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Education as the Elixir of Growth II
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By Anatoly Karlin
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A while ago I wrote Education as the Elixir of Growth on DR,
in which I noted that in most countries the educational profile is
closely correlated to their level of productivity. The major exceptions
are nations with resource windfalls (inflated productivity) and
socialist legacies (deflated productivity). Furthermore, the greater
the gap between the â€˜potential productivityâ€™, as suggested by the human
capital level, and actual productivity, the greater will be the rate of
economic convergence. This rate in turn depends on the openness of an
economy (i.e. the rate at which it can absorb the latest know-how).
Some countries, however, cannot converge to advanced industrial levels,
since their human capital is set at a low level - they have reached an
asymptote relative to the developed world and cannot converge without
improving their educational profiles relative to the latter.

I have come across this chapter from
the
book (
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MORE DETAIL SEE) by Russian sociologist Andrei Korotayev and his colleagues, Reconsidering Weber: Literacy and the Spirit of Capitalism, which places the above into a long-term historical perspective. I will quote in extenso:
	As has been mentioned earlier, human capital development
	has been suggested as one of the most important factors of economic
	growth, whereas education is considered to be one of the most important
	components of human capital (see, e.g., Schultz 1963, Denison 1962,
	Lucas 1988, Scholing and Timmermann 1988 etc.)â€¦
	â€¦In the 20th century mass literacy spread around the globe, and nowadays
	differences in literacy levels between different countries tend to
	disappear. At the same time, according to our hypothesis, the
	differences in economic developments of various countries are rooted in
	the period of the beginning of modernization era. Therefore, it seems
	reasonable to explore the connection between such indicators as GDP per
	capita at present and the literacy level in the early 19th century.
	â€¦The data in Table 6.1 show that the level of economic wealth in the
	early 19th century in various regions did not differ greatly enough to
	be considered the leading factor of economic differentiation between
	the regions later on.
	

Diagram 6.1 shows that there is a strong and definitely
	significant linear correlation between the literacy rate in 1800 and
	GDP per capita at present. R2 coefficient indicates that this correlation explains 86% of the entire data dispersion.
	

Therefore, the hypothesis that the spread of literacy was one of the
	major factors of modern economic growth gains additional support. On
	the one hand, literate populations have many more opportunities to
	obtain and utilize the achievements of modernization than illiterate
	ones. On the other hand, literate people could be characterized by a
	greater innovative-activity level, which provides opportunities for
	modernization, development, and economic growth.
	

Literacy does not simply facilitate the process of perceiving
	innovation by an individual. It also changes her or his cognition to a
	certain extent. This problem was studied by Luria, Vygotsky, and
	Shemiakin, the famous Soviet psychologists, on the basis of the results
	of their fieldwork in Central Asia in the 1930s. Their study shows that
	education has a fundamental effect on the formation of cognitive
	processes (perception, memory, cognition). The researchers found out
	that illiterate respondents, unlike literate ones, preferred concrete
	names for colors to abstract ones, and situative groupings of items to
	categorical ones (note that abstract thinking is based on category
	cognition). Furthermore, illiterate respondents could not solve
	syllogistic problems like the following one â€“ â€œPrecious metals do not
	get rust. Gold is a precious metal. Can gold get rust or not?â€•. These
	syllogistic problems did not make any sense to illiterate respondents
	because they were out of the sphere of their practical experience.
	Literate respondents who had at least minimal formal education solved
	the suggested syllogistic problems easily (Luria 1974, 1976, 1982:
	47â€“69).
	

Therefore, literate workers, soldiers, inventors and so on turn out
	to be more effective than illiterate ones not only due to their ability
	to read instructions, manuals, and textbooks, but also because of the
	developed skills of abstract thinking. Some additional support for this
	could be found in Weberâ€™s book itself:
	
	
â€œThe type of backward
		traditional form of labor is today very often exemplified by women
		workers, especially unmarried ones. An almost universal complaint of
		employers of girls, for instance German girls, is that they are almost
		entirely unable and unwilling to give up methods of work inherited or
		once learned in favor of more efficient ones, to adapt themselves to
		new methods, to learn and to concentrate their intelligence, or even to
		use it at all. Explanations of the possibility of making work easier,
		above all more profitable to themselves, generally encounter a complete
		lack of understanding. Increases of piece rates are without avail
		against the stone wall of habit. In general it is otherwise, and that
		is a point of no little importance from our view-point, only with girls
		having a specifically religious, especially a Pietistic, backgroundâ€•
		(Weber 1972: 75âˆ’6).
		

We believe that the above mentioned features of the behavior of
	German female workers in the late 19thâˆ’early 20th centuries simply
	reflects a relatively low educational level of German women from labor
	circles at that time. The spread of female literacy in Germany, as
	elsewhere, lagged behind that of male literacy (see Chapter 7). In the
	early 20th century the majority of women could write and read only in
	the most developed parts of Germany (Meliantsev 1996). More rational
	behavior of German workers from Pietistic circles could be easily
	explained by the special role of education in the lives of Protestants.
	

The ability to read was essential for Protestants (unlike Catholics)
	to perform their religious duty âˆ’ to read the Bible. The reading of
	Holy Scripture was not just unnecessary for Catholic laymen, for a long
	time it was even prohibited for them. The edict of the Toulouse Synod
	(1229) prohibited the Catholic laymen from possessing copies of the
	Bible. Soon after that, a decision by the Tarragon Synod spread this
	prohibition to ecclesiastic people as well. In 1408, the Oxford Synod
	absolutely prohibited translations of the Holy Scripture. From the very
	beginning, Protestant groups did not accept this prohibition. Thus,
	Luther translated in 1522â€“1534 first the New Testament, and then the
	Old Testament, into German, so that any German-speaking person could
	read the Holy Scripture in his or her native language. Moreover, the
	Protestants viewed reading the Holy Scripture as a religious duty of
	any Christian. As a result, the level of literacy and education was, in
	general, higher for Protestants not only than it was for Catholics and
	for followers of other confessions that did not provide religious
	stimuli for learning literacy (see, for example: Malherbe 1997: 139â€“57).
	

In our opinion, this could explain to a considerable extent the
	differences between economic performance of the Protestants and the
	Catholics in the late 19th âˆ’ early 20th centuries in Europe noticed by
	Weber. One of Weberâ€™s research goals was to show that religion can have
	independent influence on economic processes. The results of our study
	support this point. Indeed, spiritual leaders of Protestantism
	persuaded their followers to read the Bible not to support the economic
	growth but for religious reasons, which were formulated as a result of
	ideological processes that were rat
	her independent of economic life. We do not question that specific
	features of Protestant ethics could have facilitated economic
	development. However, we believe that we found another (and probably
	more powerful) channel of Protestantismâ€™s influence on the economic
	growth of the Western countries.
	

Literacy is a means of sharing information. Someone knowledgeable writes something (or not - but on average they will
be more knowledgeable than the average reader on their subject, and in
neural networks, thatâ€™s what matters), you read it and become more
efficient at something, more productive. (It is not the only - another
example would be speech, albeit the latter is much less intense and
preservable.)

Looking back, the means of sharing ever larger amounts of
information have been growing at a doubly exponential pace. Speech
evolved a few tens of thousands of years ago. The first cuneiform
tablets appeared in Mesopotamia a few thousands of years ago, and
writing migrated to paper within that timeframe. The printing press
appeared a few hundred years ago, first fitfully in China, then in
Europe with gusto. The seeds of the Computer Age were sown in the past
decades, and have since metamorphed into the information highway.
Within several decades Singularitarians predict the occurence of such
paradign shifts every few years, then months, then days, then seconds,
unto and beyond the event horizon of our current world consciousness.
Our universal history has been characterized by this one
meta-narrative, of technological progress which proceeds at a doubly
exponential pace, and of which the means of sharing information is a
subset. (For the theory behind this observation, take a look at
Korotayevâ€™s Introduction: Millennial Trends).

And to peer into the future you need this kind of universal
perspective. For even as in the decades ahead civilizationâ€™s material
base is constrained and undermined by the limits to growth (resource
depletion, catastrophic climate change, overpopulation), the electronic
web will embrace the world ever tighter and ascent above it and float,
lighter than air, even as the forests below wither away to reveal the
desert of the real.

I am of the opinion that just as industrial take-off appeared first
in the most highly literate countries and explains current
international wealth disparities, so the key transformatory
technologies of this century (nanotechnology, strong AI, etc) will be
best utilized by those countries with the highest proportions of
connected agents, netizens (as measured by Internet penetration, share of Top 500 supercomputers,
spending on nanotechnology, etc). Even as the populations of these
advanced regions gradually transcend, laggards will be stuck for a time
in the (rapidly degrading) material world, just as in the nineteenth
century the rest languished as the West made the world its oyster.

However, literati must precede digiterati. The most networked
countries also tend to be those which are best educated, like South
Korea, Finland, Taiwan and the Netherlands. And in general education
gives very good returns on investment. As such, in the name of
egalitarianism and development, the flow of information must be made as
free as possible so that as great a percentage of the worldâ€™s
population could partake of the economic and spiritual benefits of the Singularity,
as soon as possible. The maximum rate of catch-up of follower countries
(developing) relative to leader countries (developed) in the nineteenth
century was 1-2%; today, with improvements in transport and
communications, itâ€™s closer to 10% (see China). Imagine what it could
be with the phenomenal bandwidths weâ€™ll see in the decades to come!
Unlike with the Industrial Revolution, or the Agricultural, this
paradigm shift could in principle be a collective, universal human
experience.

1. Abolish intellectual property. The main argument
is that it wonâ€™t reward creators. I disagree. IP rights are a
relatively recent Western development and great works of art and
scientific progress has occured before the term was invented. Truly
genuine artists and scientists do it out of altruism (a few) or a
desire for recognition (the many), to satisfy their thymos, and monetary benefits are not the key factor.

2. Free information. The worldâ€™s libraries,
universities and think-tanks should fling open the doors to their ivory
towers, at least in the electronic world. People should be able to
access the contents of courses on any subject, take the exams in them
any time they want and following verification, get their degrees.

3. Universities should enter the modern world. For
supposed bastions of enlightenment, universities are remarkably
backwards today. In some people are expected to go to lectures and have
qualified professors waste their time reading out elementary concepts
in some subject or another to freshmen, when they could do it once,
record it and post webcasts, and have students view it at their
leisure, anywhere. They also tend to have Kafkaesque bureaucracies.
Admittedly, at least on some fronts (access to course contents), trends
are moving in a positive direction - but it is happening far too slowly.

4. Encourage denser networking and informatization in as many spheres as possible.
Because crowds tend to be wiser than individuals and bio-metric data is
more reliable and easier to procure (itâ€™s always on you, duh!) than
paper IDâ€™s.
5. Encourage a culture of enlightenment. The state
should do its utmost to ensure society respects intellectual culture
instead of dissing it and invest the greatest resources into it, seeing
as how it is the basis of long-term productivity growth and on a larger
scale universal history itself. Shift the masses from materialistic
concerns (mass consumerism) to a green civilization based on broad
participation in scientific research and artistic endevours. Suppress
factors that go against this culture (religion that tries to interfere
in social and political life would be a prime target).

The countries that follow the above prescriptions and have the best
pre-requisites (a solid educational profile - literacy, PISA scores,
tertiary enrolment, etc - and a densely networked citizenry) will be at
the forefront of those who will experience information takeoff - the
new â€˜leaderâ€™ countries, like as Britannia of industrial yore.

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