until now.²

The present analysis contributes to the research on industrial sickness in several ways. First, though descriptive evidence is numerous and exhaustive when it comes to aggregate data, it becomes very sparse with regard to the situation of the individual firm. This deficiency is, of course, due to the limited availability of useful datasets which has been (partially) overcome only recently. This study is based on the income-expenditure and balance sheet statements of some 5000 Indian manufacturing firms over the period 1988-1999 which have been gathered and checked for consistency by the Center for Monitoring the Indian Economy (CMIE). Secondly, if previous empirical research is indeed based on disaggregated firm level data, it is

1 Reserve Bank of India, *Report on Currency and Finance*, various issues.

2 The only theoretical paper on industrial sickness is due to Pursell (World Bank Economic Review, 1990, Vol. 4, pp. 103-114.) who adopts a macroeconomic partial equilibrium approach. Admittedly, in the industrial organization literature, the discussion of "barriers to exit" is clearly related and also Kornai's notion of the soft budget constraint shows conceptual similarities.

very basic with respect to the econometrics employed. We improve on that by addressing issues like unobservable firm effects, dynamics and potential endogeneity of the covariates - all of which has been widely ignored so far. Last, previous empirical analysis is confined to cross-section methods, while our analysis is framed in a panel context.³ To the extent panel econometrics processes information of individual behavior over time, it is clearly superior to cross section methods.

The outline of the paper is as follows: in an introductory chapter we discuss concepts of sickness, explore the dimension thereof and present some first evidence on the characteristics of the distressed firm. The next chapter presents the 'bio-model of industrial sickness'. We argue that in a regulated economy such as India the firm's probability to eventually fall sick is ultimately related to the extent it is precluded from following profit-maximizing strategies. We highlight and analyze some of the basic features of post war Indian economic policy that seem to be of major importance for the genesis of industrial sickness to then quantify the impacts of these systematic performance constraints on the individual firm's probability to fall sick.

The last chapter departs from the notion that being officially declared sick entails great advantages to the respective firm. We carefully analyze the tenor of the Sick Industrial Companies (Special Provisions) Act and show why and how it may induce financially distressed firms to run into sickness rather than to encourage timely reconstruction and reward good performers. The empirical exercise takes account of the adverse incentives under SICA and models the incidence of sickness as the result of a conscious and rational choice process. We estimate a simultaneous model on sickness and financial assistance and test the direction of causality, i.e. whether sick firms are provided with financial assistance, or, whether generous supply with financial assistance rather leads to sickness. If this was the case, industrial sickness must indeed be viewed as the result of the law introduced to prevent this phenomenon.

³ Though Anant et al. (Government of India (ed.), 1992, Studies in Industrial Development) have firm-level information for several years, they ignore the panel structure, but estimate in pooled format.