

The Legacy of Theodore W. Schultz^{*}

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Theodore W. Schultz died on February 26, 1997. He was the recipient of the 1979 Nobel Prize in Economics and numerous other awards. Schultz was the Charles L. Hutchinson Distinguished Service Professor Emeritus of Economics at the University of Chicago. He has spent greater part of his life in studying world poverty: attempting to explain its causes and formulating strategies to alleviate it. In his Nobel lecture in the *Journal of Economic Literature*, 1980, he said that "Most of the people in the world are poor, so if we knew the economics of being poor we would know much of the economics that really matters". He has contributed to many different areas of economics: agricultural development, the explanation of productivity change, research as an economic enterprise, human capital to mention only a few.

Schultz had several important but, controversial ideas. One of these was advanced in his influential 1964 book *Transforming Traditional Agriculture*. He argued that the peasants were rational and that they were economically responsive. This implied that agriculture must be treated as an important economic sector in its own right. Majority of the population of developing countries lived in rural areas and were engaged in agriculture. Thus, agricultural progress would alleviate poverty, improve significantly the income and welfare of poor people and contribute to overall growth. The governments in developing countries tend to introduce distortions that discriminate against agriculture and favor urban consumers and industry. Rapid industrialization is given top priority. He argued that agriculture and industry should interact in a mutually supportive arrangement during the development process rather than agriculture simply being a source of resources to be transferred into industry for industrial development.

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Schultz's another important idea was that quality of human beings contributed significantly to economic growth. In the 1950s, studying fairly long time periods, economists realized that increases in the stock of capital and the additions to the labor force could only account for a fraction of the increases in output. There was an enormous "residual". Various economists explained it differently. Some called it "technological change", some referred to it as "organization" and some even called it "the measure of our ignorance". Schultz argued that the rapid rate of growth of output was probably due to the improvements in the quality of both physical capital and human capital. He elaborated on this argument in his presidential address to the American Economic Association in 1960. Economists were accustomed to thinking about investment in machinery, buildings and other tangible things. The idea that formal and informal educational activities, training and experience could accelerate economic growth seemed unusual at that time. Schultz and his students studying different nations across time found that rates of return on education were higher than returns on physical capital. This had the implication that governments and individuals were over investing in physical capital but were under investing in human capital.

Schultz also emphasized the importance of technical and agricultural research contending that creating knowledge in the first place must have a high value. Schultz felt that investment in agricultural research would contribute to economic well-being in developing countries. His students studying the returns from research found out that these returns were indeed very high. The conclusion was that the governments and other agents were under investing in research.

Another important argument that Schultz put forth was that people must learn to deal with "disequilibria" in a world where conditions of life are continuously changing and knowledge is moving forward. This was a heretical idea in the world of Neoclassical Economics where everything eventually reaches equilibrium. In contrast to the Neoclassical world, the real world is highly dynamic and full with uncertainties. According to Schultz, one of the most valuable activities is to learn to deal with disequilibria. It involves learning to allocate ones resources in an uncertain world. This process forces each one of us to become an entrepreneur. Schultz explained his argument in his celebrated 1975 article titled "The Value of Ability to Deal with Disequilibria" which appeared in the *Journal of Economic Literature*. He further elaborated on these topics in his 1990 book titled *Restoring Economic Equilibrium*.

Restoring Economic Equilibrium is a treatise on the origins, existence and consequences of economic disequilibria that inevitably occur with increases in income during the process of modernization. He explained the determinants of the

efficiency and success of families and individuals in dealing with economic disequilibria with entrepreneurship. In this book Schultz concentrated on three important issues which are omitted from the growth theory. The first critical omission is the specialization as a key to most modern increases in income. The second omission is the disequilibria which occur as increases in income are realized as a result of advances in technology and proliferation of human capital. The third critical omission from the growth theory is the entrepreneurs as economic agents in restoring equilibrium.

With regards to specialization, Schultz noted that identically endowed individuals have incentives to specialize in their skill and trade just as identically endowed countries specialize and trade as shown in the international trade theory. Advances in technology enhance specialization and increase income just as specialization does. Schultz emphasized that advances in technology are man-made and are not free. Thus, they are endogenous rather than exogenous. Production of knowledge entails highly specialized human capital to create technologies that are income increasing. However, the growth models treated technology as exogenous. Endogenizing technology is the preferred treatment in the growth models only recently. In a classic study, one of Schultz's students, introduced this feature in the 1960s.

According to Schultz growth models either omit or underrate importance of investments in quality and quantity of human capital in increasing income. Human capital enhances productivity of both labor and physical capital. Schultz drew special attention to the spill over effects of specialized human capital from one person to another. He asks the question, are people at each skill level more productive in high human capital environments?

Schultz argued that advances in technology, proliferation of human capital and increases in specialization are the basic but, overlapping sources of the increases in national income in a modernizing economy. He claimed that as these increases in income are attained, disequilibria are inevitable and additional income are derived from restoring equilibrium. The economics of restoring equilibrium is neglected in economics except in Schumpeter's work. The Neoclassical Economics deals with disequilibrium with the "tendency assumption" ignoring that convergence to equilibrium may be slow. Further, concepts like information and transaction costs, subjective risks and expectations transform disequilibrium into hypothetical equilibrium.

Schultz drew attention to the fact that most of the economic literature neglects small entrepreneurs. In response to changes in economic conditions most adults do

entrepreneurship by breaking their routine and reallocating their time and other resources. The innate and acquired abilities of people are important in restoring equilibrium. The acquired abilities are improved by experience, training, schooling and good health. How are the earnings of the entrepreneurs identified? Schultz noted that it is an undetermined part of the residual of the standard production function analysis. The lower bounds may be established by the earnings the entrepreneurs forgo while their time is devoted to entrepreneurship.

There are several important implications of the Schultz's argument that people (as individuals or as heads of households or heads of firms) must learn to deal with disequilibria through entrepreneurship. One important implication is that formal education, among its many functions, helps us to deal with disequilibria. Another implication is that with the growth of our ability to deal with disequilibria, there will be greater effectiveness in our decisions and actions. This will increase our productivity and the value of our time. Together with an increase in the value of time there will be an increase in the cost of children. One implication of this is that the fertility in developing countries must eventually decline.

It is difficult to elaborate on all arguments advanced by Theodore W. Schultz in a brief article such as this. However, following is a list of the principal contributions of his: The economic value of education; analysis of the increases in the value of human time over time; economics of research and its contribution to productivity; the value of the ability to deal with disequilibria; investment in entrepreneurship; understanding the improvements in the quality of physical and human capital as sources of gains in productivity; declining economic importance of land; location effects on economic growth of agriculture; assessment of the economic calculations of farmers in low income countries; the concept of human capital and investment in this form of capital, its effect on the supply of labor, household production, children and fertility.

Theodore W. Schultz had over 20 books and over 200 articles. His principal publications are as follows:

Books

- (1945) *Agriculture in an Unstable Economy*, New York: McGraw-Hill.
- (1951) *Measures for Economic Development of Underdeveloped Countries* (joint author). United Nations.
- (1953) *The Economic Organization of Agriculture*, New York: McGraw-Hill.
- (1963) *The Economic Value of Education*, Columbia University Press.
- (1964) *Transforming Traditional Agriculture*, Yale University Press.
- (1971) *Investment in Human Capital: The Role of Education and of Research*, Free Press.
- (1972) *Human Resources, Human Capital: Policy Issues and Research Opportunities*, National Bureau of Economic Research.
- (1974) *Economics of the Family: Marriage, Children, and Human Capital*, (ed.) Chicago: University of Chicago Press.
- (1978) *Distortions of Agricultural Incentives*, (ed.) Bloomington: Indiana University Press.
- (1980) *Investing in People*, Berkeley, California: University of California Press.
- (1990) *Restoring Economic Equilibrium: Human Capital in the Modernizing Economy*. Basil Blackwell Co.
- (1993) *The Economics of Being Poor*, Basil Blackwell Co..
- (1993) *Origins of Increasing Returns*, Basil Blackwell, Co.

Articles

- (1940) "Capital Rationing, Uncertainty and Farm Tenancy Reform" *Journal of Political Economy*, June, 309-24.
- (1951) "Declining Economic Importance of Agricultural Lands" *Economic Journal*, 61, 725-40.
- (1960) "Capital Formation by Education", *Journal of Political Economy*, 68, 571-83.
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- (1969) "Investment in Human Capital" *American Economic Review*, 51(1), March 1961, reprinted in *Economics of Education I* edited by H. Blaug. Penguin Books.
- (1972) "Human Capital: Policy Issues and Research Opportunities" In *Human Resources*, New York: Columbia University Press for National Bureau of Economic Research.
- (1974) "The High Value of Human Time: Population Equilibrium" *Journal of Political Economy*, Part II, 82(2), March-April, s2-s10.

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- (1978) "On Economics and Politics of Agriculture", in *Distortions of Agricultural Incentives*, edited by Theodore W. Schultz, Bloomington: Indiana University Press.
- (1978) "What Are We Doing to Research Entrepreneurship" in *Transforming Knowledge into Food in a Worldwide Context*. Minneapolis: Miller.
- (1979) "The Economics of Research and Agricultural Productivity" *International Agricultural Development Service*, Occasional Paper, New York.
- (1979) "Life span, Health, Savings and Productivity" (with R. Ram). *Economic Development and Cultural Change*, 27(3), 399-421.
- (1979) "Concepts of Entrepreneurship and Agricultural Research" Kaldor Memorial Lecture. *Agricultural Economics Workshop*, University of Chicago, paper no. 79:26. Ames: Iowa State University.
- (1979) "Investment in Population Quality Throughout Low-Income Countries" in *World Population and Development: Challenges and Prospects*, edited by Philip M. Hauser. Syracuse, New York: Syracuse University Press.
- (1979) "Reckoning the Economic Achievements and Prospects of Low Income Countries" Snyder Memorial Lecture. West Lafayette, Indiana: Purdue University.
- (1979) "The Value of Higher Education in Low Income Countries: An Economist's View" Paris: International Institute of Education Planning.
- (1980) "On the Economics of the Increases in the Value of Human Time over Time" in *Measurement, History and Factors of Economic Growth*, edited by R.E.O. Matthews. Fifth World Conference of the International Economic Association, Tokyo, August 1977. London: MacMillan.
- (1980) "Nobel Lecture: The Economics of Being Poor", *Journal of Political Economy*, 88(4), 639-51.
- (1980) "The Productivity of Research: The Politics and Economics of Research" *Minerva*, 18, 644-51.
- (1986) "Below Replacement Fertility in Industrial Societies" *Population and Development Review*, 12 (supplement).
- (1986) "The Changing Economy and the Family" *Journal of Labor*, 4, part 2, 278-87.

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- (1988) "On Investing in Specialized Human Capital to Attain Increasing Returns" in *The State of Development Economics*, edited by Gustav Ranis and T. Paul Schultz, New York: Basil Blackwell.
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- (1988) "Dealing with Economic Imbalances Between Industry and Agriculture" in *The Balance Between Industry and Agriculture in Economic Development*, edited by Kenneth J. Arrow, for the International Economic Association, vol.1, *Basic Issues*, Macmillan and IEA, New York, 33-48.

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