

Theo yêu cầu của khách hàng, trong một năm qua, chúng tôi đã dịch qua 16 môn học, 34 cuốn sách, 43 bài báo, 5 sổ tay (chưa tính các tài liệu từ năm 2010 trở về trước) Xem ở đây

**DỊCH VỤ
DỊCH
TIẾNG
ANH
CHUYÊN
NGÀNH
NHANH
NHẤT VÀ
CHÍNH
XÁC
NHẤT**

Chỉ sau một lần liên lạc, việc dịch được tiến hành

Giá cả: có thể giảm đến 10 nghìn/1 trang

Chất lượng: Tao dựng niềm tin cho khách hàng bằng công nghệ 1. Bạn thấy được toàn bộ bản dịch; 2. Bạn đánh giá chất lượng. 3. Bạn quyết định thanh toán.

Tài liệu này được dịch sang tiếng việt bởi:

www.mientayvn.com

Từ bản gốc:

<https://drive.google.com/folderview?id=0B4rAPglxIMRDfIBVOnk2SHNlBkR6NHJiN1Z3N2VBaFJpbnlmbjhhqQ3RSc011bnRwbUxsczA&usp=sharing>

Liên hệ dịch tài liệu :

thanhlam1910_2006@yahoo.com hoặc frbwrthes@gmail.com hoặc số 0168 8557 403 (gặp Lâm)

Tìm hiểu về dịch vụ: http://www.mientayvn.com/dich_tiang_anh_chuyen_nghanh.html

IMPACT OF HUMAN CAPITAL ON
ECONOMIC GROWTH: A PANEL
DATA ANALYSIS

Gökhan Umut1.

TÁC ĐỘNG CỦA NGUỒN NHÂN LỰC ĐẾN
TĂNG TRƯỞNG KINH TẾ: PHÂN TÍCH DỮ
LIỆU BẢNG 5 h 34 30/5

HUMAN CAPITAL: vốn nhân lực, vốn con

Abstract

Economists have been discussing various economic growth models due to their importance for the countries. The most famous model is Rostovian take-off model, in other words Rostow's Stages of Growth. In addition to these, neoclassical growth theory was based on Solow's growth theory which explains growth by technological determinants as exogenous factors. In the 1980s, new growth models which were named endogenous growth theory were developed by Robert Lucas and Paul Romer. According to this model, human capital includes variables such as education and health which are also some parts of economic growth. In this paper, the relationship between human capital and economic growth will be argued by panel data analysis. While economic growth is endogenous variable; primary school enrollment, secondary school enrollment, tertiary school enrollment, public expenditure on education and health expenditure are exogenous variables. The

người, nguồn nhân lực, trong đó từ “nguồn nhân lực” thường xuyên được sử dụng trên báo đài

Gökhan Umut1.

Tóm tắt

Các nhà kinh tế đã phân tích nhiều mô hình tăng trưởng kinh tế khác nhau do vai trò quan trọng của chúng đối với đất nước. Mô hình nổi tiếng nhất là mô hình cất cánh Rostovian, hay còn gọi là Các Giai Đoạn Tăng Trưởng Rostow. Cùng với những lý thuyết này, lý thuyết tăng trưởng tân cổ điển dựa trên lý thuyết tăng trưởng Solow giải thích sự tăng trưởng qua các yếu tố công nghệ và xem chúng là các yếu tố ngoại sinh. Vào những năm 1980, Robert Lucas và Paul Romer đã xây dựng những mô hình tăng trưởng mới với tên gọi lý thuyết tăng trưởng nội sinh. Theo mô hình này, nguồn nhân lực bao gồm các biến như giáo dục và sức khỏe cũng là một phần của tăng trưởng kinh tế. Trong bài báo này, chúng ta sẽ bàn về mối quan hệ giữa nguồn nhân lực và tăng trưởng kinh tế dựa trên phân tích dữ liệu bảng. Trong khi tăng trưởng kinh tế là biến nội sinh; lượng học sinh tiểu học đến trường, số học sinh trung học, số sinh viên đại học-cao đẳng, ngân sách cho giáo dục và y tế là các biến ngoại sinh. Chúng ta sẽ tiến hành phân tích mối quan hệ giữa nguồn nhân lực và tăng trưởng kinh tế từ năm 1999 đến năm 2008 tại 14 quốc gia; bảy quốc gia phát triển và

relation between human capital and economic growth between 1999 and 2008 will be analyzed in 14 countries; seven developed countries and seven developing countries.

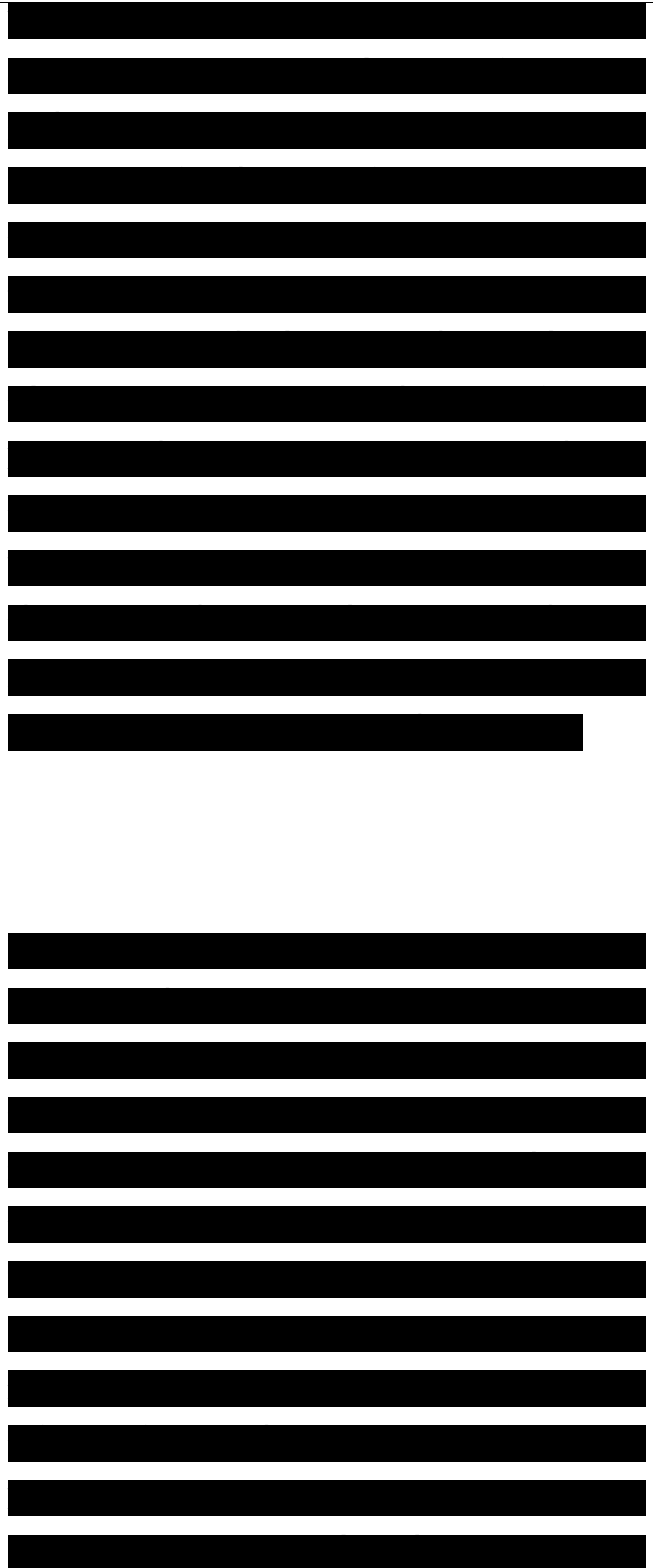
1. Introduction

Economic growth which provides welfare to the citizens of a country has been important for modern capitalist economic system which was started with Adam Smith's famous book, so-called *The Wealth of Nations*. According to Adam Smith, economic growth depend not only capital accumulation (tích lũy vốn, tích lũy tư bản) but also technological and social changes. He claims that economic growth moves up until it reaches steady state point. Another important economist Robert Malthus expresses economic growth by *population theory*. According to him, population rate increases by geometric rate while amount of food increases by arithmetic rate. After a point, population rate will be higher than the amount of food. Whereas David Ricardo mentions economic growth indirectly, Joseph Alois Schumpeter explains growth by technological changes (Schumpeter, 1942). Common theory in 1950s was Rostow's take-off, which was also called *stage of*

bảy quốc gia đang phát triển.

[REDACTED]

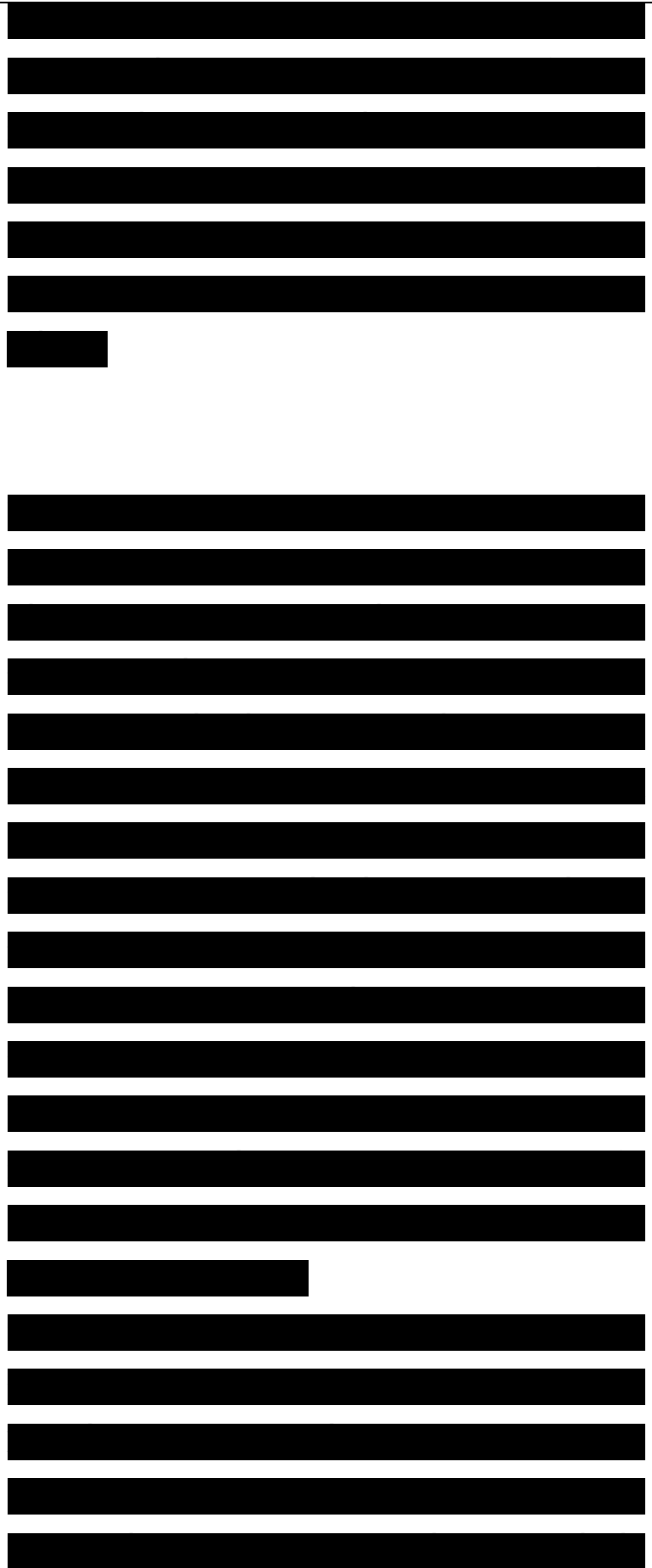
growth theory model in terms of economic growth. Actually, Rostow's Theory can be regarded as a development theory. Rostow wants to explain the steps which symbolize the way from underdevelopment to development (Yülek, 1997). Rostow's theory can be supported by Harrod-Domar's economic growth model. According to Harrod-Domar, main factor which determines investments is savings. Economic growth is only possible by increasing in savings. Harrod-Domar discusses growth by **capital productivity (năng suất vốn, hiệu suất vốn)**, capital rate and tendency of saving. If one of them is not provided, then equilibrium demolishes. Because of model's fragility feature, Harrod-Domar model is named as knife-edge equilibrium. Robert Solow suggests a growth model that is foundation of neoclassical growth models. Solow's growth model does not have problems as Harrod-Domar's model has. According to Solow model, law of diminishing returns and constant returns to scale are valid. In addition to this, economic growth will increase until it comes to steady state point. By this means, less developed and developing countries can converge to developed countries according to this model.



The most important feature of Solow model is to be a well-balanced model. According to this model, economic growth is only possible by exogenous variables such as technological changes and population rate. On the other hand, Solow's model which tries to understand growth by exogenous factors cannot explain how economic growth is possible.

In 1980s, economic growth attracted economists' attention again. They tried to express how economic growth occurred because Solow's growth model may not have explained it. In this context, endogenous growth theories which emphasize the importance of human capital on economic growth emerged. Endogenous growth theories interiorized the human capital which is explained by education level of a society and health. Lucas discusses that main engine of growth is the accumulation of human capital and the main reason of differences in standards of life among nations is differences in human capital (Lucas, 1993).

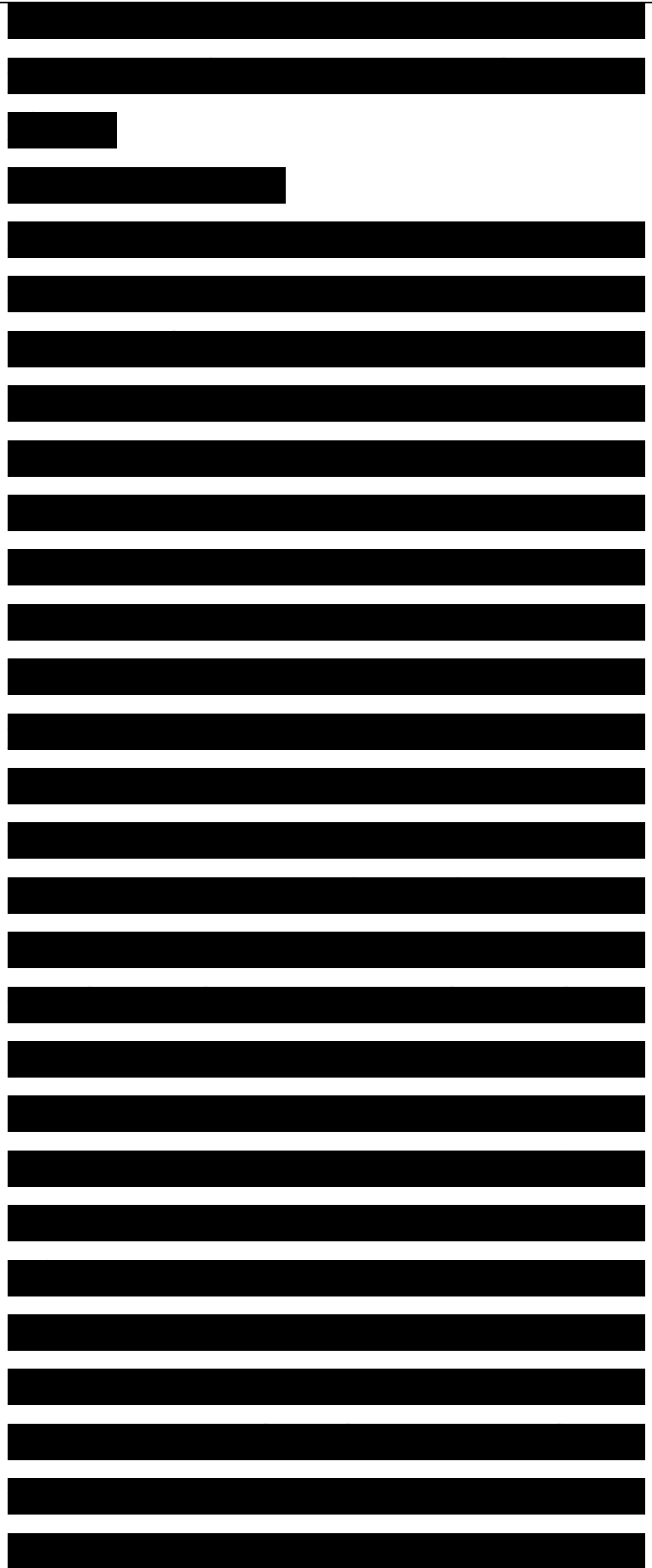
In this paper, it will be discussed the impacts of human capital on economic growth by econometric approach based on panel data analysis. This paper is organized as follows: In Section 2, literature survey will be argued



briefly. In section 3, empirical results will be analyzed. Section 4 concludes the paper.

2. Literature Survey

The effect of human capital on economic growth has been debated since 1980 in terms of endogenous growth theory. Romer (1986), Lucas (1988) and Barro's works (1990) are the pioneering studies in this field. Romer (1986) explains growth by endogenous variables such as technology. In addition to this, he emphasizes the importance of "learning by doing" process. When firms produce output, employees of the firms will learn to produce more and qualified productions. What's more, Lucas (1988) and Rebelo (1991) accept that human capital can be considered as a factor in production function like physical capital. As there are so many investments to physical capital, there should be also investments into human capital. In this context, government should educate people in order for increasing education level. Besides, Barro (1990) emphasizes the importance of public good and services on economic growth via positive externality. In first stage in which endogenous growth theories emerged, education level was used as an indicator of



human capital. Studies concentrated on education level, education expenditure or literacy rate. Health has been also added as an indicator of human capital recently.

Even though there is a consensus on accuracy of theoretical perspectives, the empirical results differ from analysis to analysis. Barro (2001) analyzes the effect of education on growth in a panel of around 100 countries observed from 1965 to 1995.

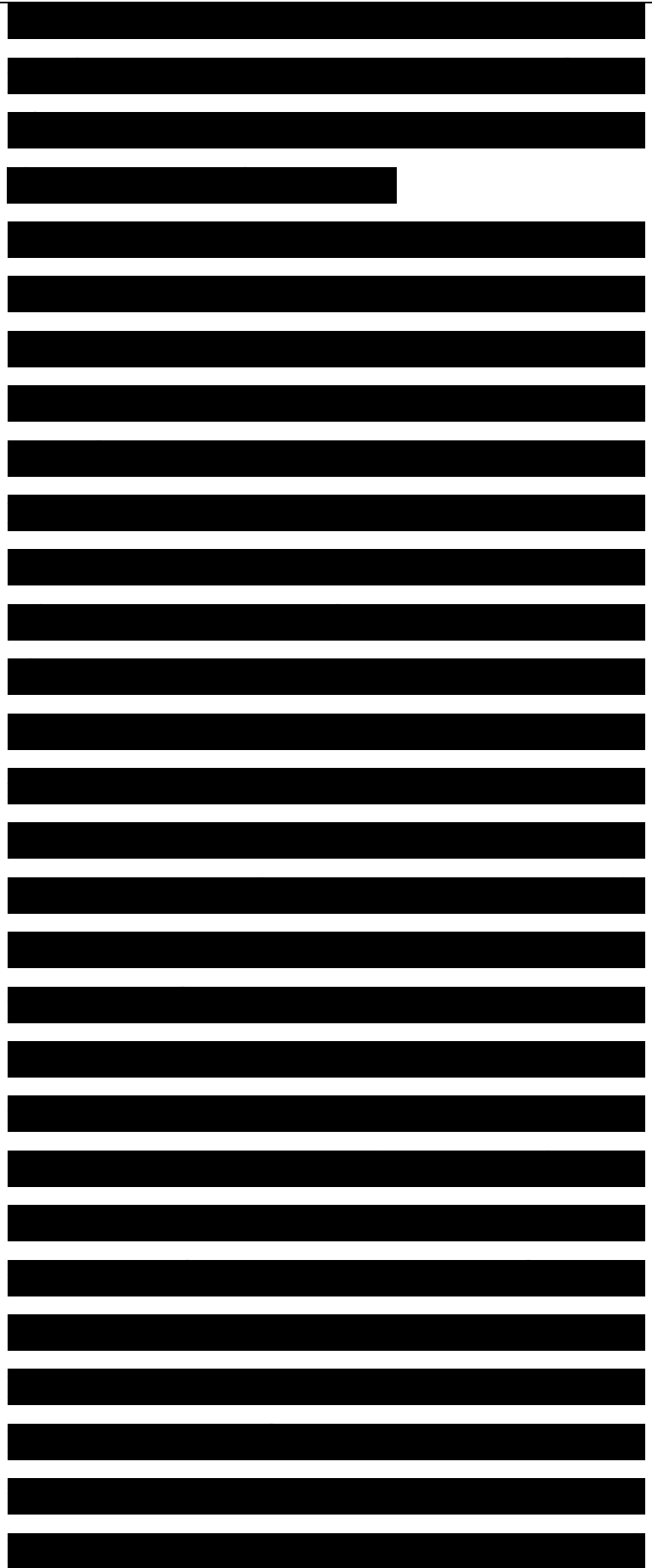
According to his results, growth is positively related to starting level of average years of school attainment of adult males at the secondary and higher levels. Because educated employees would be complementary with new technologies, the result emphasizes the importance of

knowledge spillover (sự lan tỏa kiến thức, sự trao đổi thông tin giữa các nhân).

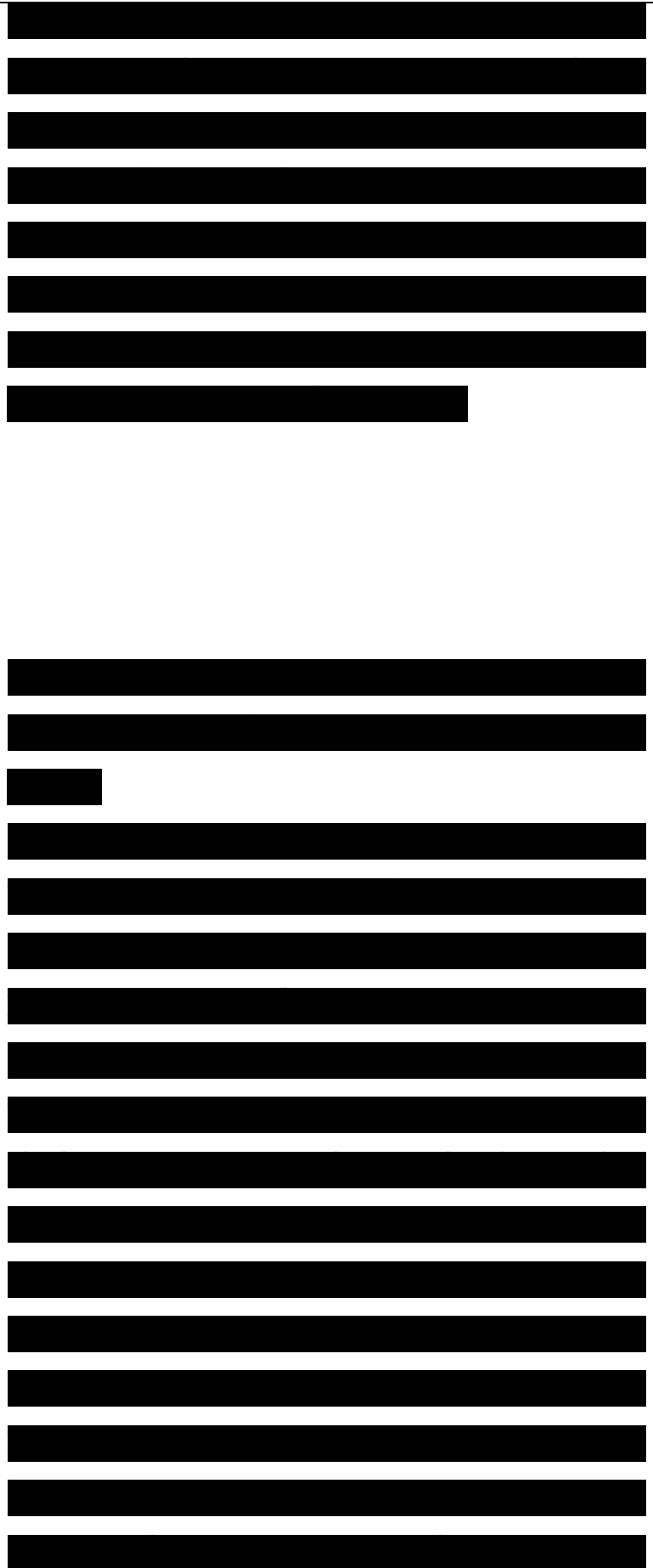
However, school attainment of females at the secondary and higher levels does not affect the economic growth. The reason of this condition is that highly educated women are not well utilized in labor markets.

Engelbrecht (2003) observes countries in OECD and claims that human capital has a positive effect on economic growth.

Especially schooling rate causes to diffuse information. Jorgenson and Fraumeni (1992)



observe economic growth of US from 1948 to 1986. 61% of economic growth is provided by human capital according to them. In addition, Mankiw *et. al.* (1992) discuss the effect of human capital on economic growth in 98 countries in 1985. The result is that 49% of economic growth in these countries is explained by human capital. Hall and Jones (1999) try to understand the effects of human capital on economic growth in 127 countries in 1988. According to them, 22% of economic growth is expressed by human capital. Pritchett (2001) observes a positive relation between schooling rate and economic growth rate. Hanushek and Kinko (2000) analyze the quality of schooling and economic growth. They explained quality with international mathematics and scientific tests. Labor force quality differences which are related to schooling are too important for economic growth. Barro (1996) tries to discuss the effect of health on economic growth and the result is that health increases the economic growth as a public good. Muysken *et. al.* (2003) show positive association between per capita income and health status of an economy. Zon and Muysken (2001) argue that life expectancy and health services

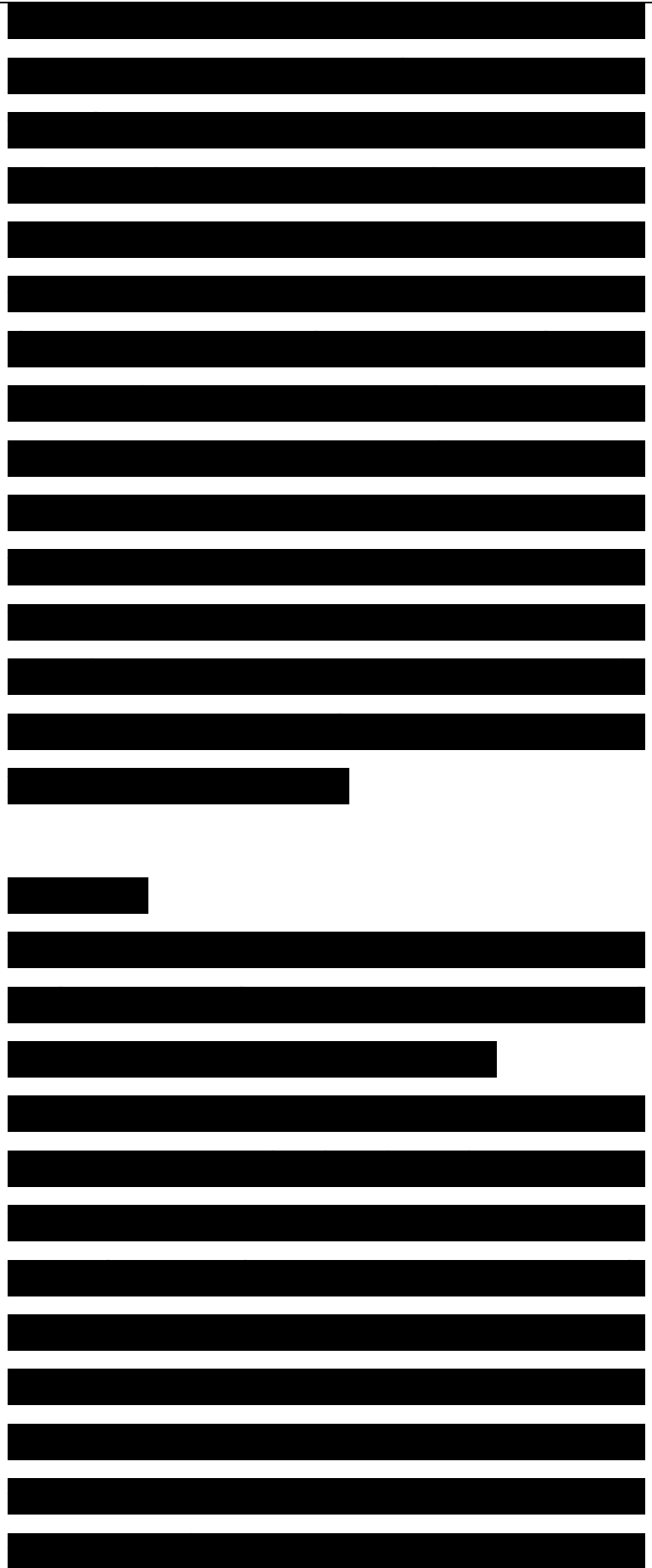


affect on per capita income and aging population positively. Bloom *et. al.*(2004) mention that good health condition has positive, sizeable and statistically significant effect on economic growth. They also argue the impact of life expectancy effect on labor productivity. Kar and Ağır (2003) explain the importance of human capital that includes education and health as variables in Turkey between 1926- 1994. Human capital in Turkey has a positive effect in Turkey according to them. Çetin and Ecevit (2010) observe 15 OECD countries from 1990 to 2006. They don't find a significant effect of health expenditure on economic growth.

4. Conclusion

This study examines the effects of human capital on economic growth using panel analysis techniques.

From theoretic perspective, endogenous growth theory deals with human capital. Human capital includes education and health. According to theory, when human capital increases or quality of human capital improves economic growth and welfare increase. In this sense, as education of the society or health of the population increase productivity increases, correspondingly,



economic growth increases. On the other hand, empirical studies reflect mixed results on impacts of human capital. Some of them claim that education or health increases the economic growth; some ones advocate that there is no relation between education/health and economic growth. Especially, there is no consensus in studies that include health variable. In this paper, it is observed that the effects of public expenditure on education and health expenditure on economic growth are positive. This means that as public expenditure on education and health expenditure increases, economic growth increases. On the other hand, secondary school enrollment has negative effect on economic growth.

Economic Growth in Developing Countries: The Role of Human Capital

Eric Hanushek

Stanford University

April 2013

Highlights:

- Improvements in long run growth are closely related to the level of cognitive skills of the population.
- Development policy has inappropriately emphasized school attainment as opposed to

[REDACTED]

Tăng trưởng kinh tế ở các nước đang phát triển: Vai trò của nguồn nhân lực

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

educational achievement, or cognitive skills.

□ Developing countries, while improving in school attainment, have not improved in quality terms.

□ School policy in developing countries should consider enhancing both basic and advanced skills

The role of improved schooling has been a central part of the development strategies of most countries and of international organizations, and the data show significant improvements in school attainment across the developing world in recent decades. The policy emphasis on schooling has mirrored the emphasis of research on the role of human capital in growth and development. Yet, this emphasis has also become controversial because expansion of school attainment has not guaranteed improved economic conditions.¹ Moreover, there has been concern about the research base as questions have been raised about the interpretation of empirical growth analyses. It appears that both the policy questions and the research questions are closely related to the measurement of human capital with school attainment.

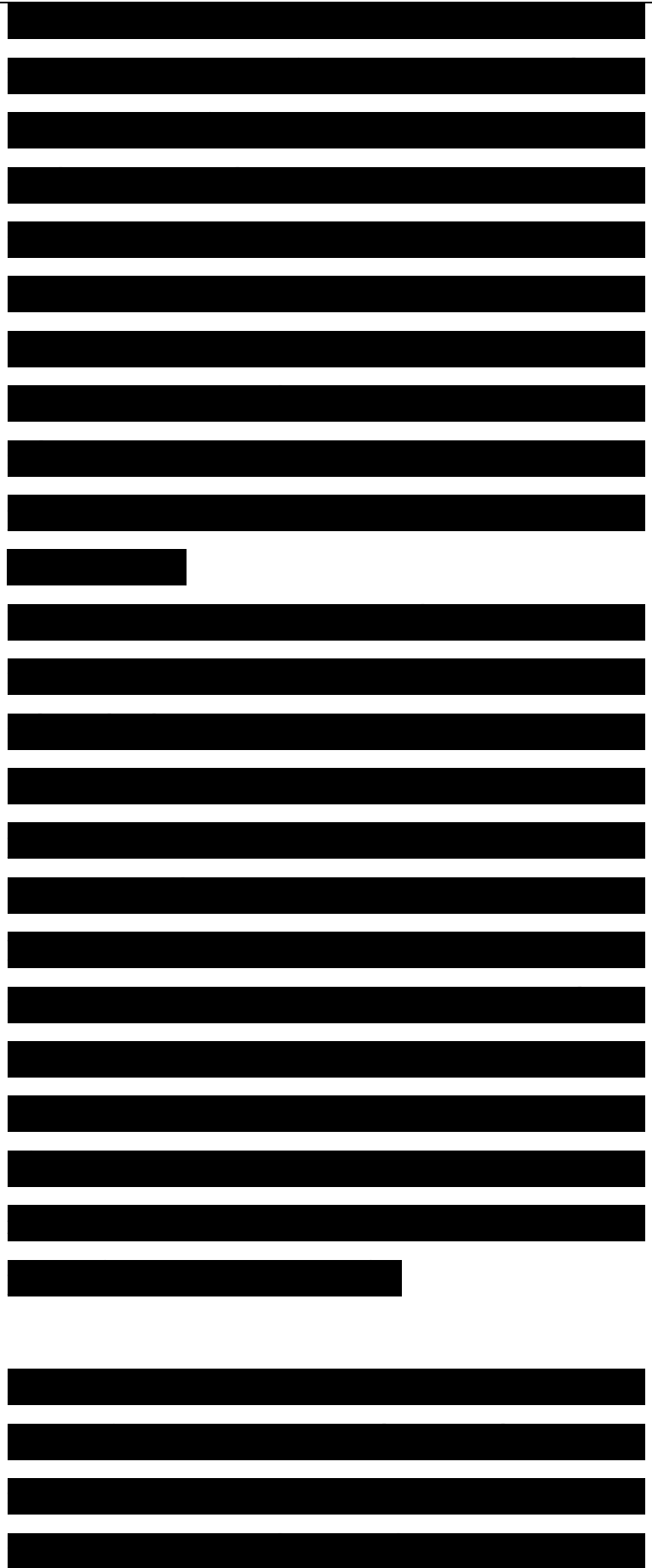
[REDACTED]

Recent evidence on the role of cognitive skills in promoting economic growth provides an explanation for the uncertain influence of human capital on growth. The impact of human capital becomes strong when the focus turns to the role of school quality. Cognitive skills of the population – rather than mere school attainment – are powerfully related to individual earnings, to the distribution of income, and most importantly to economic growth

A change in focus to school quality does not by itself answer key questions about policy focus on basic skills or the higher achievers?

Also should developing countries work to expand their higher education sector? The currently available research indicates that both basic skills and advanced skills are important, particularly for developing countries. At the same time, once consideration is made of cognitive skills, the variations in the amount of tertiary education have no discernible impact on economic growth for either developed or developing countries.

This paper puts the situation of developing countries into the perspective of recent work on economic growth. When put in terms of cognitive skills, the data reveal much larger

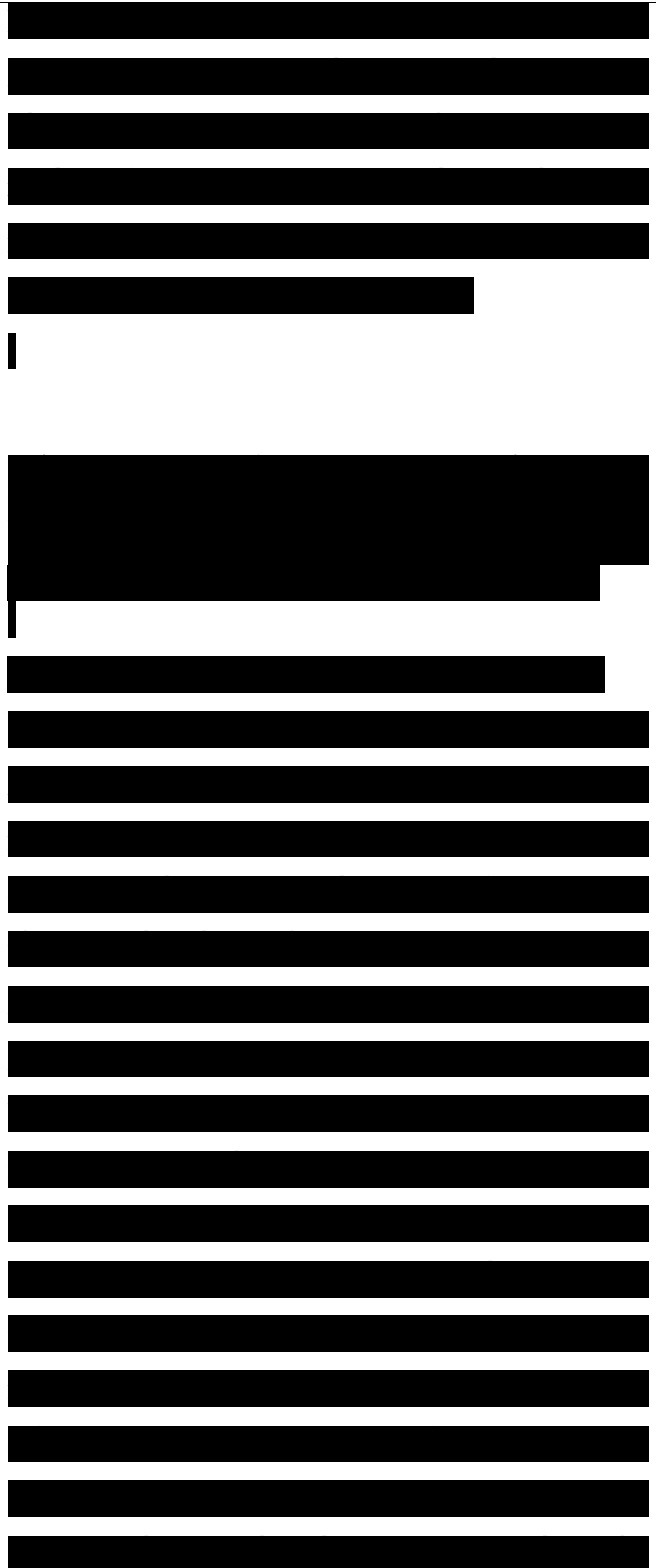


skill deficits in developing countries than generally derived from just school enrollment and attainment. The magnitude of change needed makes clear that closing the economic gap with developed countries will require major structural changes in schooling institutions.

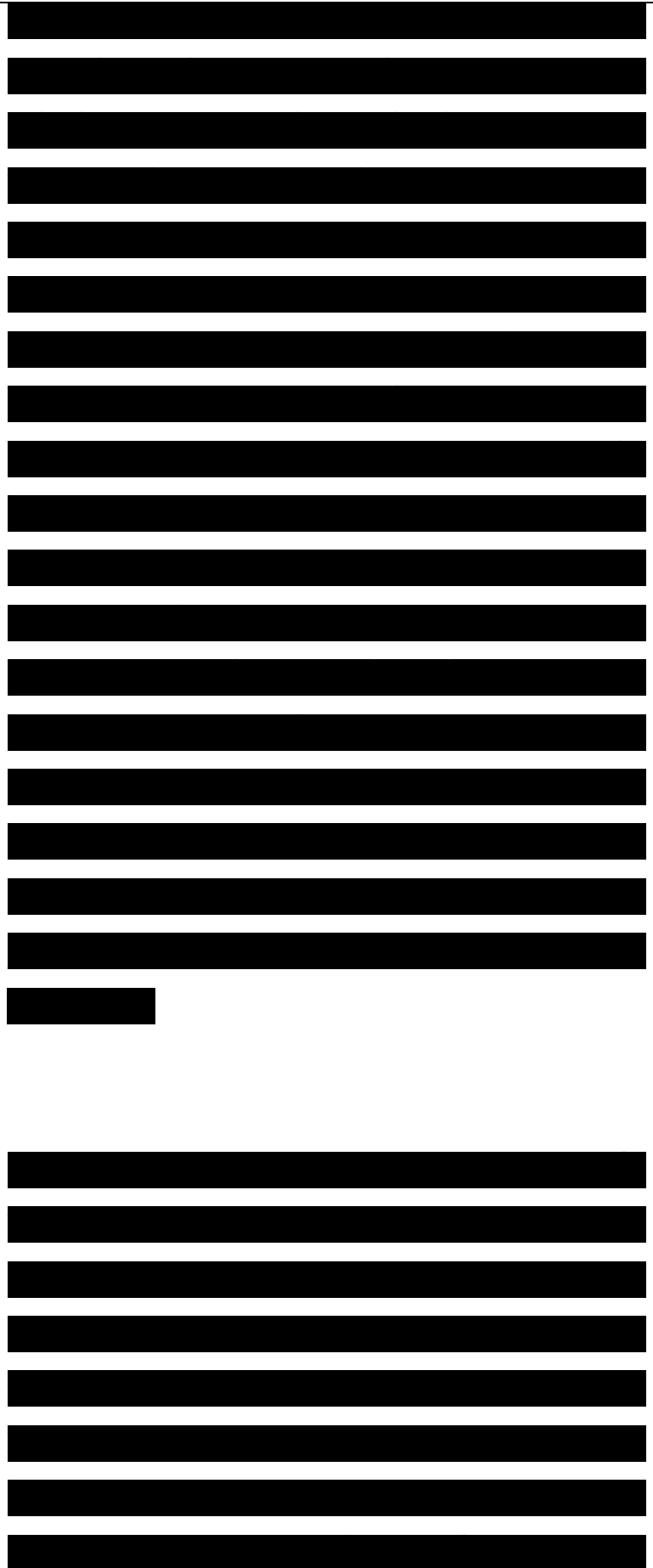
DETERMINANTS OF HUMAN CAPITAL THEORY, GROWTH AND BRAIN DRAIN; AN ECONOMETRIC ANALYSIS FOR 77 COUNTRIES

1. Theories of Human Capital

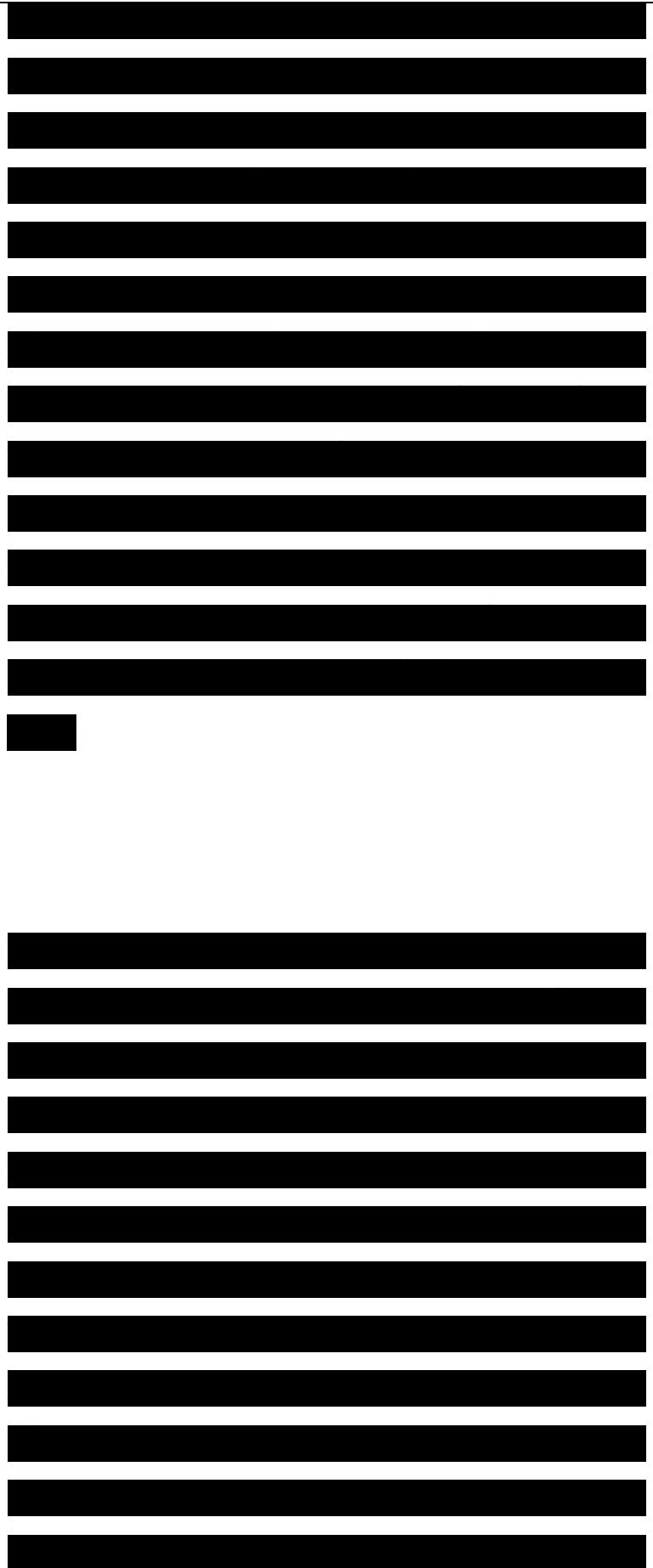
Application of capital concept on human is not recent. The view that human and his qualifications might be a part of capital has proponents among economists, since the birth of science of economics. W.Petty, W.Farr, A.Smith, J.B.Say, N.Senior, F.List, J.S.Mill, A.Marshall, V.Thunen, W.Roscher, W.Bagehot, E.EngelH.Sidgwick, L.Walras and I.Fisher are most prominent of these economists. Classical English School has accepted that skills gained by human are some form of capital while some economists assert that the human himself is capital. Walras and Fischer defend the second view while the second view is accepted by economists who are involved with income distribution and production theory. Human



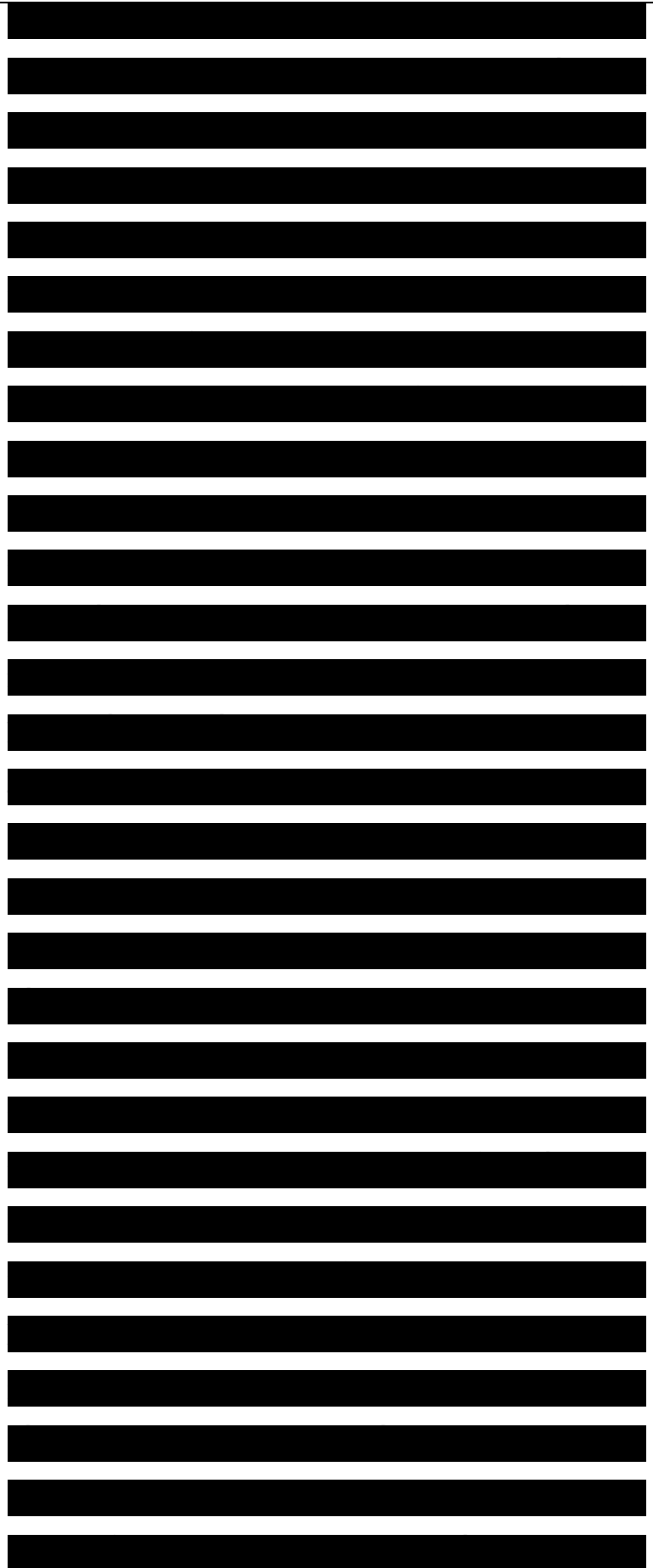
Capital Theory (HCT), together with homogeneous work force assumption of neo classic theory is replaced by heterogeneity of labor. Differences in levels of education and skills gained by persons require that they receive different wages (Gonçalves(1999), pp.1-4) The consequence of this is a shift from a functional distribution income to an individual distribution of income(Zweimüller(2000), pp.1-16). First views on this subject are based on the studies of Smith and Mill. According to the compensation view of Smith, labor mobility (tính luân chuyển lao động, tính lưu động của lao động) gives rise to wage differences that equalize net advantage and disadvantage of the work. In the non-competing group's doctrine of Mill and Cairnes, lack of sufficient labor mobility causes real wage differences and this brings about legal, cultural and social hierarchy (Mincer(1994) pp.110-11). Research on labor market has proceeded on these two principles. Smith's compensating principle is applied on wage differentials caused by vocational education. Smith argues that a person receiving education was in loss because of not working and such qualified people were to be paid more wages and only then they could fulfill



their costs of education and receive gains. This view has constituted the basis of human capital analysis. Successively the theory is improved by Becker (1964), Mincer (1957-1958), Schultz (1961), Denison (1971) and Harbison and Myers (1965). Human capital is criticised from different points of view in time. One of the criticisms is that the theory is difficult to be tested, quality of education is not considered and those who take investment decisions can not calculate its possible rates of return. Another point criticised is the problem of skills. Finally, another criticism of the theory is the dual job market in the context that education will not be sufficient in eliminating income inequality. Another topic to be analysed in the study is growth. Growth theory has experienced three waves. The first wave is represented by Harrod-Domar model, the second wave is represented by neoclassical growth model (majorly Solow's model) and the third one by endogenous (new) growth model. Endogenous growth theory asserts that factors such as knowledge, human capital and technological progress that are excluded or assumed to be exogenous by other models should be internalized. In endogenous growth models that are

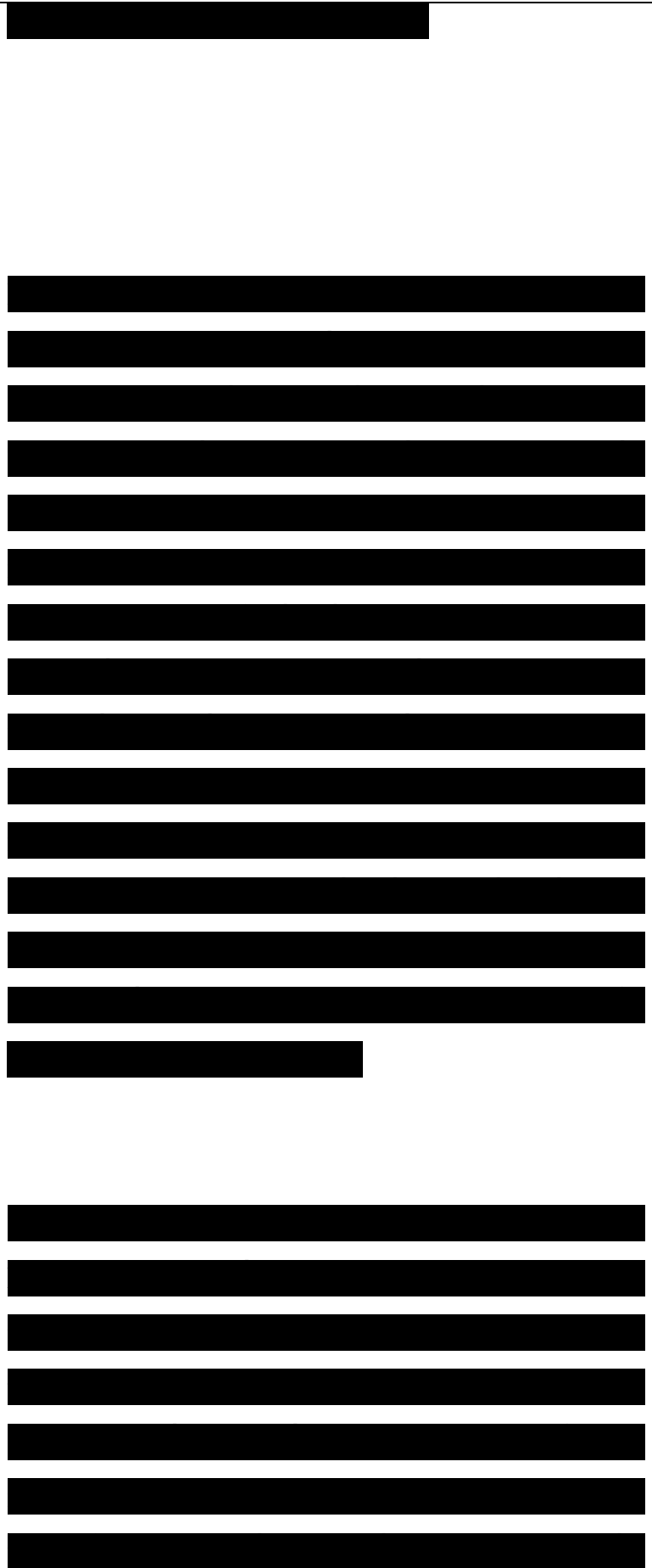


developed by important studies of Romer (1986) and Lucas (1988) by the end of 1980's, the role of the state increases. However the role of the state in these models is different than that of Keynesian investing and producing state. The role of the state is defined by ones which increase the effectiveness of private sector such as R&D, education, innovation and technology transfer, reduction of transaction costs, protection of property rights, strengthening communication networks, sustaining an open system and removal of impediments to competition. According to this, the more successful is the state at these functions, the higher is the economic performance (Foss(1997), pp.1-4). Romer (1986) has made an important contribution to endogenous growth theory. Romer's study follows the line of studies of Young, Marshall and Arrow (1962) who has studied learning by doing. According to Romer, since knowledge is a factor of production that has increasing returns, growth is also progressive, thus cumulative growth can be observed. New approaches on growth concentrate on two basic views such as accumulation of knowledge and human capital. Knowledge and human capital are



not subject to law of decreasing returns and they provide unlimited technical progress (Sheehan(1999), pp.1-3). Human capital is the sum of abilities, knowledge and skills that are specific to individuals.

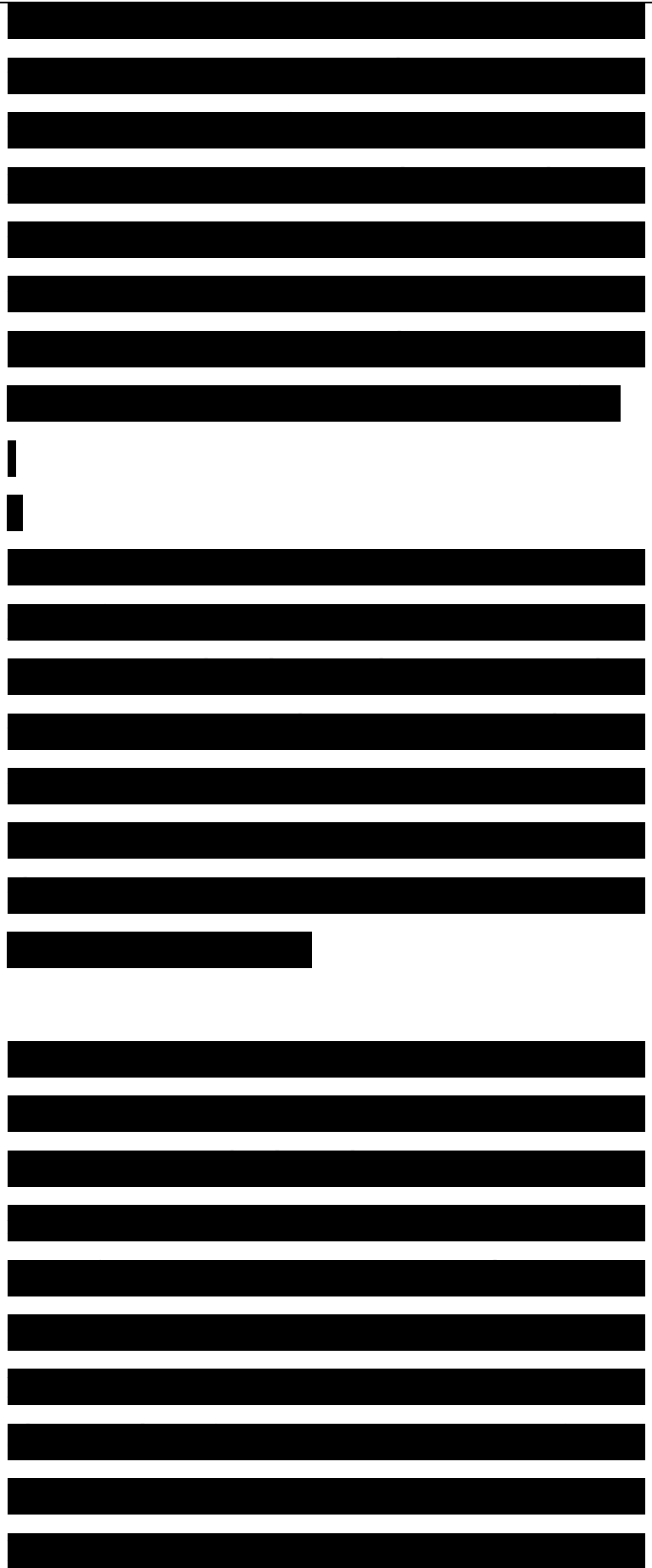
Endogenous growth models differ from Solow model in that they emphasize increasing efficiency of physical and human capital. According to this, a small investment on physical or human capital or an increase of resources allocated to these factors has significant effects on output. The characteristic that makes new theories different than old ones is how they view investment. Old theories consider capital accumulation as the engine of growth. Keynesian economists such as Lewis and Kaldor concentrate on how the savings will be increased in order to finance required investment. The reason that poor countries develop less is considered to be the insufficient stock of capital (nguồn vốn, khối lượng tư bản). According to Kaldor, there is a linkage between level of savings and income distribution. On the other hand, new theories state that basic determinant of investment (on physical and human capital) is the wave of innovation in the economy. Moreover, these innovations are not



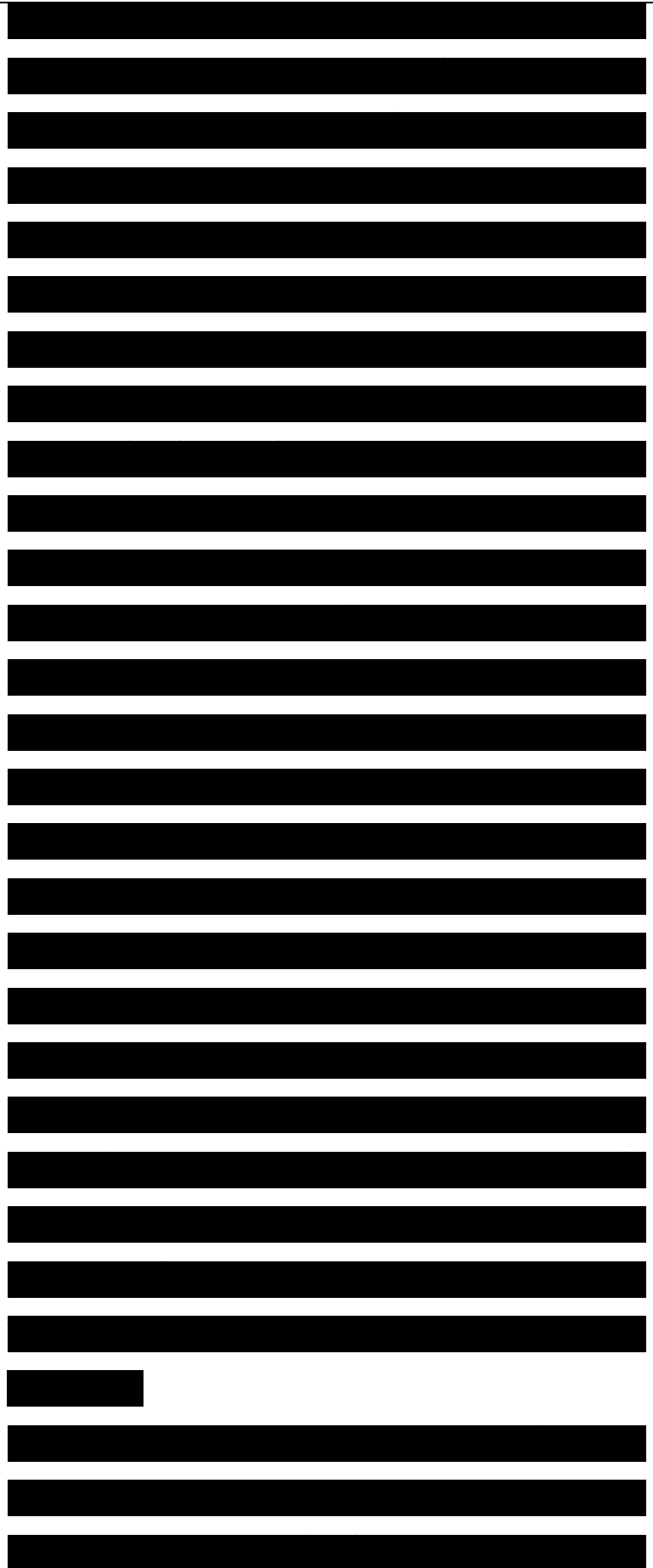
exogenous; they are motivated by profit seeking. Many endogenous growth models emphasize increasing incomes while some other considers growth of consumer utility. A third model is concerned with sources of growth. Main sources of growth are: 1) knowledge accumulation (Romer P.), 2) Public infrastructure (Barro R.), 3) Human capital (Lucas R.), 4) R&D (research and development) expenditures.

Another impact of human capital on development is given by the contribution to lower down excessively high fertility rates, contributing to moderate population growth and to increase real GDP per inhabitant and other socio-economic variables, which favour human well-being, as shown in the econometric model by Guisan, Aguayo and Exposito(2001) and other studies.

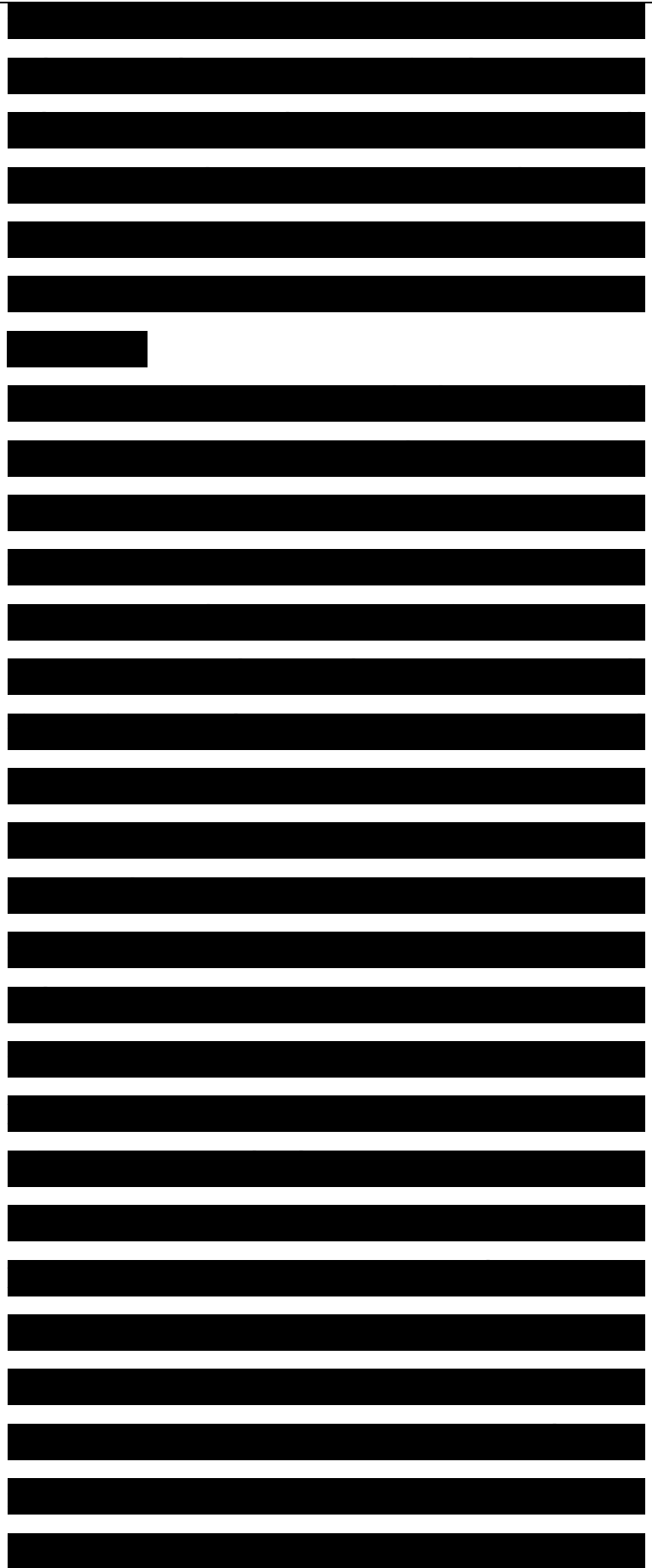
In this study brain drain is another subject to be analyzed. The concepts of brain drain emerged in mid-1960 as England started to lose a considerable amount of highly skilled labor force and scientists to North America and other countries. There are different views on how the movement of high skilled labor movement among countries begin and proceed. These reasons are handled with theoretical approach at one side and survey



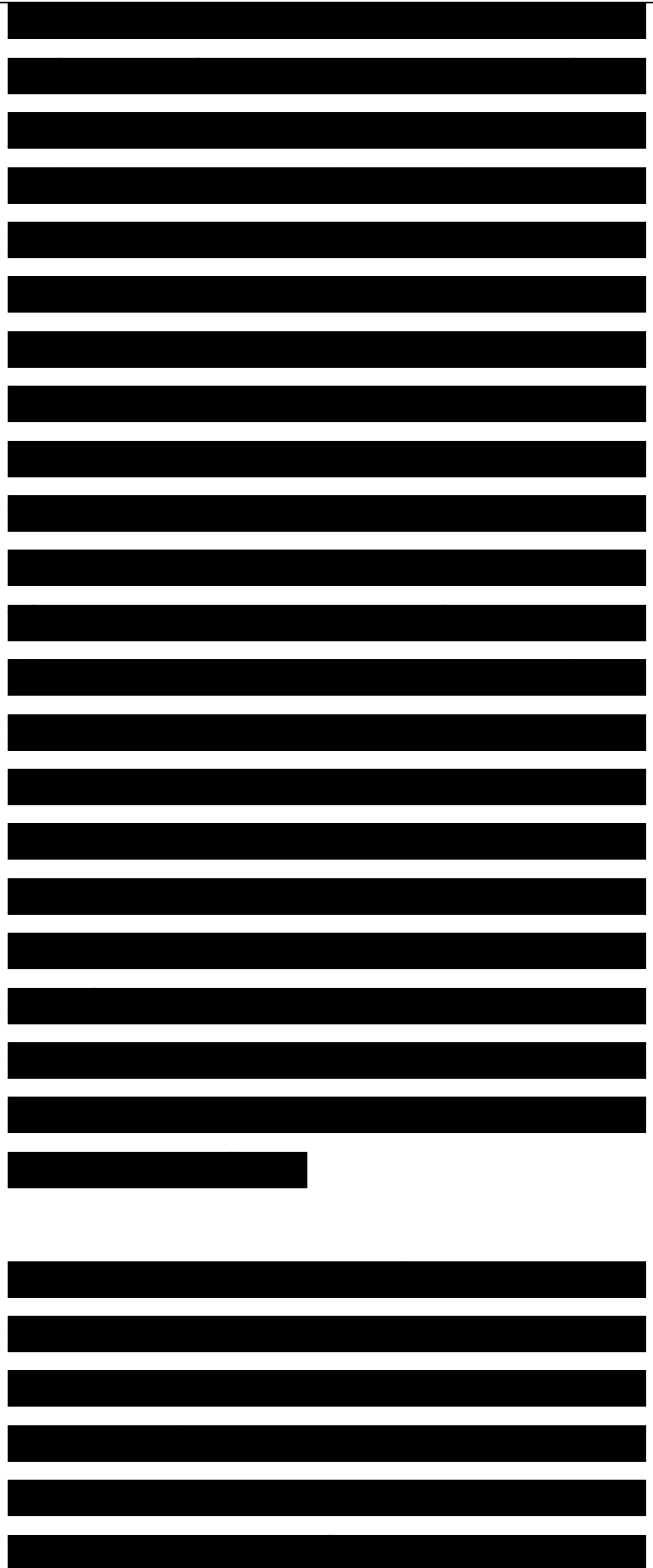
based studies are conducted at the other. In theoretical assertions and surveys, skilled labor movements are explained by “attracting and repelling forces”. There are also approaches of “core-periphery” and “imbalance of supply and demand”. Other important approaches in theoretical context of brain drain are international and nationalist view. Social scientists that support the internationalist view in context of brain drain assert that immigrants rationally mind their personal welfare when they voluntarily migrate and this increases the total welfare of the society. According to the internationalist view brain drain makes scientists serve more to humanity. This is a neoclassical view (Lowell(2001), p.1-2; Straubhaar(1992), p.81). Grubell and Scott(1966), proponents of internationalist view have formed a general theoretical framework which determines the factors leading to decision of migration. Another proponent of internationalist approach, H. G. Johnson’s view is that circulation of human capital is a normally, this type beneficial process since it is a consequence of free will of people. Normally this type of migrations causes an overall increase in world output as in the case of circulation of other factors; thus, the



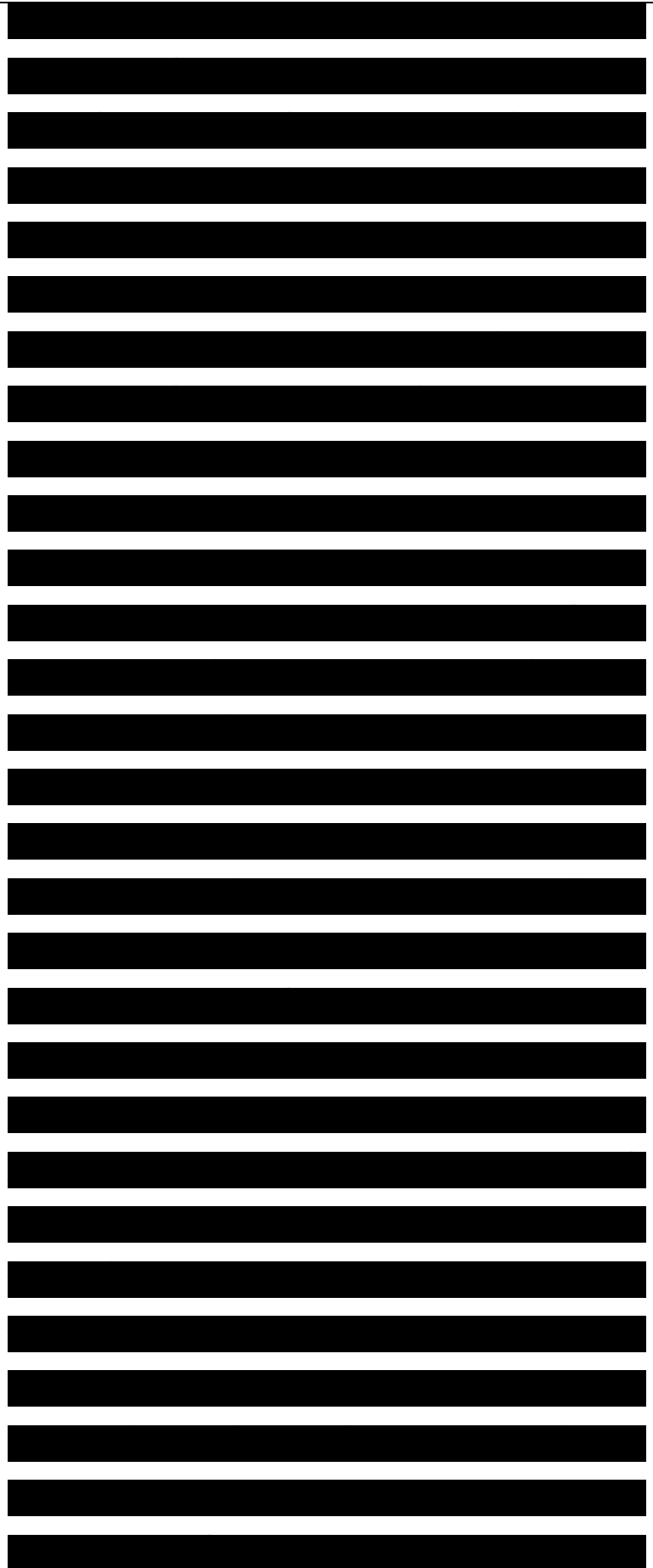
world on the overall benefits from migration. In this mechanism human capital flows to regions where the rate of return is highest and by this way migration maximizes efficiency on a world scale. Thus, it is not right to impose limitations on free movement of human capital with nationalist concerns. According to internationalist view, brain drain is a consequence of negative conditions in developing countries. By sending excess skilled labor to other countries, both developing countries and migrating workers become better off. By increasing the overall efficiency of human capital world output will be maximized and income and welfare of skilled labor will increase, purchasing power inequalities will be decreased. For this reason, many humanists perceive brain drain of scientists as an important step for globalization. Another important point concerned by the proponents of internationalist view is that whether the situation of remaining people of the country is deteriorated or not after the brain drain. As in all other factors of production, investment on human capital has its costs. When skilled labor force migrates, it performs its productivity in a foreign country. Income generated by this efficiency is taxed at the



destination country. Thus a country receives tax revenue from an income for which it incurred no costs and the country of origin parts from a source of taxable income which it once invested on. On the other hand internationalist approach emphasizes the externalities generated by high skilled labor force (Reichling, F, 2001, pp.3-5). In a similar way, scientists also create externalities since science is the common property of all humanity. In other words it is not important where an invention is made because its consequence is available for everybody. The nationalist model assert that countries of origin are impoverished due to human capital losses caused by educated personnel that start to work abroad by minding their personal benefits. By this way impoverished countries become more dependent on economic assistance while developed countries gain the opportunity to accumulate wealth by transferring skilled labor force. This increases the inequalities between countries. According to the nationalist model developed by Patinkin, brain drain is boot a problem for the country of origin in the short run; however, it emerges serious problems in the long run. Migration skilled labor is not a problem if it returns to country of origin after



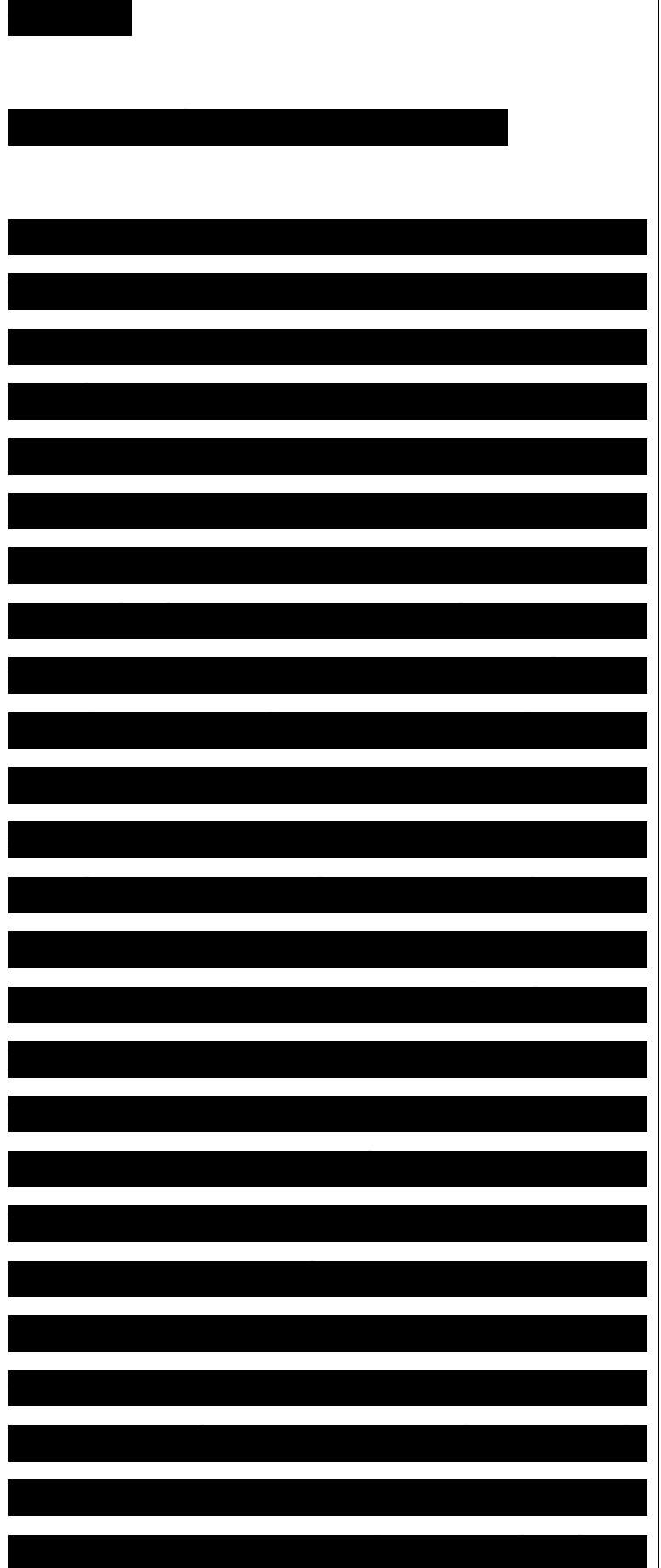
increasing its skills further. On the contrary, it is even beneficial since it contribute to development of the country. But if it returns after a long period, it can not be useful. Since it will not adapt to local conditions, skilled labor force will tend to return to destination country. Patinkin also objects the view that labor force be allowed to move freely between countries. Because it will hamper the economic growth of countries. For this reasons there has to be limitations on immigration. Proponents of nationalist view think that it is not easy to account the real magnitude of loss caused by brain drain. In analyzing the dependence of a developing country to developed countries i) current losses are not mentioned or underrated, ii) gains are exaggerated, iii) some gains may happen to be actual losses when analyzed in detail. Because of the education system financed by taxes, potential tax revenue of origin country is terminated in case of brain drain. The immigrant pays the taxes in the destination country and brings up new generations. Moreover, nationalist model emphasizes that immigration forms a misleading model in the minds of young generations by objecting the internationalist view that immigration plays an incentive role



by requiring that immigrated personnel be replaced by the young.

** Table 7. The Result of Emerging Countries

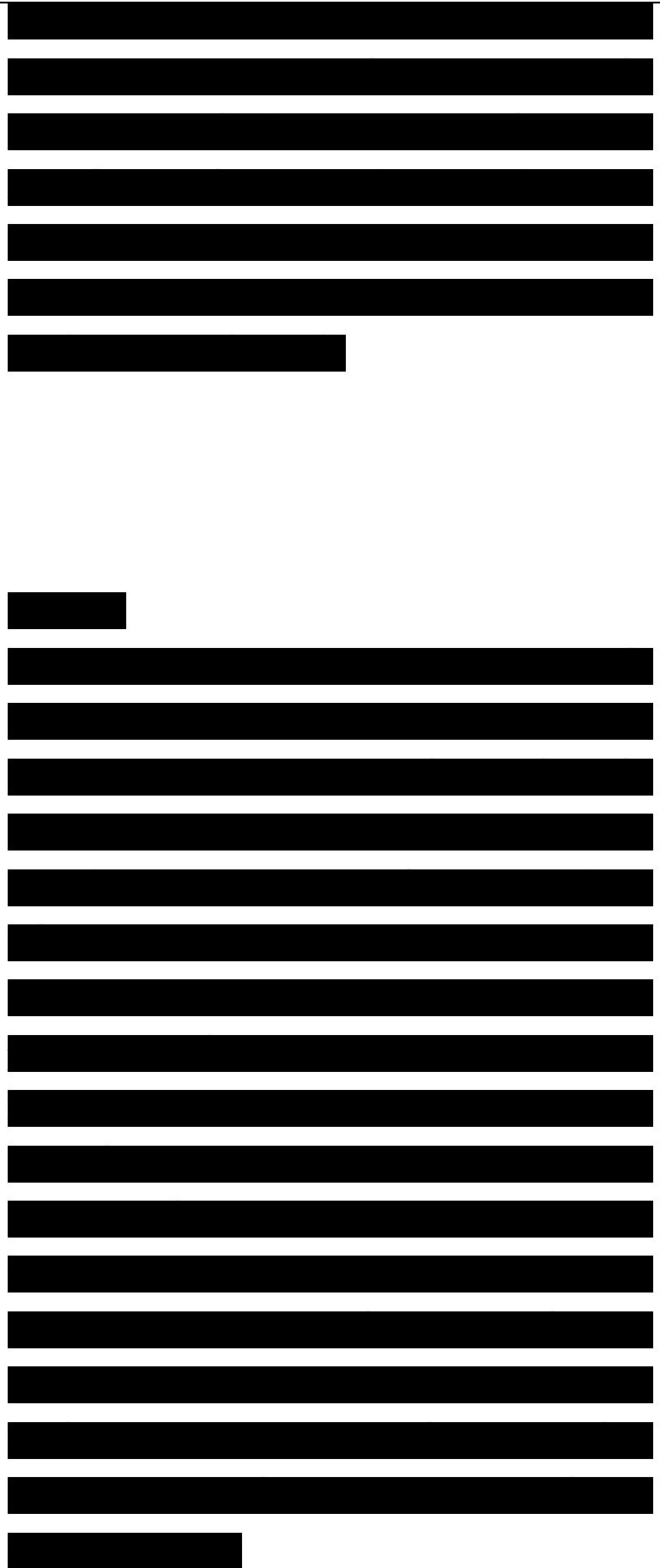
In the migration model constructed for emerging countries, schooling rate and wages negatively relate with migration while there exists a positive relation between urban population growth, average life expectancy and migration. People migrate less as human capital investment and its return, wage, increases. Besides, factors that deteriorate welfare of people such as high inflation and rapid growth of population encourage them to migrate to developed countries. In the human capital model adult literacy, per capita income and education index is found out to be positively related to human capital level and wage is found out to be negatively related. In emerging countries, wage does not constitute a an incentive for human capital investment since expected return on education at foreign countries is higher and skilled labor may receive higher wages by migrating to other countries. Human capital positively effects growth. Education and human capital increasing growth in developing countries is consistent with both the primarily constructed model for all



countries and with economic theory. Since migration is relatively high in developing countries workers' remittances sent from other countries positively contributes growth. Existence of unemployment does not effect growth because there exists implicit redundancy in these countries. For it is considered that emerging countries do not exhibit homogeneity, panel test is primarily applied to Asian tigers that have a somewhat more homogeneous structure.

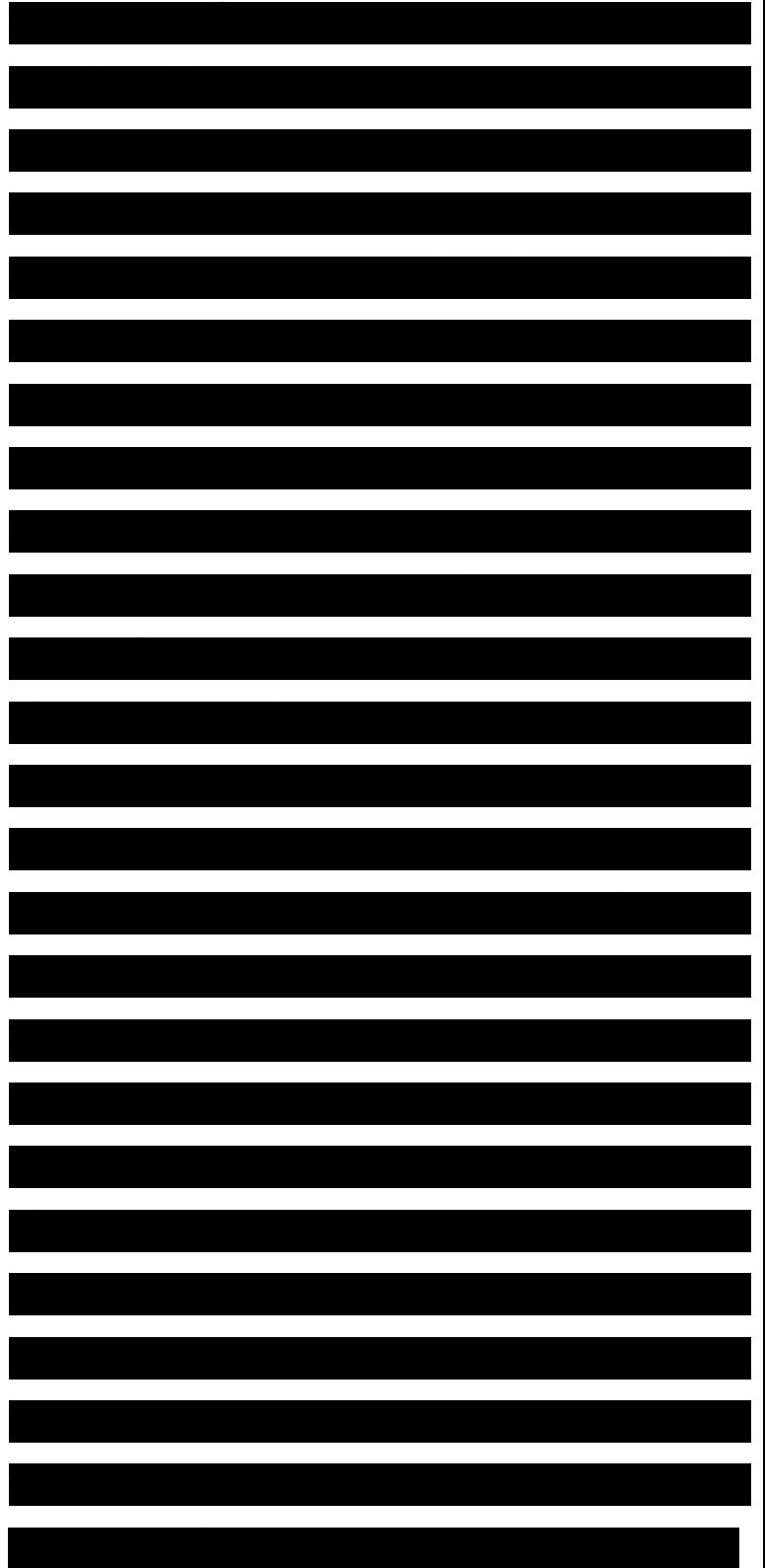
Conclusion

In constructing models for countries of different development levels to analyze the effects of brain drain on human capital and economic growth, it is observed that migration increases growth in developed countries and in the world generally while it slows down the growth in LDC. General results of the constructed equations are: 1) According to the migration model, when unemployment, wages and per capita income increases, migration decreases and when minimum poverty level increases, migration increases. The reason why migration decreases as unemployment increases is that people can not invest in human capital and can not afford the cost of migration. It was not important whether the migrating labor



force at the beginning and the middle of last century was skilled or unskilled.

However the qualification of labor force is determinant in migration. For this reason, skilled labor has a higher tendency to migrate and factors such as schooling rate, high wages and better living standards encourage migration. This important point becomes significant in its consequences at developed countries and LDC. In developing countries migration is inversely related with wage level and schooling rate while it is positively related with urban population growth and average life expectancy. As the ratio of people attending schools increases and people receive higher wages, rate of migration decreases. As inflation rises and incomes of people fall due to unemployment caused by population growth, index of unhappiness increases. Under these circumstances, people migrate more intensely. Migration has an inverse relation with unemployment and per capita income in LDC and developed countries. Wages in developed countries are inversely proportional to migration since wage levels in LDC are not sufficient to keep people away from migration. In developed countries, on the other hand, migration rises,



as rises human life index and inflation. 2) Variables such as education index, adult literacy rate, schooling rate, education investments, per capita income, growth rate and average life expectancy are positively related to human capital in virtually all countries. Thus, increases in these variables increase human capital. 3) There is a relation between migration, human capital, education investments, literacy, per capita income, workers' savings and growth. Increases in these variables may increase growth. On the other hand in LDC pace of increase in urban population, average life expectation index, imports, exports and wages effect growth in a negative way. It is to be stated that for the LDC, the data related to growth are so insufficient that it is not possible to reach meaningful inferences.

**HUMAN CAPITAL DEVELOPMENT
AND ITS IMPACT ON FIRM
PERFORMANCE: EVIDENCE FROM
DEVELOPMENTAL ECONOMICS**

Maran MARIMUTHU*

Lawrence AROKIASAMY*

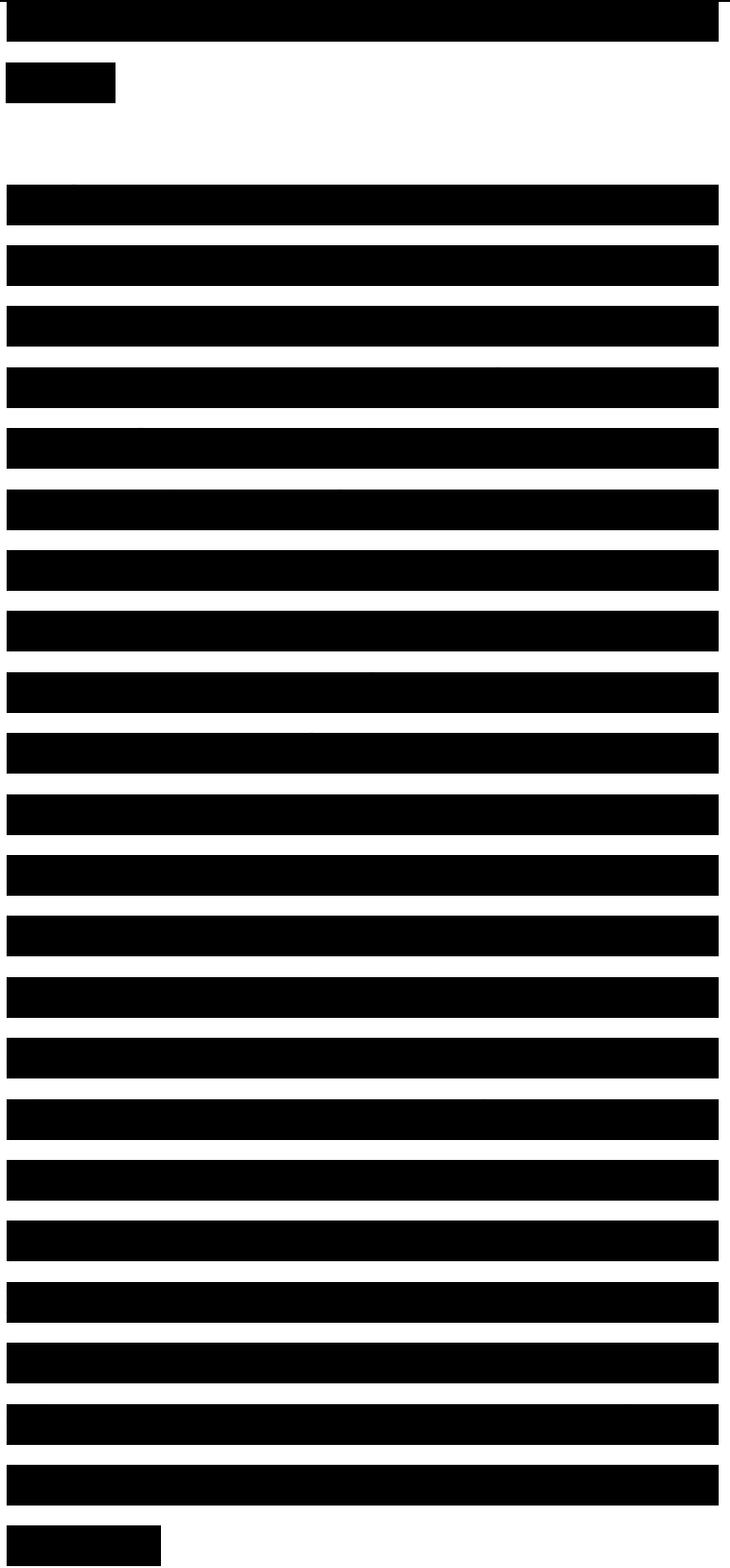
Maimunah ISMAIL**

[REDACTED]

[REDACTED]

Definition of Human Capital and Firm Performance

What is human capital? According Schultz (1993), the term “human capital” has been defined as a key element in improving a firm assets and employees in order to increase productive as well as sustain competitive advantage. To sustain competitiveness in the organization human capital becomes an instrument used to increase productivity. Human capitals refer to processes that relate to training, education and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values, and social assets of an employee which will lead to the employee’s satisfaction and performance, and eventually on a firm performance. Rastogi (2000) stated that human capital is an important input for organizations especially for employees’ continuous improvement mainly on knowledge, skills, and abilities. Thus, the definition of human capital is referred to as “the knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (Organization for Economic Co-Operationand Development or



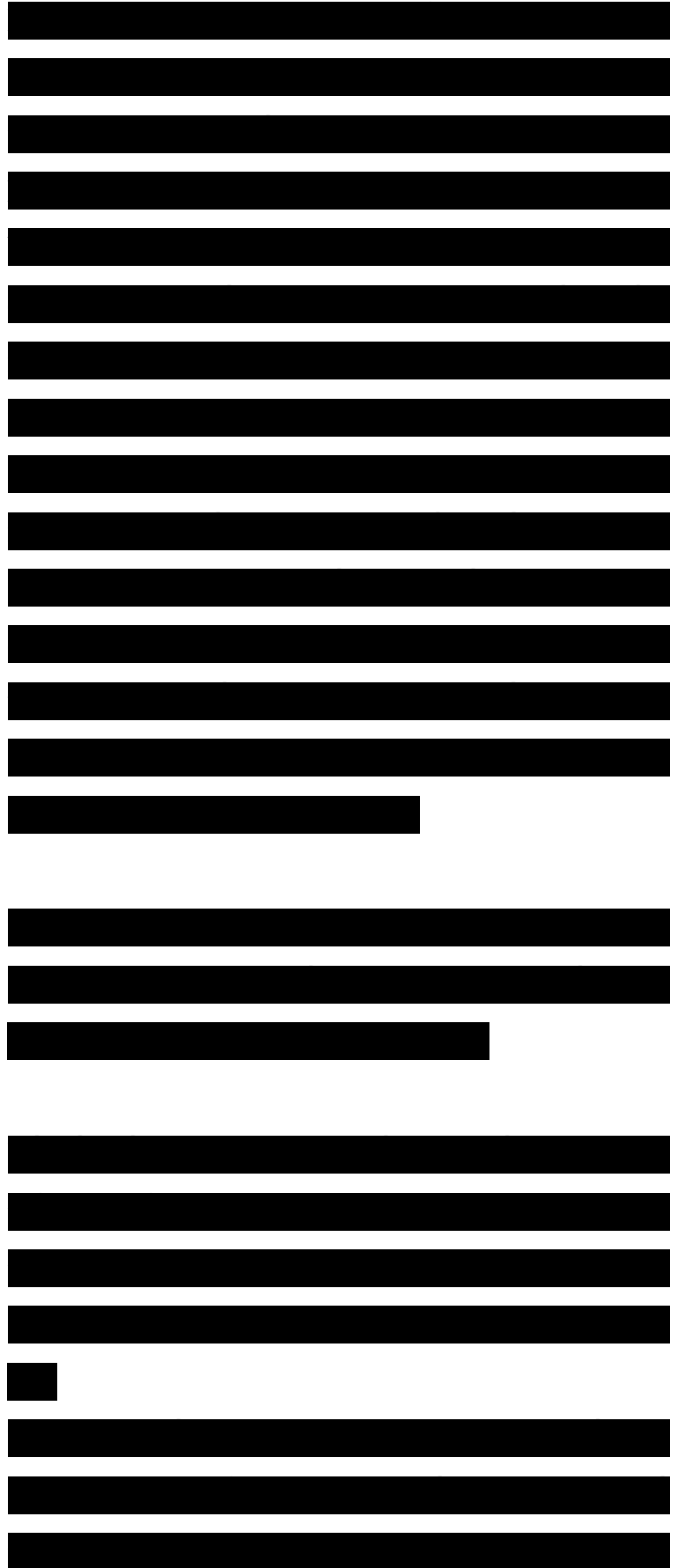
OECD, 2001: 18).

The constantly changing business environment requires firms to strive for superior competitive advantages via dynamic business plans which incorporate creativity and innovativeness. This is essentially important for their long term sustainability. Undoubtedly, human resource input plays a significant role in enhancing firms' competitiveness (Barney, 1995). At a glance, substantial studies were carried out on human capital and their implications on firm performance were widely covered and obviously, human capital enhancement will result in greater competitiveness and performance (Agarwala, 2003; Guthrie et al., 2002).

Meantime, there is a significant relationship between innovativeness and firm performance under the human capital philosophy (Lumpkin & Dess, 2005).

In relation to this, the definition of firm performance could vary from one and another. Nonetheless, some clear definitions of firm performance in the context of human capital enhancement could be put forward.

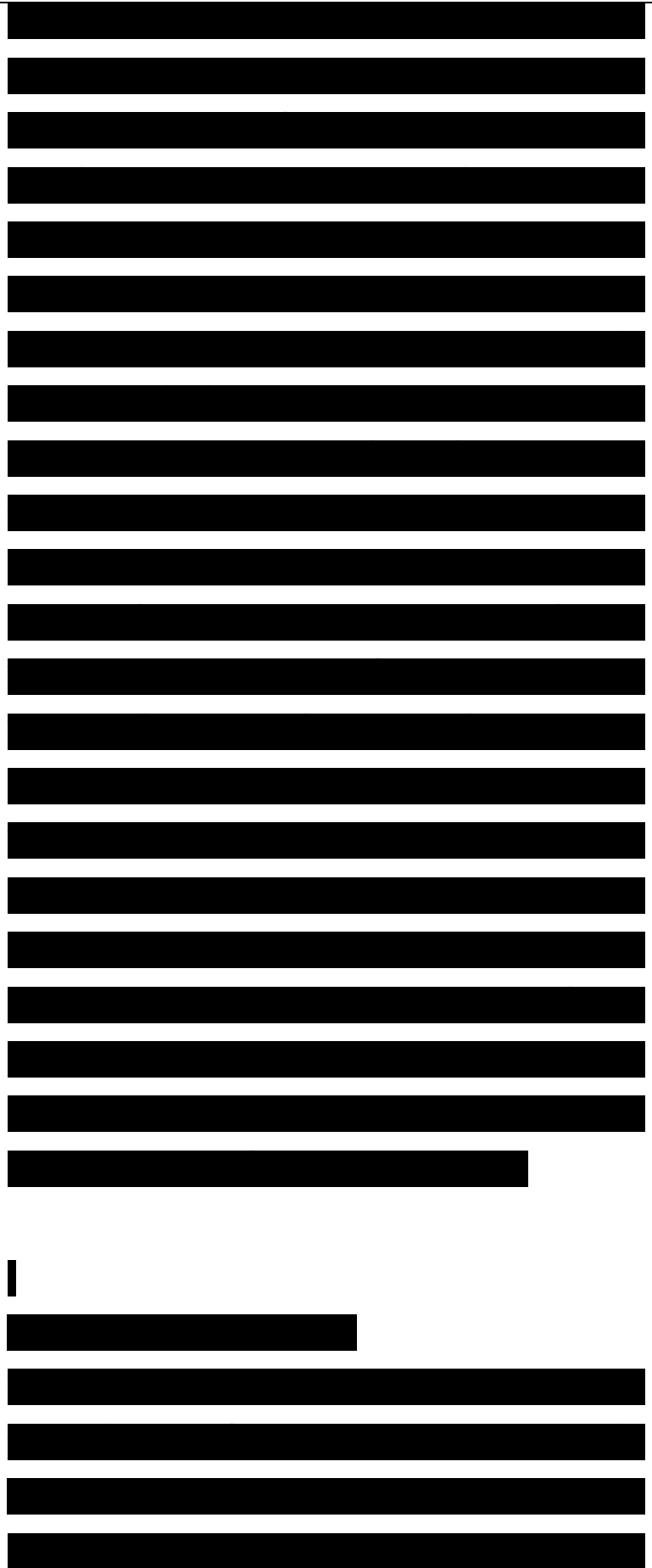
In some cases, financial performance measures such as percentage of sales resulting from new products, profitability,



capital employed and return on assets (ROA) (Selvarajan et al., 2007; Hsu et al., 2007). Besides, return on investment (ROI), earnings per share (EPS) and net income after tax (NIAT) can also be used as measures of financial performance (Grossman, 2000). Interestingly, researchers also tend to benchmark managerial accounting indicators against the financial measures in six dimension; ‘workers compensation’ (workers’ compensation expenses divided by sales); ‘quality’ (number of errors in production); ‘shrinkage’ (e.g. inventory loss, defects, sales return); ‘productivity’ (payroll expenses divided by output); ‘operating expenses’ (total operating expenses divided by sales) (Wright et al., 2005). On the other hand, firm performance can also be measured using ‘perceived performance approach’ (also referred to as subjective performance measure) where Likert-like scaling is used to measure firm performance from the top management perspectives (Selvarajan, 2007).

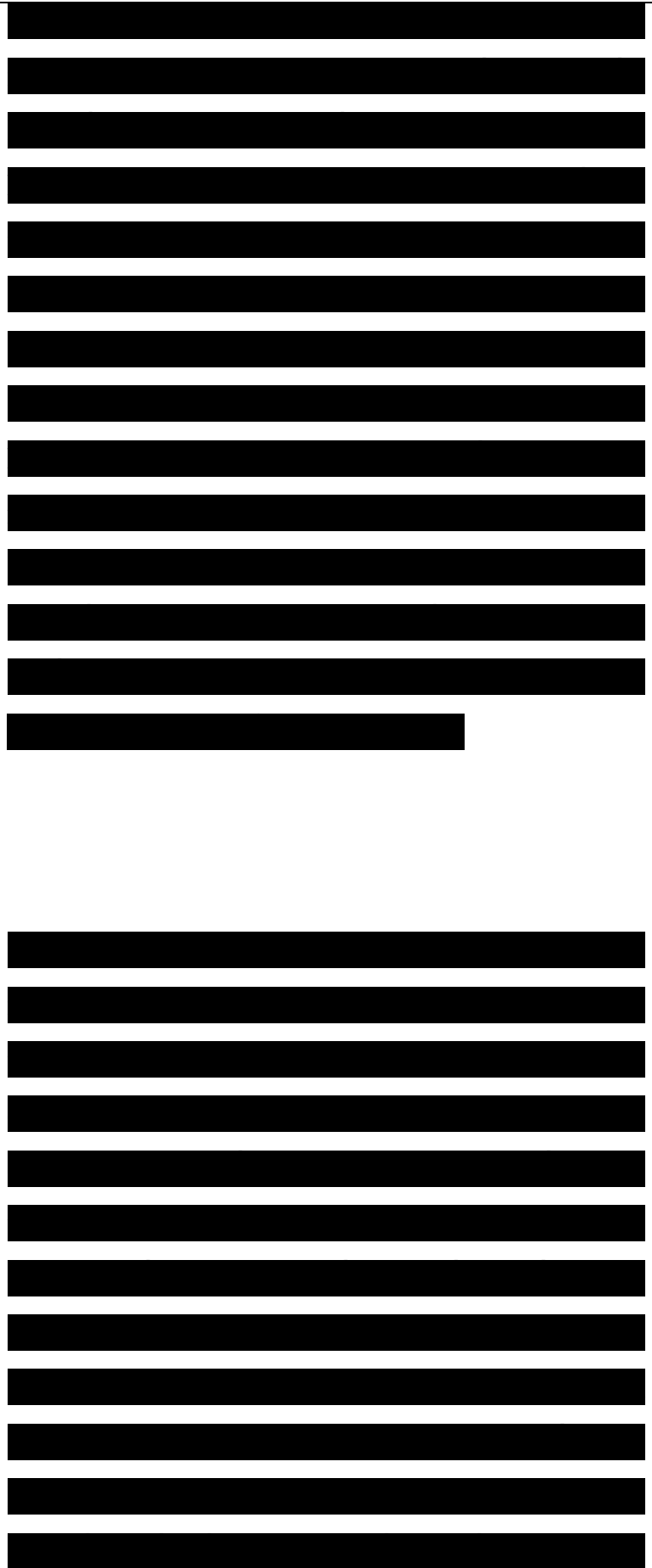
Human Capital Theory

The theory of human capital is rooted from the field of macroeconomic development theory (Schultz,1993). Becker’s (1993) classic book, *Human Capital: A Theoretical*



and Empirical Analysis with special reference to education, illustrates this domain. Becker argues that there are different kinds of capitals that include schooling, a computer training course, expenditures on medical care. And in fact, lectures on the virtues of punctuality and honesty are capital too. In the true sense, they improve health, raise earnings, or add to a person's appreciation of literature over a lifetime. Consequently, it is fully in keeping with the capital concept as traditionally defined to say that expenditures on education, training, and medical care, etc., are investment in capital. These are not simply costs but investment with valuable returns that can be calculated.

From the perspective of Classical Economic Theory, human capital considers labour as a commodity that can be traded in terms of purchase and sale. This classical theory very much focuses on the exploitation of labour by capital. However, unlike the meaning traditionally associated with the term labour, human capital refers to the knowledge, expertise, and skill one accumulates through education and training. Emphasizing the social and economic importance of human capital theory, Becker (1993) noted the most



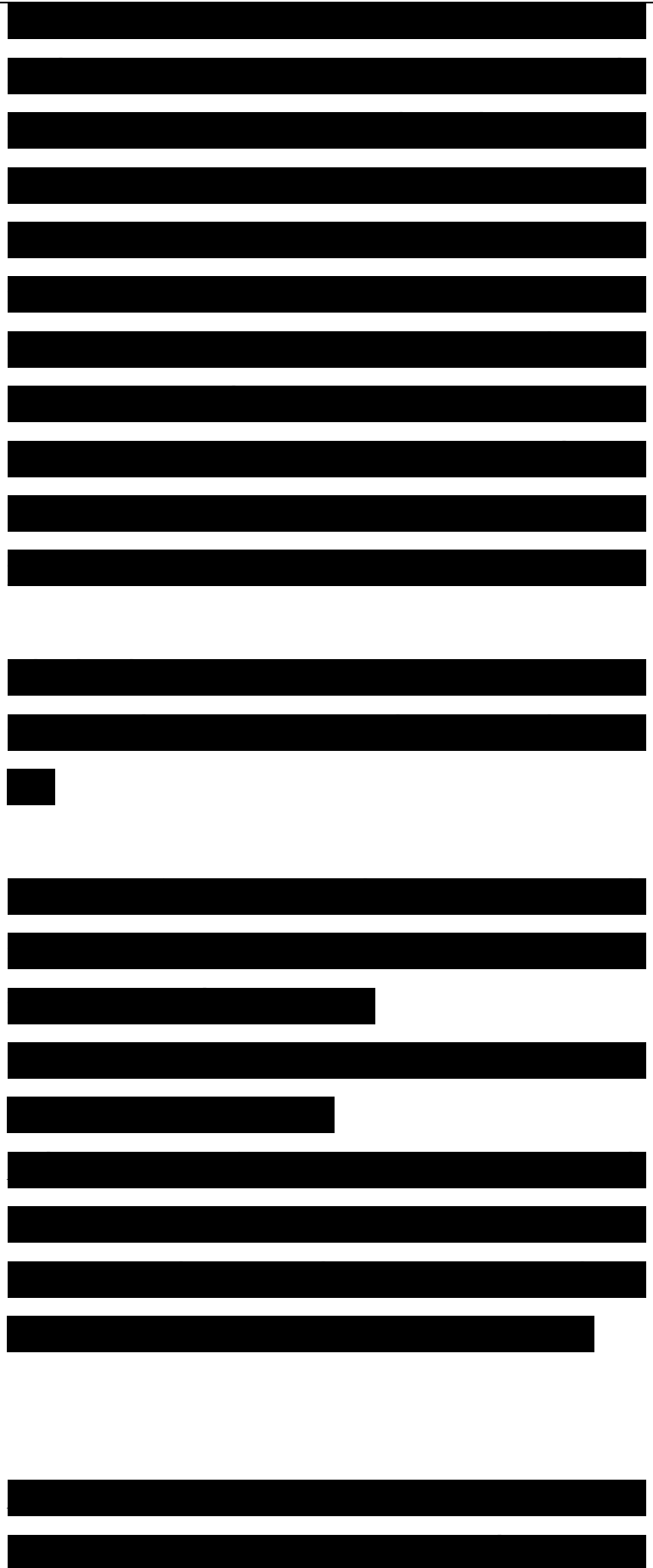
valuable of all capital is that investment in human being. Becker distinguishes firm-specific human capitals from general-purpose human capital. Examples of firm-specific human capital include expertise obtained through education and training in management information systems, accounting procedures, or other expertise specific to a particular firm. General-purpose human capital is knowledge gained through education and training in areas of value to a variety of firms such as generic skills in human resource development. Regardless of the application, Becker considers education and training to be the most important investment in human capital.

Figure 1.presents the key relations in human capital theory and the assumptions underlying these relationships.

Figure 1: A Model of Human Capital Theory (Swanson, 2001: 110)

Relationship 1 represents the concept of production functions as applied to education and training. The key assumption underlying this relationship is that investment in education and training results in increased learning.

Relationship 2 represents the human capital relationship between learning and increased



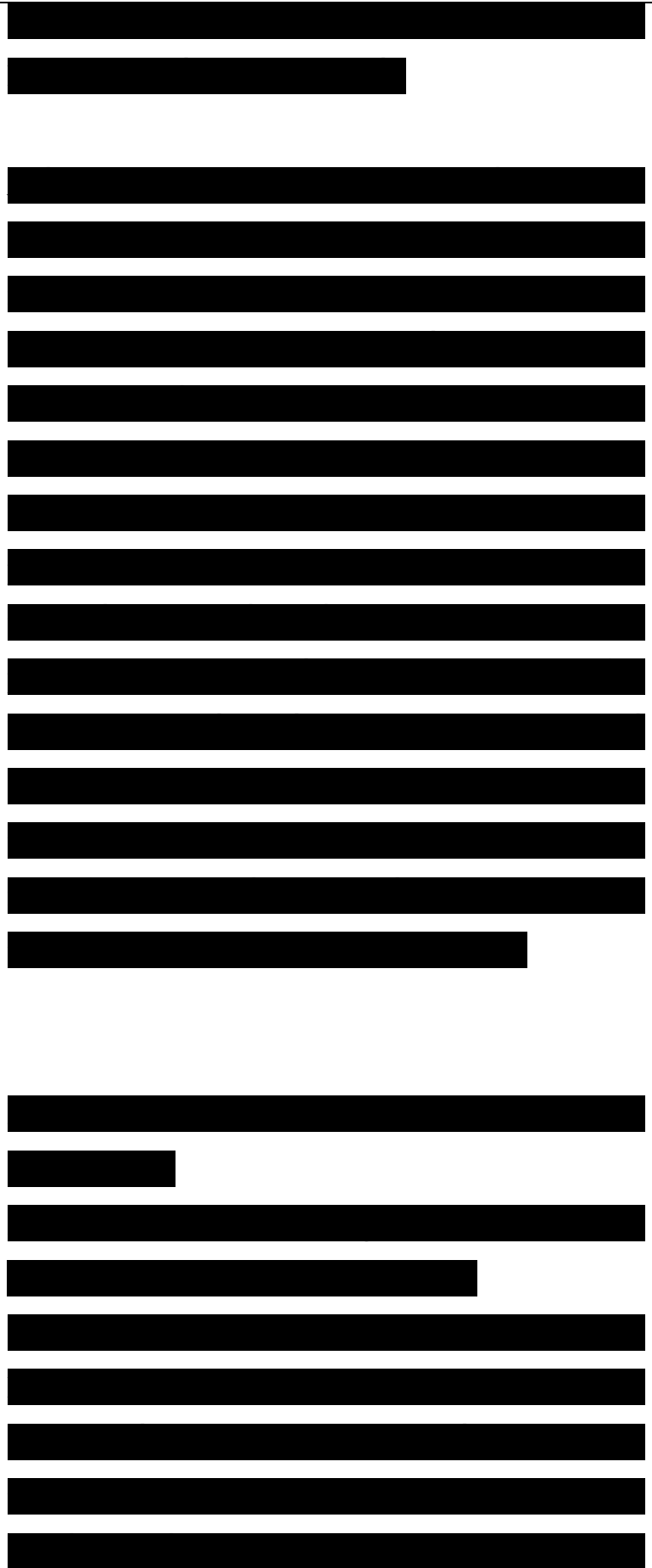
productivity. The key assumption underlying this relation is that increased learning does, in fact, result in increased productivity.

Relationship 3 represents the human capital relationship between increased productivity and increased wages and business earnings. The key assumption underlying this relationship is that greater productivity does, in fact, result in higher wages for individuals and earnings for businesses. As per conclusion, human capital does contribute to the organizational advantages and profits. The entire human capital continuum represented is assessed using return-on-investment analysis or cost-benefit analysis. The human capital theory is an important agent for boosting firm performance. Thus, this study has capitalized on this theory for arguing that human capital becomes an element in firm performance.

Human capital and economic growth in OECD countries

2. Human capital and economic growth – theory and empirical evidence

The different schools of economic growth theory provide diverse answers on the question how the per capita growth rate of GDP depends on human capital or whether there is any relationship at all. Mankiw et al.



(1992) present a human capital-augmented Solow model in which human capital serves as an ordinary production factor: it appreciates at the same rate as physical capital and is produced by the same technology. Due to diminishing returns to scale, as in the original Solow model, an increase in the time devoted to human capital accumulation has only a *transitory* effect on the growth rate which converges to its steady state level afterwards. In particular, the model takes the form:

$$Y_t = K_t^\alpha H_t^\beta (A_t L_t)^{1-\alpha-\beta}.$$

Herein, Y denotes output, K capital, H the stock of human capital, A the technology level and L labor. Because of diminishing returns to scale $\alpha + \beta < 1$.

In contrast to the neoclassical growth theory in which long run growth is exogenously determined by technological change, the so-called new growth theory (Romer 1986) explains the level of growth within the model. In a closely related paper (Lucas 1988) human capital is labor-augmenting and characterized by constant returns to scale

$$Y_t = AK_t^\alpha (u_t h_t L_t)^{1-\alpha} h_{a,t}^\gamma.$$

U is the part of an individual's time devoted

[REDACTED]

$$Y_t = K_t^\alpha H_t^\beta (A_t L_t)^{1-\alpha-\beta}.$$

[REDACTED]

[REDACTED]

$$Y_t = AK_t^\alpha (u_t h_t L_t)^{1-\alpha} h_{a,t}^\gamma.$$

[REDACTED]

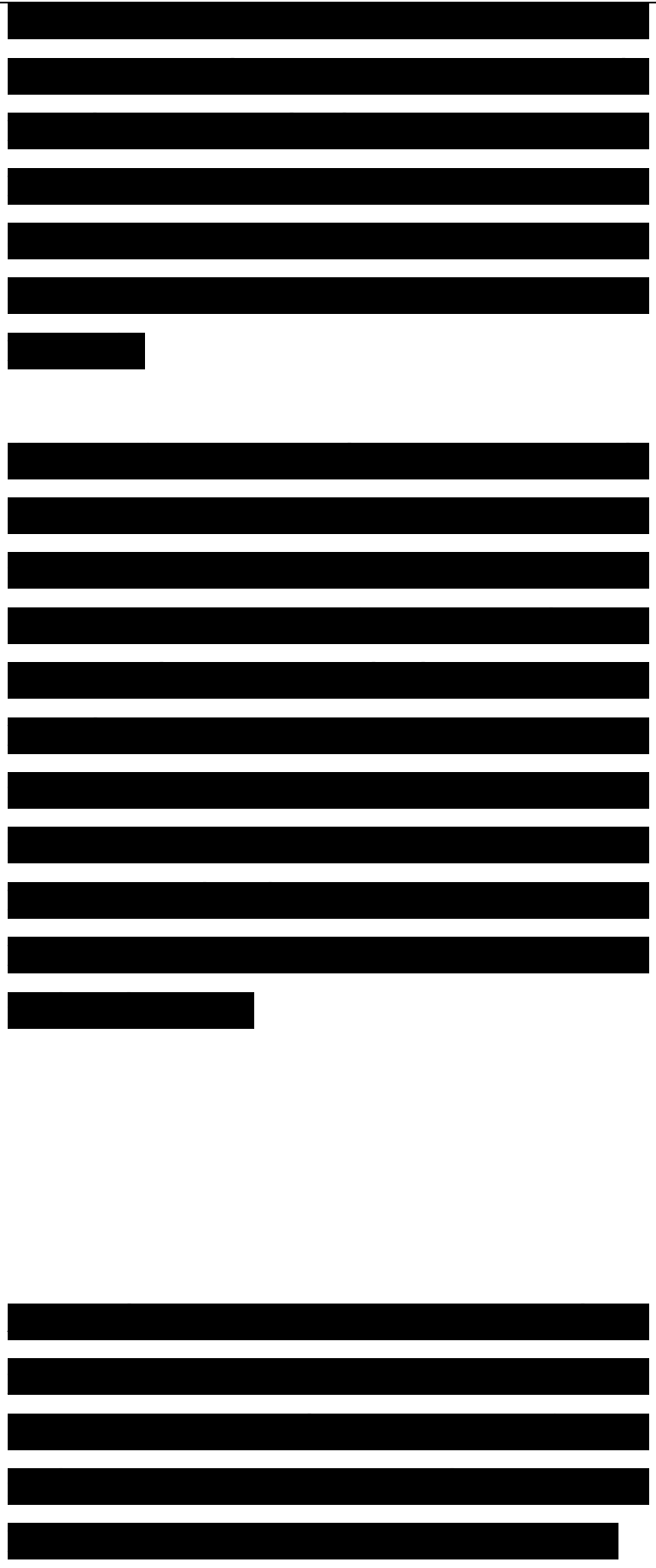
to work, h is the human capital of the representative agent and h_a the average human capital in the economy. While the latter reflects spillover-effects in the case of $\gamma \neq 0, 2$ the technology level A is assumed to be constant. The decisive assumption entails constant returns to human capital production:

$$\Delta h_t = \chi(1 - u_t).$$

Herein χ denotes the productivity of schooling and \dot{h}_t the growth rate of human capital, which is linearly dependent on the time devoted to the acquisition of it. If the time spent by individuals to acquire human capital would rise, this would yield a permanent higher growth rate of the economy. By contrast, steady state growth additionally depends on the human capital stock in Romer (1989). In his model, the number of different intermediate goods x_i in the economy is dependent on the stock of knowledge A :

$$Y = H_Y^\alpha L^\beta \int_0^A x_i^{1-\alpha-\beta} di.$$

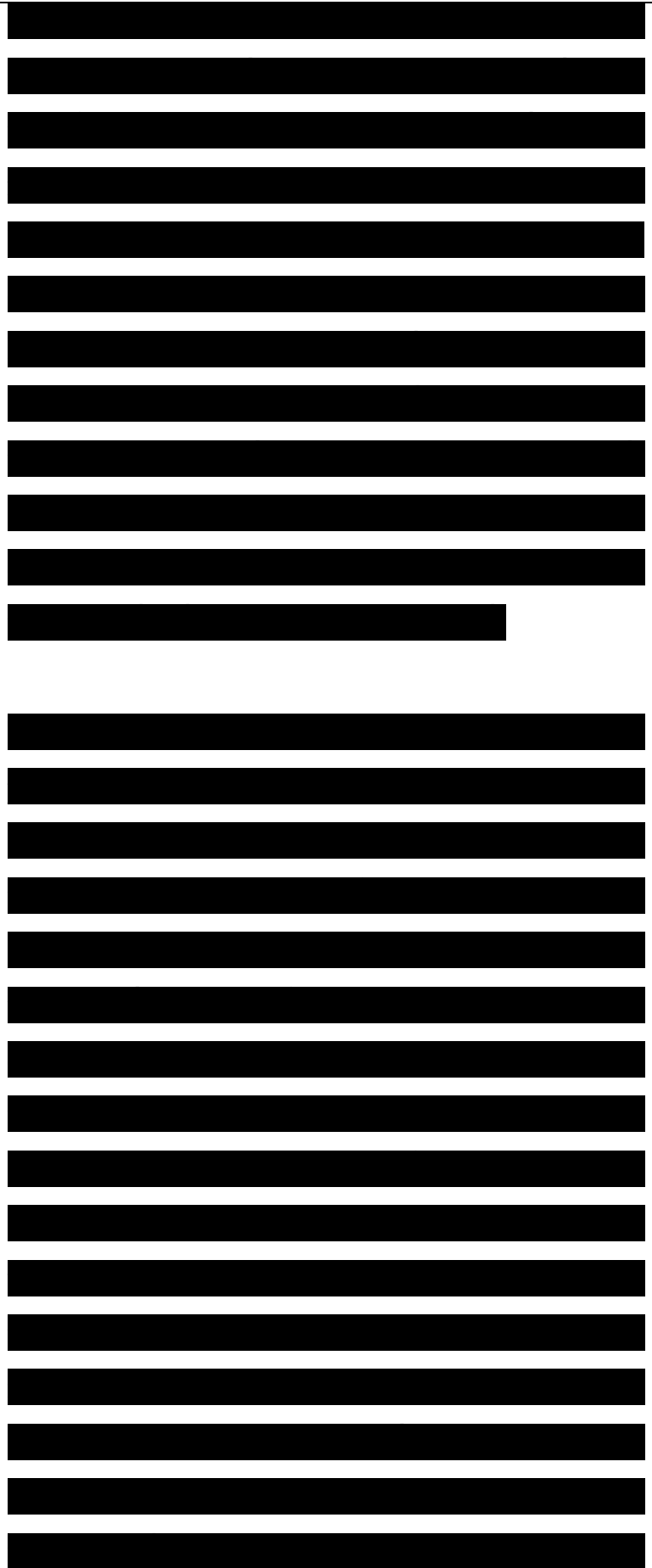
H is the human capital in the production sector, which itself is dependent on the overall stock of human capital $Y = A H + H$ with the latter denoting human capital involved with research. The stock of



knowledge evolves as $\Delta A = cHA$.

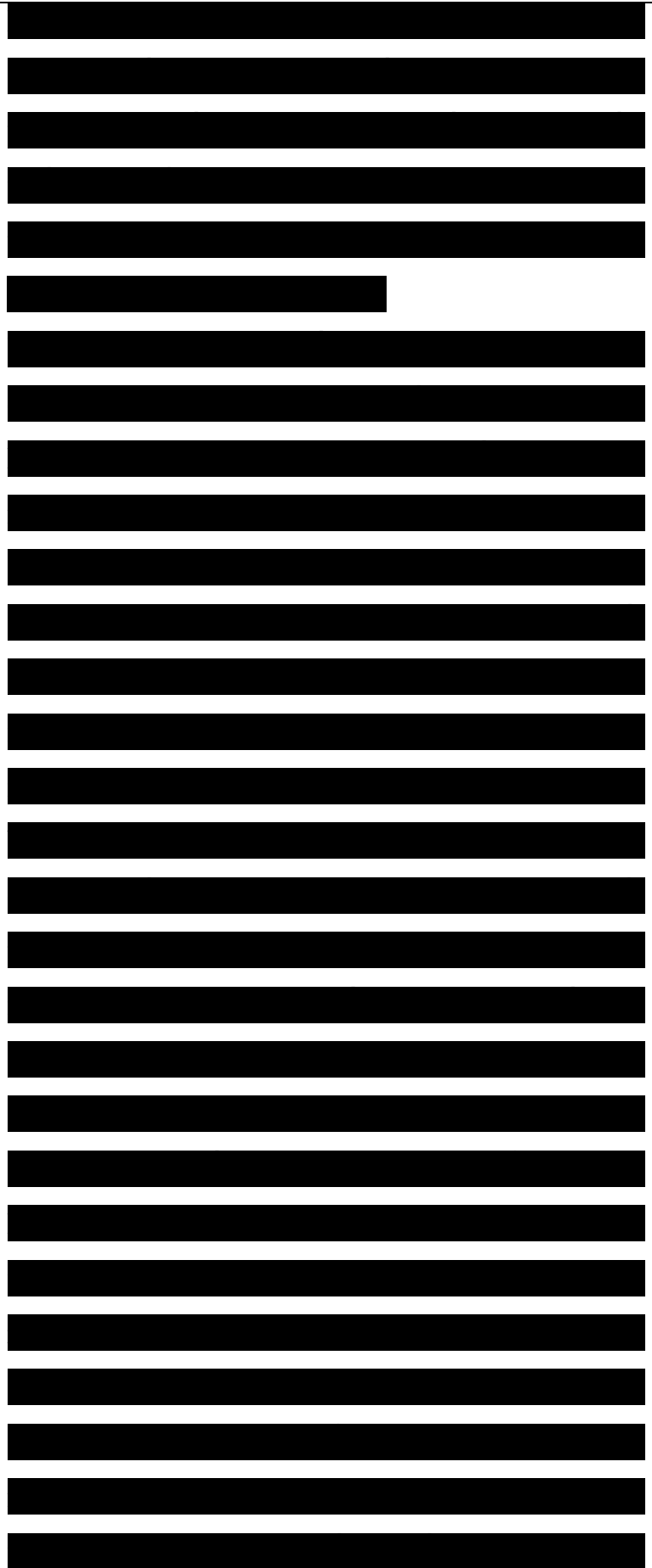
Thus, a one-time increase in the stock of human capital raises the steady state growth rate of the economy, depending on the productivity χ , in contrast to the model of Lucas where it only has a level effect. The same holds for the models of Baumol (1986) and Barro (1991) in which countries with a better educated workforce find it easier to catch up to the technological leaders via imitation. Thus the level of human capital alters total factor productivity and thereby exhibits a positive impact on the growth rate of the economy.

In the empirical literature the discrimination between these theories is anything but clear-cut. The reason for this is the long-term character of the steady-state in the Solow model and the fact that economies seem to converge only slowly to it. Because of *conditional convergence*, i.e. all other things equal countries grow faster the further they are away from their steady-states, it is rather difficult to discriminate between long run and temporary growth effects on the way to the new steady state. This in turn implies that government policies or human capital accumulation affect even the *rate* of growth for some time. This would also be consistent



with the model of Lucas (1988) as it suggests a positive linkage between the rate of human capital accumulation and economic growth. Furthermore, due to the lack of adequate data, empirical studies have so far often used flow and stock variables interchangeably (Gemmell 1996, p. 12).

School enrollment, for example, is rather a proxy for human capital accumulation than for the human capital stock but has been widely used in the context of both. This however renders a distinction between the hypotheses of the augmented Solow model, and the Lucas and Romer models impossible. Moreover, the existing empirical studies are characterized by a change in the variables of interest. In the beginning **stock variables (số liệu lưu lại trong thời gian dài)** have been incorporated into growth regressions and have turned out to be positively related to subsequent growth in cross-country approaches (see Romer 1989, Barro and Sala-i-Martin 2004). Yet panel data studies deliver ambiguous results. In Islam (1995) the coefficient of average schooling years is significantly negative while the study of OECD (2003) yields a positive influence of the same measure on growth. Both signs of the coefficient could be justified due to



changes in the returns to schooling as an exogenous positive (negative) change in the return to schooling entails a positive (negative) coefficient on the human capital stock (Krueger and Lindahl 2001). However, differing results for the same country group could hardly be explained. Traditional earnings functions though imply a role for the *change* in educational attainment (Pritchett 1996). This induced studies confined to the analysis of accumulation effects. Yet their results, even the ones stemming solely from panel data approaches, have been rather mixed. While de la Fuente and Domenéch (2000) find positive effects of the change in educational attainment using their own compiled data for OECD countries, coefficients even display negative signs (Benhabib and Spiegel 1994; Caselli et al. 1996) in other studies. 3

Hence, the conflicting results in the existing literature suggest including both types of variables in growth regressions, the human capital stock as well as its change. This is exactly the approach taken in this paper. The next section describes the utilized data and the empirical strategy in more detail.

