IMPACT OF THE INTERNET AND ELECTRONIC INFORMATION TECHNOLOGY ON GROWTH AND DEVELOPMENT

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ABSTRACT

Humane Society of the significant impact of information technology and Internet development is session. Information explosion, fast communication and make all knowledge and all the effects that new technology has had on society and individuals. The new features in this way are obtained. Provides high power to order people to add new knowledge and increase their capabilities so that IT development and expansion of the Internet boom in the world today has to follow and this is with the S term new economy will promote the new vision to portray the New Economy IT development is associated with. This article reviews the role of the Internet, information technology is discussed in the New Economy and has been struggling with the expression of the relationship between economics and information technology to the impact of technology on economic growth and productivity will be discussed. Noting more neoclassical economic models and methods of production possibilities curve effect on IT and Internet growth has been studied. Well productivity and its relationship with information technology, and discussed on the Internet and information technology solutions can to increase economic growth and help improve overall performance is discussed. And direct and indirect impact of the Internet and information technology on reducing costs, increasing the level of community welfare, economic growth and increasing employment will be reviewed.
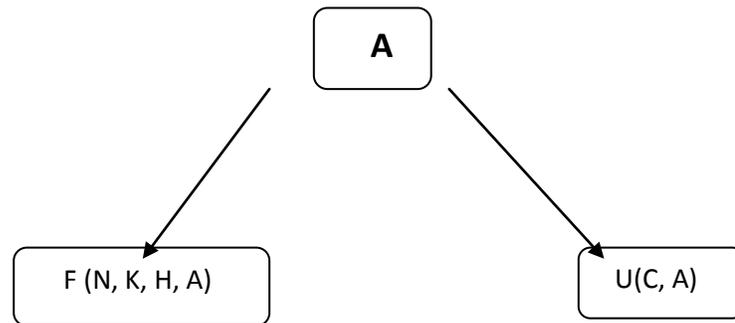
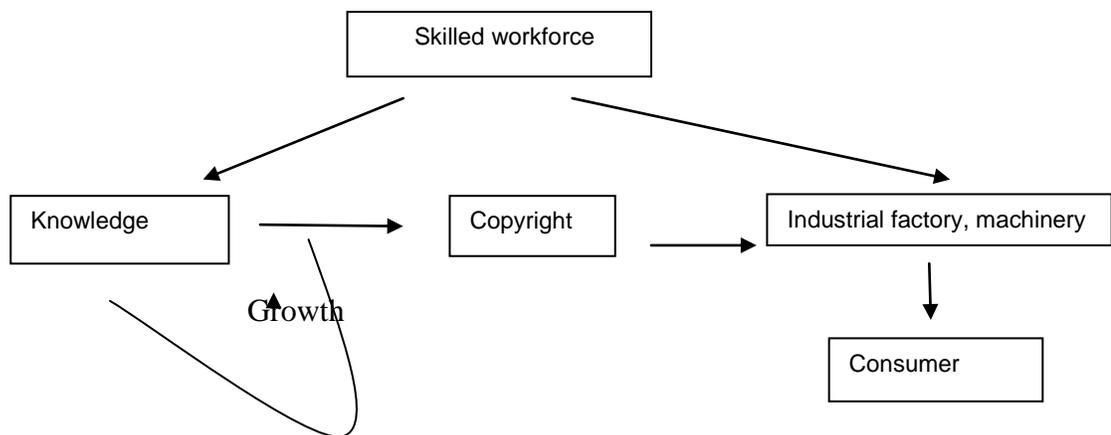***KEYWORDS:** Information Technology, Internet, Economic Development.*

INTRODUCTION

No doubt, given the direct impact of IT on cost reduction, increased levels of economic growth and welfare has increased the importance of expanding employment of anyone not wearing it. Of course, the positive impact of IT to work in certain cases mentioned above is not restricted, but on all facets of life of people in the community is impressive. features that affect user growth comes to information technology while reducing unnecessary trips into the city and between the incidence of urban air pollution and prevent the other hand, with Educational services promote scientific population is. Also facilitate trade and remove intermediaries to increase production and thriving business and will help create opportunities and new job opportunities, unemployment and poverty in the community reduces. Community requires an infrastructure where all information devices and communications equipment are placed on the possibility of providing services and information services with quality, provides. So the Internet and the role of IT in life today is extraordinary convention of the party What is noteworthy in the new economy is that its structure-based knowledge and awareness, not only is this for today is that knowledge and awareness through increased productivity growth in manufacturing has been increasingly important, but this for the materiality and physical state of material importance and low consumption of goods and services like computer software, recreational equipment - video, Gene chains, Internet delivery of goods and services and other words of ICT products has increased and this growth and affect economic productivity. This paper presented growth models based on ICT is that in recent years has been common in economic literature. In economic literature, investigating the causes of economic growth gained attention and attracted many economists and extensive studies have been done about it. Initial studies, mainly on the role of physical capital as a factor, but recent studies have emphasized the concept of expanding the domain of capital limited "machinery and equipment" to a broader range of human knowledge, crystallized in one hand and research institutions and social software as "social capital" includes the other hand is, efforts have defects classical analysis on the economic growth should.

INFORMATION AND COMMUNICATION TECHNOLOGY IN ECONOMIC PROCESSES

In general, ICT in the economy in both supply side and demand side affect the demand side through the utility function on the economic behavior of consumers and the supply side is effective in producing behavior. Graph (a) indicates the overall performance of ICT in the New Economy. If A represents the digital goods (ICT) is left graphs, words, production or supply side and right side, consumption or demand side shows, so the A in the consumption and production is involved. The production function (F); K, H, N, respectively represents physical capital, human capital and labor are. The utility function U; C represents consumer goods is the primary. In this new economic structure, such as digital goods in the traditional structure of production and supply side economics and economic growth helps as well as goods directly to consumers and utility demand side also helps.

CHART1. NEW ECONOMY AND THE PERFORMANCE OF DIGITAL GOODS

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                        ┌─────────┐
                        │    A    │
                        └─────────┘
                       ↙           ↘
        ┌──────────────────┐    ┌──────────────┐
        │  F (N, K, H, A)  │    │   U(C, A)    │
        └──────────────────┘    └──────────────┘
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Charts (2) the economic growth process of the structure on which there is general agreement that show. Right form, how the work of skilled workers in the industrial sector shows that goods and services for consumers ultimately are prepared. Form on the left side, researchers and other scientists and engineers the same labor, skilled labor as work.

CHARTS2.TRADITIONAL PATTERN OF GROWTH AND KNOWLEDGE

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                    ┌──────────────────┐
                    │ Skilled workforce │
                    └──────────────────┘
                   ↙                    ↘
      ┌─────────────┐      ┌───────────┐      ┌─────────────────────────────┐
      │  Knowledge  │  →   │ Copyright │  →   │ Industrial factory, machinery │
      └─────────────┘      └───────────┘      └─────────────────────────────┘
                Growth↑                                    ↓
                                                  ┌─────────────┐
                                                  │  Consumer   │
                                                  └─────────────┘
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Technology based ideas to create additional economies are engines of economic growth and ultimately caused.

TECHNOLOGY AND ECONOMIC GROWTH

Krogeman in 1994 acknowledged that since the beginning of Singapore through the accumulation of physical capital abundant developed, so its high economic growth cannot be sustained. This same program is economic growth that followed Joseph Stalin encouraged unions steel production to reach the U.S. border manufacturing country but was finally condemned to failure. Based on this interpretation, Krogeman economic forecast that economic growth based on high accumulation of physical capital (when other things are equal), is regarded as being ultimately lead to decreased efficiency and considered according to their sustained economic

growth cannot be achieved . Since the bridge being raised a valid criterion for the line and policy development Krogeman Singapore, ideal weight, with greater emphasis on the technology direction and was consistent. Because the result of the strong topics presented by Lucas (1988) and Roomer (1990,1986 and 1982), respectively. So the idea that economies of different countries through savings and more physical capital accumulation, hope to grow up and cannot be stable, was extend. Therefore, economists focus of attention and incentives to accumulate physical capital accumulation incentives transferred knowledge and technical progress. In this regard, a simplified contract, can better explain the issue has Assume that the total productionfunction Y has the form:

$$Y = F(K, N, \tilde{A})$$ (1)

In which the capital K, N number of indicators of labor and Ã technology.

Technology and better describe its proper measure for both such special attention to the role of human capital, human capital h Suppose each worker and a good index of technology is revealed. Therefore, because the human capital that lies in the labor component of Ã is two, one for each economic h - with the assumption that labor can be determined as an asset of an economy - are clear. A is another form of labor can not visualize that it is because the nature of the world. Therefore, an alternative A character can be encoded as knowledge and h is the unwritten knowledge.

Thus, these indicated values for the various economies, we assume that:

$$\tilde{A}_J = (h_J, A)$$ **(2)**

By replacing equation (2) in equation (1) that we will:

$$Y_J = F(K_J, N_J \times h_J, N_J \times A)$$ **(3)**

Or $$Y_J = F(K_J, N_J \times h_J \times A)$$ **(4)**

Standard assumptions in equations (3) and (4) means that the equilibrium level of income per capita or labor productivity, influenced by human capital and labor productivity growth rate, growth rate and technology is equal to A the policies and decisions not related to human capital. Compare this model with model Romer (1990) shows that the pattern Romer human capital as an

institution of research and development (R & D) and economic development as endogenous is considered, but still, outcomes similar to equations (3) and (4) in which only the human capital as a production factor is considered as the rate of growth is neoclassical model. The important point here is that for economic growth, human capital is important to a size that will cause economic technical development. Thus, human capital directly increases the income levels but does not increase economic growth. So if the production functions (1) is as follows:

$$Y = F(K, N, \tilde{A})$$

And will assume that $\tilde{A}$ consists of two components (h, A) is h human capital per worker and A is technical competence, based on the theory Solo (1956) Physical capital in the following is considered:

$$\delta_k > 0 \quad , \quad \tau_k \in (0,1), \quad K(0) > 0 \quad \dot{K} = \tau_k Y - \delta_k K \quad \textbf{(7)}$$

$\acute{K}$, which over time is derived k, t_k the rate of savings or investment and δ_k is the depreciation rate. Also assume that the growth rate is N and A as exogenous in relation applies:

$$\dot{N}/N = v \geq 0 \quad , N(0) > 0 \qquad \textbf{(8)}$$

And

$$\dot{A}/A = \varepsilon \geq 0 \quad , A(0) > 0 \qquad \textbf{(9)}$$

means that the labor force and technology development are appropriate. Followed by production and capital adjustment based on the technology is defined as follows:

$$\tilde{k} = K/NA \qquad , \tilde{y} = Y/AN \qquad \textbf{(10)}$$

That is positively certain. Which means:

$$\varsigma_k \overset{def}{=} (v + \varepsilon) + \delta_k > 0.$$

The definition of a form stipulated that all of the following discussion is common and that providing complete technology through endogenous expression and stimulus mechanism for determining N/N, relationship (9) can change but the relationship (8) to (a) usually remains unchanged.

NEOCLASSICAL GROWTH MODEL

Standard neoclassical growth model, with constant h in relation to (2) is obtained. If the production function (1) for production functions with constant returns to scale, which means is considered.

$$Y = F(K, NA) \tag{11}$$

In this regard, A only as a multiple of N appears. Balance the said function when a set of paths that tell the relations (7) to (11) makes the estimate:

$$\{\tilde{y}(t), \tilde{k}(t) : t \in [\,, \infty)\}$$

To understand the properties and characteristics mentioned balance, equation (11) are assigned to the following equation obtained:

$$\tilde{y} = F(\tilde{k}, 1) \overset{def}{=} f(\tilde{k})$$

Employing the relations (8) to (10) in equation (7) achieved the following relationship:

$$\tilde{k}/\tilde{k} = \tau_k \frac{f(\tilde{k})}{\tilde{k}} - \varsigma_k \quad , \quad \tilde{k}(\circ) > 0. \tag{12}$$

Under standard economic assumptions on f=F (0, 1), differential equation (12) has expressed $\tilde{k}$ to answer the following changes will be private and will close the following amounts:

$$\frac{f(\tilde{k})}{\tilde{k}} = \varsigma_k \times \tau_k^{-1}$$

Working capital per capita $(k = K/N = \tilde{k}A)$ fixed rate grows $\dot{A}/A = \varepsilon$. The product per capita worker similarly $y = Y/N$ direction when the unit is near the fixed rate, exogenous and unknown ε grows.

PRODUCTION POSSIBILITIES CURVE METHOD

U.S. economy from mid 1990, with the rapid growth of production, labor productivity and total factor productivity of manufacturing had undergone a significant boom. According to the study, Harvard Jorgensen using production possibilities frontier approach to explain this better than other methods in here that this issue be addressed. According to Mr. Jorgensen arguments suitable framework of analysis of information technology curve, assuming certain production facilities, output of investment goods and inputs information technology services, information technology is capital. A major advantage of this framework is that output prices and input prices of information technology services through information technology and capital rather than capital stock are associated with this framework to successfully between output and input substitution in response to proliferation Information technology has to be quick. Also during the aforementioned framework, which allows the modeling of financial markets provides independent, cost also covers adjustments. According to some of his most famous concepts of economic growth thus far the rapid advancement of information technology have been excluded. The total production function at the top of this list Contract. Size as a criterion of investment capital already established to cover the increasing importance of information technology is not enough. This important issue completely restore growth will pale. Finally, working hours should be as a measure of labor input factor labor is replaced. Efficient production possibilities curve shows combinations of input and output is the entire economy. The total output Y; including capital goods output is consumed. The total output of the input X, which includes labor, services, capital and services are to be produced. Studies on the production possibilities frontier Jorgensen is presented below:

$$Y = (In, Ic, Is, It, Cn, Cc) = A.X(Kn, Kc, Ks, Kt, L) \qquad \textbf{(28)}$$

So that output shows the goods and capital non-IT **In** and investment in computer **Ic**, software **Is** equipment and communications **It** also goods and services consumed non It means **Cn** and services, capital of information technology for households and government **Cc** is . Inputs also include non-**ICT** capital services **Kn** and services telecommunications equipment **Kt** , computers and **Kc** and **L** are inputs of labor. Total factor productivity of production (**TFP**) by **A** is shown.

The most important advantage is the implicit role of the production possibilities curve for the prices of information technology products with proven quality provided. The price as modulators nominal investment spending for information technology to obtain output values of information technology is used. Investment in information technology led to the accumulation of capital is information technology. Current information technology services and capital accumulation of a set of services with prices as weights are. Similarly, prices of IT service quality and capital in nominal values adjusted to make use of these services are used. Another important advantage in terms of production possibilities curve adjustment costs are making. For example, an increase in capital goods output information technology requires increased output of consumer goods and non-IT capital goods has been adjusted so that the investment rate is the cost of information technology. However, adjustment costs for production unit with external consequences, and fully reflected in prices will be information technology. These prices, price expectations and capital services in information technology are on. Production function, the function of production factors, capital and labor offers. No rule to make a separate price for capital goods and consumption and therefore there is no relevance in terms of indices for price and quality of information technology for the fixed output of capital goods, information technology does not exist in this method. Another limitation of inadequate production function in order to make the total cost is adjusted. Using this approach requires modeling and evaluation assets are produced. But if the adjustment costs of foreign production facilities such as borders, the assets can be evaluated separately from the production model will. Under the assumption that markets and production factors in production are competitive balance can be said that the share weighted growth of output growth set against the share weighted inputs and total factor productivity growth is produced.

$$\overline{w}_{I,n}\Delta LnI_n + \overline{w}_{I,n}\Delta I_c + \overline{w}_{I,s}\Delta I_S + \overline{w}_{I,t}\Delta I_t + \overline{w}_{c,n}C_n \qquad \textbf{(28)}$$

$$+ \overline{w}_{c,c}\Delta InC_c = \overline{v}_{k,n}\Delta LnK_n + \overline{v}_{k,c}\Delta LnK_c + \overline{v}_{k,s}\Delta LnK_s$$

$$+ \overline{v}_{k,t}\Delta LnK_t + \overline{v}_I LnL + \Delta InA$$

PRODUCTIVITY

If $\overline{v}, \overline{w}$ shares represent mean values of variables is the share of total output and is placed under a constant returns to scale is equal to one.

$$\overline{w}_{I,n} + \overline{w}_{I,c} + \overline{w}_{I,s} + \overline{w}_{I,t} + \overline{w}_{c,n} + \overline{w}_{c,c} = \overline{v}_{k,n} + \overline{v}_{k,c} + \overline{v}_{k,s} + \overline{v}_{k,t} + \overline{v}_{L} = 1$$

In equation (28) Weighted average growth rate of output growth rate of output of capital goods and consumer types are. Each share of output growth rate that is weighted. Similarly, input growth rates weighted average growth rate of capital and labor services and the share of each input is weighted growth rate. Share of total factor productivity of production (TFP), A growth factor was added to the difference between output and input growth rates are. In this regard economic growth by sectors, and an input output analysis and a share of ICT capital in output and consumption and capital inputs have little. In this study, computers, software and computer equipment as a variety of information technology have been identified.

The arrangement this equation (28) can result in terms of productivity average labor (ALP) that if y=Y / H means than output Y to the hours of operation is defined and k=K / H means the ratio of services and capital K to the hours of operation are presented.

$$\Delta_{Lny} = \overline{v}_{k}\Delta_{Ln_{k}} + \overline{v}_{I}(\Delta_{LnL} - \Delta_{LnH}) + \Delta_{LnA} \quad \textbf{(29)}$$

 Thus interpretation of these equations is by labor productivity growth (ALP) to allocate three sources. Prime source of capital deepening or expressive growth of capital inputs per hour is a function. The second source, improving the quality of labor and increasing the hours toward the final production based on workers with higher expression of will. The third source, the total factor productivity growth of productivity (TFP) growth is by labor productivity having been attributed.

CONCLUSION

Theoretical foundations of economic growth, economist's topic of interest, especially in recent decades has been. ICT also more important on this issue and has caused many economists to study the world in this field and outcome research. ICT in production and utility functions as production and performance into the economy are changing. Thus the growth patterns to explain the effect of each of these factors, especially technology shares should clearly determine each factor of production. About this should prove to be the human capital technology is in production functions separately. Because human capital and the unwritten knowledge economy is different for each student, but written or encoded mode has a global workforce in the form will not visualize. The factors affecting the relationship between economic growth, technology and human capital is coded simply changes the level of production and is in terms of ICT. Also, models based on this pattern of growth accounting in the economic literature are discussed. But this technology to study the consequences of production functions and do not advise because of the special feature of this technology for the production of border facilities outcomes We know it

better.

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