

Higher Education's Perfect Storm

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By Dr. Jo Ritzen, President Maastricht University

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1. Introduction

Kirsch et al (2007) observe that dark clouds are gathering above US education and consequently above the US economy. Literacy is not keeping up with the demands from the labor market. The demography aggravates this because the young population has increasingly a minority background with a participation to education which is shorter than average. These are the ingredients of Kirsch et al for a perfect storm in the US. They focus on education in general and on the US.

I have borrowed (with permission) their image of a perfect storm to sketch the dangers for the future of Higher Education (HE) as well as for HE intensive production in the “rich” world at large.

“Rich” is used as an equivalent to ‘developed countries’ in the country definitions of the United Nations. “Poor” are the ‘developing countries’. This includes fast developing countries such as the BRIC countries (Brazil, Russia, India and China), as well as countries like Mexico and Turkey.

The threat to rich countries is a standstill (or even decline) in HE participation. This might lead to a decrease in the number of students and therefore to a shake-out of institutions. It also would lead to serious shortages of HE graduates on the labor market which in turn might make international business move HE intensive production away from rich countries.

This threat is the consequence of demography and its composition. The HE relevant age group (18-24 years of age) is not increasing. Within that age group the proportion of minority youngsters is increasing. Minority youngsters are much less likely to participate in HE.

The development in “poor” countries is quite different. Here, the age cohort is increasing, with some exceptions like South Korea, and participation rates are increasing as well. Hence the use of the word “asymmetry” between rich and poor countries.

This is sketched in sections 2 (demography) and 3 (participation). International student mobility has been on the rise and presumably will continue to grow further (Ritzen, 2006). However, it is a mistake to assume that international mobility will continue to be a one way traffic from poor to rich countries as it is overwhelmingly now. “Poor”, but rapidly developing countries, like China, Singapore and Malaysia, are now quickly building up high quality HE capacity. This HE capacity might also serve other poor countries as well as attract students from rich parts of the world (see section 4).

The future flow of student mobility between rich and poor countries depends to a considerable extent on the way the quality of HE institutions in poor countries develops compared to that in rich countries. In section 5 we analyze that the innovation potential in poor countries is much higher than that in rich countries. This might reduce and – in the long run – even wipe out the present quality dominance of rich countries, in particular of the US.

The last section deals with the prevention of the perfect storm in rich countries’ HE.

Three lines are proposed:

- Raising participation rates in all types/provisions of HE. This becomes a matter of the highest economic urgency.
- Brain circulation rather than brain drain as the starting point for international student migration.
- Innovate, innovate, innovate. Government policy has to give universities the possibility for innovation. But universities also have to become themselves more innovative. In Europe, despite the Bologna Agreement and the ambitions of the Lisbon Agenda, European universities are in need of fundamental reforms (Jacobs and Van der Ploeg, 2006). Governments should become serious about the Bologna process and truly arrive at joint accreditation and quality control for all “Bologna” countries instead of doing this on a national basis. It also means releasing HE from public sector regulation and abandoning the tuition fee phobia (Ritzen, 2007)

2. Asymmetry in Demography

It has been well recognized that demographic developments between rich and poor countries differ substantially. While most rich countries experience a low population growth (with some countries soon facing a declining population), the population in poor countries is increasing rapidly. The baby bust in rich countries of the late sixties has increased the discrepancy further. The echo of the baby boom of the late forties is but a minor ripple in this trend. According to the 'Medium variant' of the UN Population division the population in rich countries is expected to grow from 1,19 billion in 2000 to 1,25 billion in 2020 (+ 5%), while the population in poor countries could grow from 5 billion in 2000 towards 6,5 billion in 2020 (+ 30%). This has consequences for HE. Figure 1 shows the size of the HE relevant age group in rich and poor countries in total numbers for the past 50 years.

[Figure 1]

In those past 50 years this demographic asymmetry has not translated itself into numbers of students, because it was compensated for by an asymmetry in participation. Participation rates in rich countries have risen much faster than in poor countries (see Figure 2).

[Figure 2]

The summary result of demography and relative participation is sketched in Figure 3.

[Figure 3]

It shows that driven by participation rates until around 1990 the number of students grew faster in rich than in poor countries, while the poor countries' demography gradually made the growth in student numbers catch up.

If we now look to the future we realize that this trend of higher growth of the number of students in poor countries to that in rich countries is going to continue and even to be accelerated. Figure 4 shows the HE relevant demography for the next 13 years.

[Figure 4]

This is not a crystal ball prediction: the group of youngsters participating in HE in 2020 is already born!

The exact translation of the future HE relevant age group into student numbers, of course, depends on how participation rates will evolve, and on the rate by which new target groups and other age groups then the traditional 18 – 24 years old are drawn into HE (lifelong learning).

3. Participation in Higher Education

There is vast literature supporting the commonly held notion that participation in HE is “a good thing” for the individual concerned. HE clearly gives better life chances: better employment opportunities, more interesting jobs, longer and healthier lives and higher incomes. This is captured by economists in the “human capital” theory: individuals (or their parents) “invest” in HE because the rate of return on the costs they make (income foregone and direct costs) is higher than that on other investments.

So why does not every one participate? There are three constraints to participation in HE:

- “Capital market imperfections”, as they are called, where parents or the individual can not afford HE, while a capital market for borrowing money to participate does not exist. In most rich countries this is no longer a significant constraint for participation. Also poor countries, in particular middle income countries, are working hard to eliminate “capital market imperfections” by means of scholarships (grants and loans).
- The perceived risk in succeeding based on secondary school experiences. HE demands a certain minimum level of cognitive, attitudinal and psychomotor abilities to succeed. These demands are translated into admission requirements for HE. It is not entirely clear what the maximum percentage of the relevant age group is which might qualify for admission to HE in a stable rich society, without capital market imperfections. The past has taught us that the percentage (gradually) moved upwards.
- Awareness and perceptions at home on the possibility to be admitted to HE as well as on the return to HE. ETS (2006) documents how high ability children of low income Latino immigrants achieve educationally far less than other children with the same ability.

In general, large segments of minority communities in rich countries have no experience within their immediate social circle with higher education and as a result consider it a “beyond reach” for their children, and the children for themselves. However, having said this, there is on the other hand the paradoxical situation that in the US there are growing expectations by high school youngsters to attain a bachelor degree (US Department of Education, 2004). While this trend is desirable, it is placing enormous accountability pressure upon colleges and universities to demonstrate that they are sustaining quality in the credentials they are awarding.

Or could it be that youngster’s fear that the rates of return on HE in the future might drop because there are too many graduates, fighting for a limited number of places? In the eighties many economist predicted doom on the wage rates of HE graduates as so many flocked into the labor market. Yet they ignored technological progress, which leads to a shift in the production function, making the production function more HE intensive. Tinbergen (1975) observed for the fifties and sixties this “race between education and technology”: a gradual shift in the “production function” in rich countries, making the economies more “HE or knowledge intensive” as a result of technology and creating a higher demand for HE graduates, which could easily absorb the increase in the numbers of graduates. The production function captures the different combinations of factors of production (physical capital, labor by level of education) which can lead to the same product, recognizing the degree of substitutability. A typical example is the constant elasticity of substitution production function. It has been recognized that production functions shift over time due to technological change.

The race between education and technology was clearly won in rich countries by technology until around the first oil crisis. Then there was a “sur place” between education and technology with a “wavering” in technological progress, while the number of HE graduates grew fast.

The rising relative wages of HE graduates world wide at the end of the nineties and into the 21st century is evidence of a decisive continuation of the lead of technology. The rise was slightly smaller in rich countries than in poor countries. This can easily be explained by the differences in the composition of the graduate labor force between rich and poor countries. In poor countries, in particular in Asia, many more students choose science and engineering studies – in line with the demand on the labor market.

Let us look more closely at the world wide shift in the “production function”. The question is whether the critical labor-market distinction is, and will remain, between highly educated (or highly skilled) people and less-educated (or less-skilled) people as Blinder (2006) argues: “The critical divide in the future may instead be between those types of work that are easily deliverable through a wire (or via wireless connections) with little or no diminution in quality and those that are not. And this unconventional divide does not correspond well to traditional distinctions between jobs that require high levels of education and jobs that do not.”

True as this might be, globalization and trade liberalization have wiped out many low education / low wage jobs in those sectors of rich countries where production can be easily moved away. It should not have come as a surprise that this would mean a shift towards HE intensive production in rich countries. But this holds also true for poor countries which are gradually moving out of poverty.

The good news on the development of the past five years has been that average growth rates (also in per capita terms) in many poor countries have exceeded those in rich countries. For the first time since the sixties there are signs of a convergence in per capita incomes of rich and poor countries, with the BRIC countries (except Brazil) and countries like Mexico and Turkey as leaders. To illustrate this further: the BRICs created 22 million jobs a year in 2000-2005 while OECD countries created only 3.7 million jobs according to the OECD Employment Outlook, 2007.

Poor countries can only grow if they are also able to shift their production function in the direction of that of modern economies (i.e. rich countries). This means an increase in the HE intensity of production in poor countries, like for rich countries. A shift towards more HE intensity in the production implies a higher demand for HE graduates and as a consequence, a higher wage rate. In other words, the participation rates in HE will world wide continue to be fuelled by high(er) rates of return to higher education.

Poor countries will see their participation rates rising as they can afford to remove gradually capital market imperfections and can exploit their pool of talent step by step. Projections on future numbers of HE students in poor countries may differ according to the assumption on the speed of the increase in participation. In another paper (Ritzen, 2006) I estimate that the number of students will increase from about 50 million in 2006 to 75 million in 2020, a growth mainly achieved by poor countries.

In most rich countries I would premise a conditional standstill in HE participation rates, despite the fuel of increasing rates of return. Conditional, because there might be policies which could increase the participation rate in HE.

Up to now, we have considered the demography of rich countries as homogeneous. Kirsch et al (2007) point to the heterogeneity as far as education is concerned. If one decomposes the demography of many rich countries, one notices a decrease in the original population and a sharp increase in the minority population. This is highly relevant for HE as participation rates of the minority population are substantially lower than those of the original population.

At the same time, these differences are not given by nature, but have a lot to do with the second and third reason for non-participation: awareness and perception at home on the possibility of admission to HE and on the returns to HE. For the low-income and/or minority part of the population the absence of a well informed image of what HE can contribute to the participant, and how accessible it is, leads presumably to lower HE participation rates, or even overall education participation.

Educational policy aimed at substantially increasing HE participation rates of the minority population is equivalent to “uncovering” in rich countries the pool of talent of minority youngsters. The participation of women of those minority groups is in particular of interest. The rapid rise in participation in HE in rich countries in the 60s and 70s was very much based on the increased participation of women in HE. To some extent the same exercise has to be repeated today with the female part of the minority population in rich countries. Many rich countries have some affirmative action plans to better motivate and prepare secondary school

students with a minority background to participate in higher education. The message here is that they need to be intensified and expanded.

However, for the time being, some elements of a perfect storm in rich countries remain threatening: increasing shortages of HE graduates in rich countries with a relative abundance of HE graduates in poor countries. This might be sufficient reason for international business to move footloose research facilities and other footloose HE intensive production towards poor countries.

It might also be sufficient reason to intensify the global competition for talent which might imply substantial brain-migration, but not only to the traditional rich countries. According to the OECD, China became last year the world's No. 2 investor in research and development after the United States with spending estimated at around US\$136 billion on R&D. It not only passed Japan's US\$130 billion, but it is also just two years away from catching up on Europe's level of spending on research and development as the EU Key Figures 2007 of June 2007 on R&D show.

4. International mobility

By now it is clear that the tempest is not uniform over the globe, but it is focused solely on rich countries (for a change). However, the ideal situation for both rich and poor countries is in the avoidance or mitigation of the tempest (section 6).

In this globalized world the damage of every tempest, however local, has contagion effects world wide.

Rich countries can mitigate the tempest by further improving the quality of their HE as well as the guarantee of public research. The EU has recognized this by formulating the Lisbon goals in 2000. Unfortunately its actual implementation is still to be awaited.

The further improvement of HE quality in rich countries depends by and large on the speed of adaptation and innovation in HE in those countries. Without fast adaptation, the effects will be visible in a shake-out of HE institutions, including widespread discontinuities in the existence of HE institutions.

The likely increase in the interest of students to study abroad might help in the transition. But this is only realistic as an expectation if HE in rich countries is able to retain a substantial quality lead. The next section deals with the quality discrepancy and the (lack of) innovation in HE in rich countries.

Most students prefer to study relatively close to home. This is convenient, makes it easy on social contacts and reduces costs. At the same time, the interest to study further away has

been increasing internationally, because such a study is seen to increase prospective life chances, thus off-setting the additional real and psychological costs.

Studying abroad has an added human capital value for the labor market which has become internationalized. In a recent survey, 80% of the alumni of European universities indicated that they work in an international setting (Borghans and Ritzen, 2006). This explains the interest, for example, to study in a university like Maastricht for both foreign and national students. Indeed, also national students will be better prepared for the international labor market if they study in an environment with 40% foreign students while using English as the language of communication.

Studying further away from home (whether in one's own country or abroad) has even more added value if that study simply is better organized and exceeds studies nearby in quality. Indeed, (perceived) quality differences are also a major reason for international student mobility, as is (for example) clearly expressed in the opinions of international mobile students (ACA, 2006).

International mobility can be limited by capital market imperfections if the (extra) costs of studying abroad cannot be borrowed. It might also be limited by admission restrictions, whether physical or psychological in the countries of potential designation. The psychological and visa restrictions which the US has imposed on entry in the country definitely are parts of the explanation for the decrease of foreign students in the US in the years after 2004, although it seems the international enrollments have stabilized according to the Open Doors Report of 2006 of the Institute of International Education. European HE is also at risk because of the deterrence of the visa requirements.

The situation of international student migration is depicted in Table 1, as far as foreign students in different countries are concerned (not where they are coming from). I have added a guesstimate in the last column for the total number of foreign students in 2020 (Ritzen, 2006).

[Table 1]

The number of foreign students grew even faster than that of the total number of students in the period 1990-2003. The estimate of 4,5 million international students might therefore turn out to be very conservative. The growth of foreign students originating from the BRIC countries (and for example, Indonesia, Mexico and Turkey) could indeed be helpful for the serious surpluses in places in rich countries. But this only happens if students want to go there because they believe that the quality is superior to study in another BRIC country. Chinese students take up the biggest portion of mobile students. While in the US in 2006 their number was up less than 1%, in the UK it decreased by 35% and in Canada (2004) it decreased by 34%. This might be evidence of the closing of the quality gap between China on the one hand and Canada and the UK on the other.

5. Innovation in HE

All rankings of universities bear out the fact that the distribution of high quality HE institutions is asymmetric between rich and poor countries. The World Bank report on Tertiary Education (World Bank, 2002) is further testimony to the plight of HE in many poorer countries. At the same time, there is a rising elite of high quality institutions in BRIC countries (especially in China and India), but also in Mexico and Turkey for example, propelled by the abundance of talent in their populations. For example, China with 20 million HE students today has already surpassed the US with its 15 million students. Also it should be realized that within rich countries, the US is far more dominant in HE than one would expect on the basis of the size of the population or the HE relevant population.

If there were world-wide rankings available in the beginning of the 20th century, they would likely have been dominated by European universities: Europe was leading in quality with the US as a stall wart. However, there has been a substantial development over that century in the relative quality differences: nowadays US institutions are dominating the top positions in every world-wide ranking. All of this suggests that the future of HE in the years to come is a matter of dynamics, fuelled by the powers of innovation (and investments).

Derek Bok (2006), the former President of Harvard University, complains about the lack of innovation in HE institutions in the US, in particular where teaching is concerned. In several rich countries university research clearly is increasingly responsive to the broader questions in society (including in business and including curiosity of the broader society). One still can question whether the innovation glass for research is more half empty than half full. Yet for teaching the verdict is easier: teaching has remained in many HE institutions virtually

medieval. This is compounded by the rankings which predominantly measure research output and reputation. The responsiveness of teaching to the changes in the needs on the labor market and to the new insights in effective learning has been limited, although the book of Bok has put the theme on the agenda.

The following text lists some items which are recorded as possible incentives for innovation in learning in universities:

- The labor market has changed considerably, with increasing attention within organizations on innovation brought about by teams. This has led to changes in the demand for combinations of cognitive, attitudinal and psychomotor skills, including for skills in communication, where ‘cogito ergo sum’ has been replaced by ‘communico ergo sum’.
- There are many new fields on the labor market, like the development of the internet, which ask for new HE courses. We know a lot about more and less effective ways of learning, yet even that this may depend on the characteristics of the student.
- Professor Hiroshi Komiyama (2006), the President of Tokyo University, points to the need for more helicopter learning to be effective on the labor market. Students are overwhelmed by trying to learn a vast accumulation of knowledge instead of providing them with a perspective giving a broad overview. This implies also students who are better prepared for the changing demands of the labor market.
- Companies like IBM to plead for the introduction of “trilingual” learning, i.e. a competency of at least a segment of the student population to be well informed about science, economics and the arts, as was pointed out by Gina Poole (2006), IBM’s Vice President, Innovation and University Relations.

This list does not purport to be complete.

Very few universities or colleges have taken these insights on and are using it into their education. The resistance to change and innovation exists in every organization, yet may be greater in organizations which are self-managed - as HE institutions traditionally are in many rich countries. With self-managed I mean that the leadership is selected by the peers and de facto remains in its context part of the peers. HE institutions run by deans and presidents elected from the faculty are bound to exhibit little innovative power, because their room for maneuver is limited.

Innovation can come more easily from new institutions which can start a fresh. Innovations in teaching are more likely to come from new institutions, other than research innovation, which often build on longer traditions and critical mass. Here is the asymmetry between rich countries with little or no room to start new institutions on the one hand, and poor countries which can quickly innovate in the face of the substantial increase in the number of students.

When European Commissioner Figel (2006) said that European HE has to change quickly if it is not to be overtaken by Chinese or Indian HE, he made a realistic statement. European Higher Education is a special case. Van der Wende (2007) documents the response of European HE to globalization. The Bologna agreement in 1999 and the following process have created the potential to create a “European Space” without information barriers, as the structure of HE has become more or less harmonized around a Bachelor/Master/PhD system. The Lisbon agreements also might give a boost to European HE, as it would imply substantially increased the (public) research spending. Yet, all of this may be too little, too late (Ritzen, 2007). “Bologna” was followed by national – rather than international - regulations on accreditation and quality control. And the commitment to Lisbon was simply

not realized, especially with regards to the R&D en HE investments, despite favorable economic circumstances.

Moreover, European HE is underfinanced (compared to US or Japanese HE), and tuition fee phobia prevents most countries from using private contributions (with good scholarships) to improve the plight. Lastly the European culture is adverse to differentiation, while differentiation within the supply of HE is essential to reach out to the diversity in the demand for HE.

Recently, the European University Association (2007) recognized the need for innovation through more attention for creativity. At the same time this report shows a clear lack of urgency.

6. Preventing a perfect storm

There should be every reason on the part of rich countries to prevent a perfect storm, because it is a storm which hits them. Poor countries might be willing to assist in this prevention if this would also serve their interests.

Rich countries might be inclined to rely on immigration of HE students and graduates as a solution. However, this is a short-lived solution as poor countries will resent such a brain drain. They will react by building up as fast as possible high quality HE institutions which can compete with or even out-compete HE institutions in rich countries, and continue to improve working conditions for HE graduates at home to increase the attraction to stay or to return.

The picture becomes decidedly different if the present brain drain could be transformed into a brain circulation. HE institutions in rich countries could be helpful to poor countries through capacity creation. Students of poor countries who migrate for studies to HE institutions in rich countries could be part of the potential faculty of newly emerging or expanding HE institutions in poor countries. Also graduates of rich countries HE education originating from poor countries might want to return to their home country after work experience abroad, because of attractive work conditions at home.

Experience on the labor market of rich countries by students from poor countries might contribute to the transfer of knowledge on business practices or manufacturing from rich to poor countries, if the graduate migrates back. India might be the example of a country which for decades suffered from brain drain to the US and the UK, but which now enjoys the fruits of brain circulation.

Circular migration or brain circulation requires more attention as win-win for poor and rich countries. It requires the trust of both sides that in the long run openness and mobility are good for both. It may also be facilitated by institutional arrangements in the home (poor) country and the (rich) country of study, for example by university to university agreements between rich and poor countries for capacity creation.

Circular migration is then a very partial solution for the expected surplus of HE places and the shortage in HE graduates in rich countries. Perhaps the UNU model proves to be a good example of a network within a network and could be of use here: different universities in different countries working together.

HE in rich countries has to remain attractive in order not to lose students to emerging HE institutions in emerging economies. This means that across rich countries far more attention should be given to the innovation of higher education in order to follow faster the developments on the labor market and the new insights in learning.

National governments have to facilitate their institutions to create favorable conditions to achieve these aims. However, this is not always the case, as the situation in Europe shows. The Bologna process has not brought about a common area because of the differences between nations in the implementation of the Bologna framework (e.g. accreditation and quality control). Europe's HE is still handicapped in innovation due to the fact that it is underfinanced and overregulated (in spite of reform efforts, HE institutions often still are part of a Government department, without appreciating the special characteristics). The

overregulation also implies limitations on creating the highly necessary diversity in HE supply.

This forces rich countries to reexamine their policies on equality of opportunity. These policies mostly were based on social aspirations, on idealism, on human dignity. Now they become an economic urgency. Rich countries have to boost the participation rates of those minorities which traditionally are underrepresented in HE.

This is no longer a utopian option. It is a must.

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Figure 1

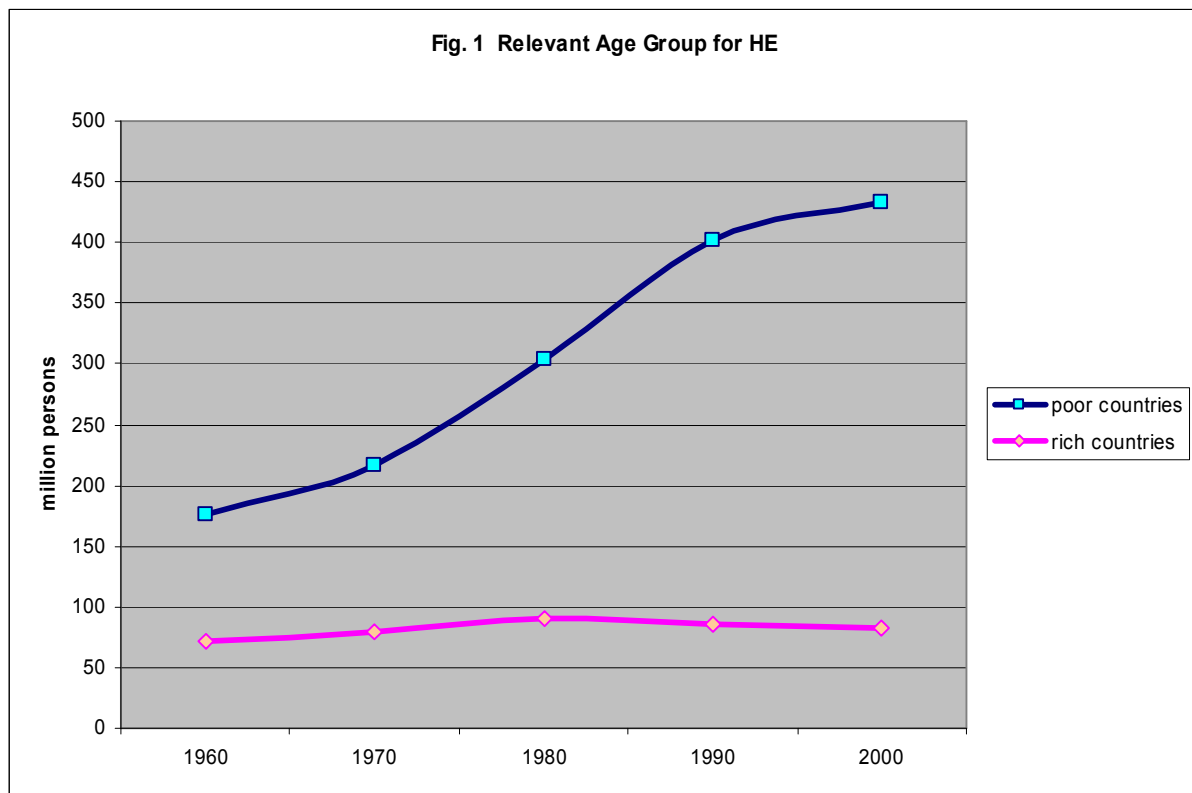


Figure 2

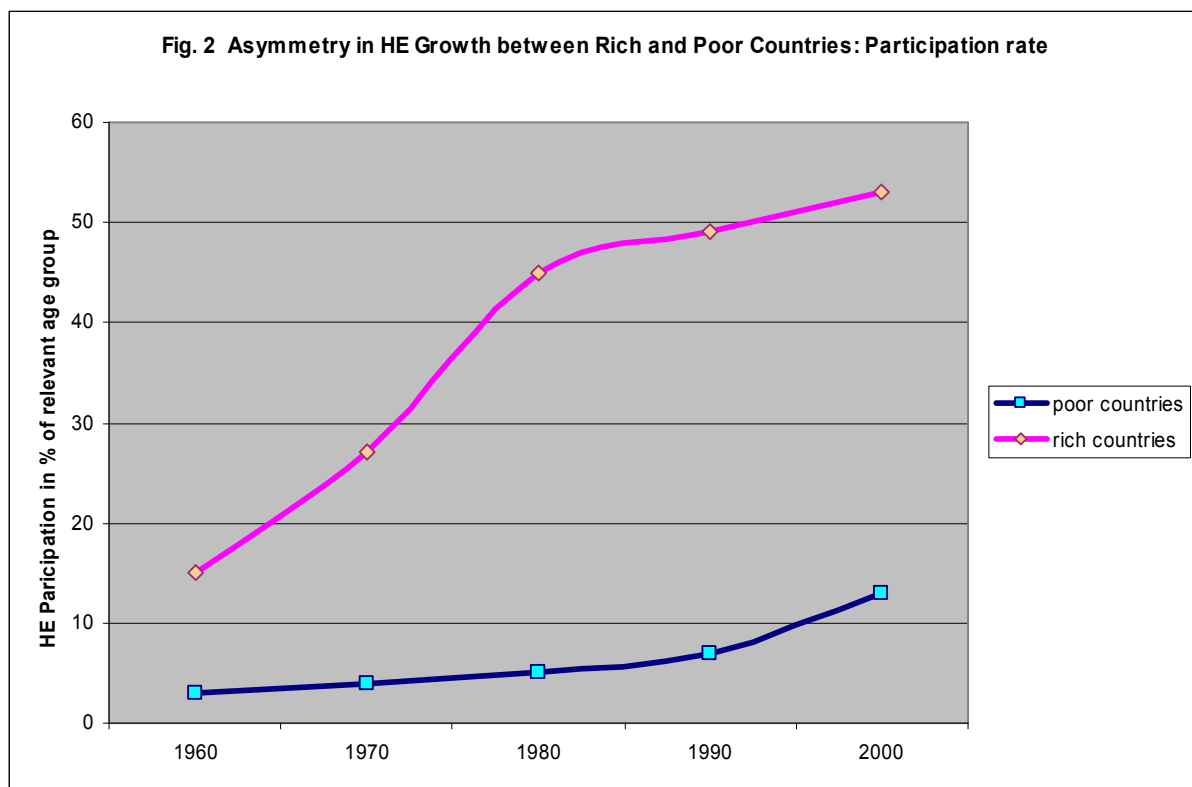


Figure 3

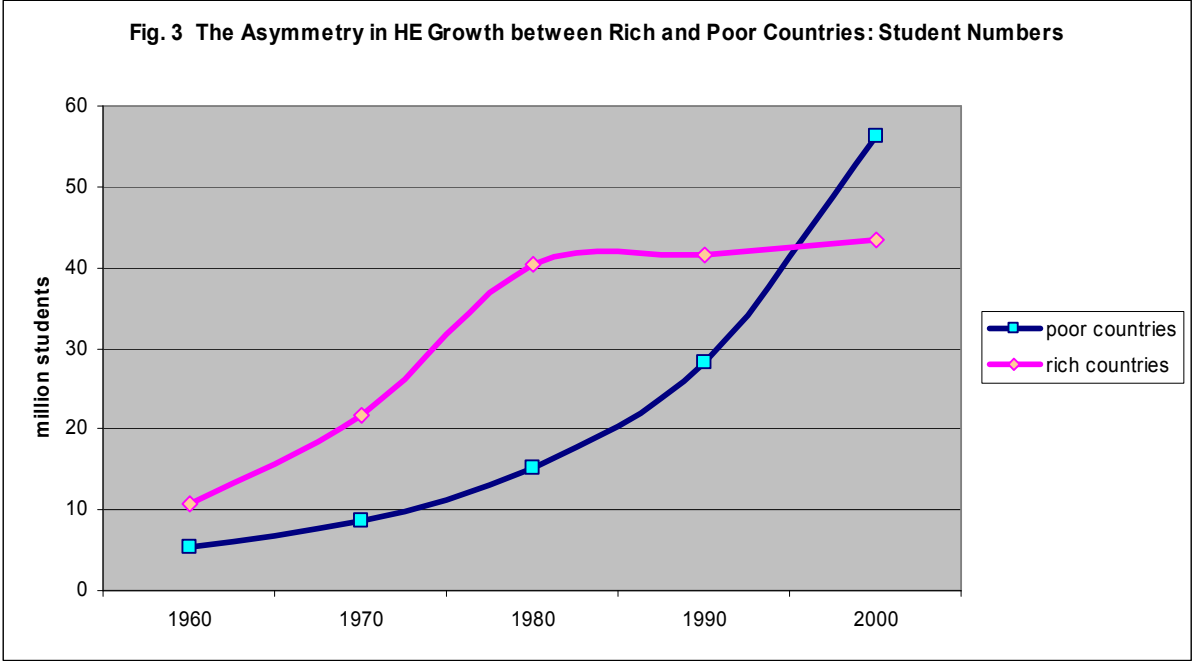


Figure 4

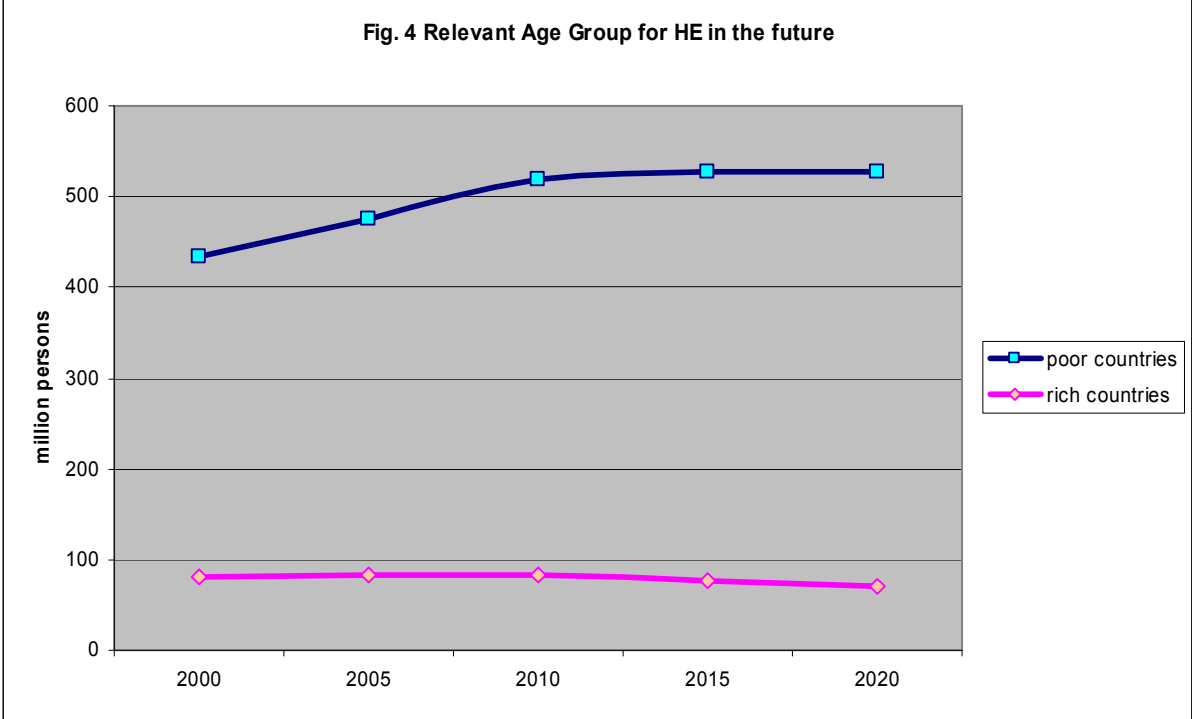


Table 1							
<i>Foreign students HE (millions)</i>	<i>1970</i>	<i>1980</i>	<i>1990</i>	<i>1999</i>	<i>2004</i>		<i>2020 guestemate</i>
	0,5	0,7	1,0	1,7	2,5		4,5 ?