Che Kabir Chaudhuri, 18, is one of the brightest final year economics and history students of Shri Ram School, Gurugram.

He is the author of the book Discover The Superhero in You, which has lessons from superhero comics for everyday life He has done a certificate program in 'Power and Responsibility: Doing Philosophy with Superheroes' under Christopher Robichaud of the Harvard Kennedy School.

He is a fine athlete who loves to play basketball and football. He plays the guitar and loves to draw. He is an avid cinema buff and plans to study filmmaking sometime in the future. He loves learning about subjects like science, atheism and socialism.


In his first month in the German Democratic Repubic in 1988
with a scholarship from the University of Calcutta, Malayendra Kisore Chaudhuri
sw a notice that said that the saw a notice that said that the
prices of many consumer goods prices of many consumer goods
were being reduced, while wages of certain categories of lowe wage workers were being
increased, due to the succe increased, due to the successful
implementation of certain fiveyear economic planning. He felt so inspired that he devoted
himself to studying National himself to studying Nation
Economic Planning and Management. He completed his MSc as a co-record holder and
did his PhD on 'Eradicating Unemployment by Developin Unemployment by Developing Cottage and Village
Industries' Industries'. In his theory, he provided for an 'Unemployment
Allowance for those who could not be absorbed in productive work in Industries, Agriculture and Services'. In 1970, he
completed his DSc on completed his DSc on
'Reforming International Monetary System'. He suggested the creation of International Currency (IC), backed by reserves of internationally traded commodities like fossil fuels, food grains, etc, to move away from the Dollar
ond
ond Standard, which was no longer backed by gold.
In India, he worked at XLRI, Jamshedpur, and IIM, Bangalore, as Professor of Economics. In 1973 , he founded The Indian Institute of Planning and Manageme
(IIPM). He is also the Founder-Director, Management Courses, Institute of (IIPM). He is also the Founder-Director, Management Courses, Institute of
Management Technology (IMT), Ghaziabad. In his lecture series at IIPM, he Management Technology (IMT), Ghaziabad. In his lecture series at IIPM, he
showed how a 14 per cent - or even higher - growth rate of GDP is possible by raising the living standards of people below the poverty line (which should be called he destitution line), while simultaneously achieving a wage ratio of 3:1 - the highest aid to the lowest paid worker - over a period of 25 years in a non-violent manner. He is the author of the Number 1 bestseller, The Great Indian Dream.

Read about the joint authors of the book in the inside flap.


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A FORCEFUL CASE FOR AN EXPLOITATION-FREE WORLD WITH A MAXIMUM WAGE RATIO OF THE

HIGHEST PAID TO
LOWEST PAID WORKER AT 3:1 The most relevant book to commemorate the 200th \& 100th birth anniversaries of Karl Marx and ILO
roduction of skills by means of skills A THEORY OF ECONOMIC JUSTICE

## Dr Arindam Chaudhuri is an author,

 antitheist and a PhD in Business from the University of Buckingham. He was the former Advisor to the consultative committee of the Planning Commission in the areas of Social Sectors and Education. He is also a recipient of three National Film Awards and has a Second Dan Black Belt in kick-boxing. With almost 5 million followers on Facebook, he is the world's most followed management icon and economist!He is also the Honorary Director of the IIPM Think Tank and teaches
Leadership and Economic Planning. His public seminars are a rage, with thousands attending. He has also spoken at HBS, Imperial College, etc. Since 2001, he has been presenting an annual Alternative Budget for India every year.

He is the Editor-in-Chief of The Sunday Indian, Business \& Economy, 4Ps Business \& Marketing and The Human Factor.

He has authored the Number 1 monster bestsellers Count Your Chickens Before They Hatch and Discover The Diamond in You. He is also the author of Planning India, Power Brands series of books and the best-selling books The Great Indian Dream, Thorns To Competition and Cult. He has been a columnist for about two dozen papers in India

WHAT MARX
LEFT UNSAID

# WHAT MARX LEFT UNSAID 

# PRODUCTION OF SKILLS BY MEANS OF SKILLS* 

A THEORY OF ECONOMIC JUSTICE

Dr. Malay Chaudhuri Dr. Arindam Chaudhuri Che Kabir Chaudhuri

## Also by <br> Dr. Malay Chaudhuri \& Dr. Arindam Chaudhuri THE GREAT INDIAN DREAM



Prof. Dr. h.c. Eva Altmann (1903-1991)
I dedicate this Treatise to Karl Marx, as the bicentennial of his birth (5th May 1818) is being celebrated everywhere even by those who do not agree with his theory. I also dedicate this to Prof. Dr. Eva Altmann, Founder Chancellor of my alma mater - Berlin School of Economics (HochschulefuerOekonomie, Berlin - Karlhorst, German Democratic Republic), who introduced me into the enigmatic world of Karl Marx.

Without the continuous inspiration from Ratna, my wife, I could not have finished this treatise on time. I dedicate this also to my daughter Arundhati and my daughter in law Rajita, who have always been an unending source of immense joy and inspiration.

I hope that in the coming years the basic idea of this treatise will be a footnote in Karl Marx's Das Capital

## Dr. Malay Chaudhuri

## For you, Baba

This book can't be dedicated to anyone else but you. You are the greatest teacher I have ever studied under. You are the greatest humanist that the world never really got to see - maybe it will get a glimpse through Che, as he grows up. I have never seen you loving anyone more since the turn of the millennium and I hope through him your vision of a great and equal society lives forever.

## Dr. Arindam Chaudhuri

For you, Mamma

## Che Kabir Chaudhuri

## ACKNOWLEDGEMENT

The authors are indebted to Piero Sraffa for his pathbreaking and stimulating ideas in Production of Commodities By Means of Commodities - Prelude to a Critique of Economic Theory (Cambridge University Press, March 1959). It will not be out of place if some Economists find similarities in our approach.

Dr. Malay Chaudhuri's experiences of learning as a student of Economic Planning and Management of National Economy in Berlin School of Economics (Hochschulefuer Oekonomie, Berlin - Karlshorst, German Democratic Republic), has immensely helped in developing the basic model.

The authors also acknowledges the support of Dr. Avijit Kar, Professor, Dept. of Computer Science, Ja-
davpur University, Kolkata, who helped during the formulation of the mathematical outline of the concept.

Any error or deficiency in presenting the concept, the responsibility lies only with the authors and no one else. The model required certain corrections and technical clarifications, which Dr. Kar could not do because of his academic and other engagements. The joint author of this book, Che Kabir Chaudhuri volunteered to rectify the errors. Che also simplified certain technical expressions so that any individual with very basic knowledge of mathematics can also easily understand.

Any suggestions to modify and improve the model are welcome.

## PREFACE

## Since Thomas Piketty's Capital in the Twenty First

 Century, published in 2013 (in English in March 2014), economists have developed renewed interest in Karl Marx - the greatest political economic thinker of our time. The Great Depression of 1930s was overcome and astounding economic affluence was achieved for majority of population in USA, Europe and in countries like South Korea, Singapore, and Malaysia within the political economic framework of Capitalism.The ideologues of Capitalism pronounced Karl Marx's irrelevance. Lord John Manyard Keynes' thinking played a key role in providing theoretical as well as practical policy structure in overcoming Great Depression.

However, technological advance has led to jobless growth. Globalization has created hundreds of billionaires and possibly will bring forth a dozen of trillionaires in the next 3 / 4 decades.

Milton Friedman, the champion of free market economy, dominated the thinking of Economists teaching in Western universities like Chicago and Harvard. Courtesy the Swedish Bank, the institution of Prize in Economics in memory of Alfred Nobel, in just 50 years (from 1969 onwards) around hundred economists became millionaires (Nobel Prize in Economics is worth around a million dollar) and almost all of them championed the cause of Capitalism even when they pointed out certain serious deficiencies. They suggested remedies. Few of them who are in queue for the Nobel Prize went to the extent of praising sincere humanitarian works of certain bil-
lionaire capitalists like Bill Gates and Warren Buffet as proof of superiority of capitalism. There are other billionaires who are praised sky-high for their commendable Charity Projects benefitting millions of people of the developing countries, saving them from fatal diseases like Aids, Malaria, etc., deliberately overlooking the fact that people like Bill Gates help creating illusion about the capitalist system. The capitalist system actually led to massive killings in World War II, piecemeal World War III - as Pope Francis described the present wars - right now raging throughout the Arab World. Capitalism is responsible for killing 2,500,000 Iraqis and more, massive murders in Syria and elsewhere. Saudi Arab is protected by USA and supplied with bombs worth billions of dollars, though it is well documented that Saudi Arab is the main patron of ISIS. Hardly any Nobel Laure-
ate in Economics ever point out the organic links between Capitalism and Wars. Wars add to the wealth of billionaires aspiring to become trillionaires in the quickest possible time.

Let us honestly admit that Capitalism is a negative sum game destroying trillions of dollars, killing millions of men, women and children while creating a few dollar billionaires here and there doing humanitarian work. It has destroyed merit-based democracy and accentuated concentration of wealth in the hands of $1 \%$ or $0.1 \%$ at the cost of miseries for millions in USA and billions of people around the world.

Surprisingly, almost all the Nobel Laureates in Economics are apologists of Capitalism. Having their bread so thickly buttered, they are not capable of thinking anything beyond smart criticism of Capitalism, believing in reformed Capitalism.

The book, "Capital in the Twenty First Century" draws on more than a decade of research by Thomas Piketty and a handful of other economists (with the likes of Berkeley's Emmanuel Saez), detailing historical changes in the concentration of income and wealth. This pile of data allows Thomas Piketty to sketch out the evolution of inequality since the beginning of the industrial revolution. Based on historical data of three centuries (18th, 19th \& 20th) of more than 20 countries, Thomas Picketty postulates that, when rate of return on capital ("r") exceeds the rate of growth of national output (GDP), as it did in the nineteenth century and seems quite likely to do again in the twenty first, Capitalism automatically generates arbitrary and unsustainable inequalities that radically undermine meritocratic values on which democratic societies are based.

With the likes of Jeremy Corbyn and Bernie Sanders in such prominence today, both in Great Britain and America, perhaps Thomas Piketty's work has stirred one of the most sought-after civilizational changes in history - where Capitalism borne inequalities will cease to exist and merit-based Socialism will take its place. After Donald Trump's role is exhausted, UK, USA and EU along with many other countries are likely to adopt socialist policies of North European countries like Sweden, Norway, etc.

Since extreme inequality is unacceptable and sacrifice of merit and democracy cannot be defended in the process of evolving humanized economic society, not only capitalists but also Capitalism is to be rejected. The alternative is Socialism, as defined by Karl Marx, which will incorporate the ethical principle "to each according to its (his/her) contribution"
and therefore exploitation of man by man will cease to exist.

However, Karl Marx did not suggest any method of measuring one's contribution to production of commodities.

Here in this treatise we have attempted to suggest one way to measure one's contribution. Let us hope ideas enunciated here will create debate and discussion and complement the efforts of people like Thomas Piketty, Jeremy Corbyn and Bernie Sanders (or their disciples)+ to bring about a more humane society.

[^0]
## Marx and Malay: <br> The forceful case for the removal of income inequality By Dr. Arindam Chaudhuri

An introductory note from a son and proud lifetime student of Dr. Malay Chaudhuri

As the world celebrates the 200th year of Karl Marx - the world's greatest thinker and philosopher ever - I am personally so proud to have the honour of being the co-author of this book, which if I were to write by myself alone, would have been named Marx and Malay. I will come to Malay Chaudhuri, my father, a bit later.

Let me first talk about the man voted by a end of the millennium BBC poll as the greatest philosopher of the last millennium - Karl Marx. The man whose
philosophy has had such a lasting and continuous impact that it won't be wrong to say that even today, 200 years after he was born, about $50 \%$ of this world has economies running on the basis of his philosophy. They have often had faulty implementation, - dictatorship (something that Marx never ordered) being the worst fault of all - but the fact is no other philosophy has had a greater impact on humankind ever. This despite, the humongous effort to tarnish it's image by the capitalist owned mass media.

Today if one were to look - as the leading economists and thinkers even from the current generation are unanimously agreeing- each and every prediction of his has come true about capitalism. As Marx had said, in his theory of historical materialism, societies pass through six stages - primitive communism, slave society, feudalism, capitalism, socialism and
finally global, stateless communism. One look at the best societies of today and we know the first four stages are over and they are now passing through the fifth stage of socialism. Be it Sweden, Norway, Canada, Belgium or even Germany capitalism is just a name that they still carry while their people pay incredibly high taxes and every citizen has equal rights to more or less free education and excellent health facilities. So much so, that today, a private enterprise is scared to enter these nations. After all, how do you compete against high quality excellent free facilities. The guaranteed unemployment benefits are such that youngsters are no more interested in doing a job for a few bucks more. Luxury brands are hardly getting a new generation that is interested in designer products. These societies are creating satisfied youngsters, chasing their passions, happy with the accom-
modation government provides, holidaying with the few bucks that their unemployment benefits provide and becoming better human beings since to get access to these benefits they are required to do various compulsory social work like helping old age people or people with special needs, for a few hours, daily. Even the not so generous countries like Japan and South Korea etc have terrific minimum social benefit programs. Needless to say these countries are right at the top of the human development index - year after year.

Marx's hatred for God and aim of destruction of religion is nearing completion in some of these societies. Norway, Sweden, Canada are nations with highest number of atheists. And all this have been achieved with the highest standards of democracy in these societies.

And now there is one stage that's left. The achievement of this throughout the world and finally global, stateless communism. Yes, specially with Trump and May there in two of the key economies of the world it all might seem too impossible. Yet, just imagine America was about to democratically elect one of the best human beings in their political environment ever - Bernie Sanders. And someone like him might soon be the President of USA. Jeremy Corbyn defeating May in Britain is also just a matter of time more than probability. And in a matter of couple of years you might have a totally different world.

In America and elsewhere as CEOs continue to earn monstrously more than their workers - in many companies 1000 times and more - which in effect means that a worker would need a thousand life times to earn as much as his CEO does in one lifetime, it is
becoming amply clear that every problem even today - from America to India - is about Marx's premise of class struggle. As he said "The history of all hitherto existing society is the history of class struggle," in the Communist Manifesto, co-written with Friedrich Engels and published in 1848. Today be it the plight of dalits and the marginalized in India or the struggle of the blacks to gain respect in America - despite their last president being Obama - is all about this class struggle. And these nations are seeing emergence of Marx's other principle of - 'Dictatorship of the proletariat'. Bernie stands behind this genuine possibility of the working class gaining control of political power in the USA. So does Corbyn in UK. From Germany to the Scandinavian countries near socialism prevails thanks to strong labour rights and movements, which essentially means dictatorship of
the proletariat, leaving capitalists and profiteers extremely frustrated.

Of course yes. In the name of dictatorship of the proletariat, the concept of brutal dictatorship of the politburo was practiced in the earstwhile USSR, China and many so called communist countries, which was and is inexcusably wrong. The fact is that forceful abolition of private property and the collectivisation of land resulted in millions of deaths, especially under Russia's Joseph Stalin and China's Mao Zedong, bringing disrepute to the word Communism.

But the Marxian slogan of workers (masses) of the world unite, and the theory that capitalism will self destruct into socialism through the forces of democracy is seen happening all around us. Thanks to the internet, today, it's shameful to be seen supporting ugly opulence. It's capitalists like Bill Gates, Warren

Buffett and Mark Zuckerberg who are spearheading the donate your wealth movement for a more equal world. Soon there will be a time when to be looked up at, people would be forced to give up their vulgar capitalistic traits as the united world of workers (commoners and majority of the masses) on the internet, would make them feel horrible about their existence. The need to take care of the dying and malnutritioned millions in the developing countries of Africa and rest of the third world is today, more than ever before. And Chinese capitalism is showing that the need for profiteering is making capitalists go and develop the African continent; For the fact remains that there will be no one to buy your products till you give purchasing power to the masses.

It is now beyond debate that the job of a state must be to promote equality by providing equal access to
education, health, employment opportunities \& unemployment benefits, dignity of living \& housing facilities and access to equal justice.

If there is unequal distribution of income through the market forces, then the income has to be taxed and taken away and used for genuine social causes. People must and would participate in such a process happily due to their altruistic side developed through better education. And anyone protesting against such humane thoughts are, and, eventually would be definitely looked down upon in a genuine and educated democracy.

And the man who made these humane thoughts a global movement through his philosophy was none other than Karl Marx.

Having said that let me now come to Malay. My father.

While Marx spoke of removal of exploitation of man by man, my father Malay spent his life trying to create a rational approach to calculating a person's worth in monetary terms, that can be practically followed. and this book is about that. That's why I said, had I written this book all by myself, I would have named this book Marx and Malay. Based on my father's original ideas, which I have had the pleasure of teaching at IIPM and building upon, this book of ours is a forceful case for an exploitation-free world with a maximum wage ratio of the Highest paid to Lowest paid worker at 3:1

I have grown up at home hearing from Malay Chaudhuri, my father, about his theory of production of skills by skills. Literally from my early childhood, just like my son, now, has been hearing it from him since he was in class 6th or so. Yes, my father
believes this theory can be taught to anyone; and he has taught me and my son the same since we were 11 or so.

What the theory basically says is simple. Human beings must earn as per their skills which determine their ability to contribute in a society. And skills must be measured fairly. All that we need, to produce skills, are two things. First, the readiness to sacrifice unskilled labour. That's what any man is capable of giving with basic education - unskilled labour. The second is certain skilled hours of a trainer. So, if one is a 12 th pass student and wants to become a graduate, the society loses on an entire lifetime of class 12th pass labour and has to invest three years of a skilled teacher's labour, to make the person a graduate. And in return, the society gets from this educated graduate, 45 years of a graduate's labour (assuming
the person is 20 years old and would go ahead and work till the age of 65) instead of, say, 48 years of a 12th class pass individual's labour. The underlying assumption of this theory is that every skill is more or less reproducible. And anything that is reproducible should have a price commensurate to its cost of production; or rather, more specifically, its opportunity cost to the society.

For example, if a person who starts working at the age of 15 is categorized as an unskilled labourer, he is typically supposed to have only passed (or failed) class 10th by then. Now, if we were to make him an engineer, what exactly does society lose and gain?

Society loses 50 years of 10th pass unskilled labour; that is, it loses around 100,000 hours in 50 years (assuming a person works for 8 hours a day and 250 days a year), and instead gets 44 years, or

88,000 hours of an engineer's labour. The society has to invest six extra years of skilled labour to make this individual an engineer. Assuming that the person has to study 500 hours per year, then in 6 years he has to study 3,000 hours. If the teacher (assuming he is also an engineer) teaches, say, 25 students in a class, then the society to create a single engineer has invested $3,000 \div 25=120$ skilled hours.

So what the case described above essentially means is that 100,000 unskilled hours of class 10th labour plus 120 skilled hours of investment to make an engineer equals 88,000 skilled hours of an engineer's labour. Or in other words, 100,000 unskilled hours $=$ 87,880 skilled engineer's hours. Or value of 1 skilled engineer's hour is equal to $100,000 \div 87,880$, or approximately 1.15 unskilled hours of a 10th pass student!!

Now, if we were to tell this to an engineer, he would literally freak out. But the fact of the matter is that as a society, that's approximately the engineer's worth. So, as per my above calculation, the maximum wage difference between an engineer and a tenth class pass person can only be 1.15:1.

In this book, what you will read is nothing but a more detailed and exact explanation of the same. For example, to teach the student for 500 hours, the teacher might himself need to do research of added 500 hours. Similarly, there are librarians, research associates etc who also invest their hours; and the actual hours invested, instead of being 500 , might be 1,500 or 3,000 . Perchance some teachers may have Ph.D qualifications, so their hours would be more valuable, and so on. The society might also need to invest in hostel facilities/scholarships etc.

Actually, the final figure with more detailed calculations of the hours invested by the society is far less ruthless than the calculations I have used here to explain the overall approach in a simplified form. It says that the maximum difference between wages can be $3: 1$. And if the cost of producing a scientist is only 3 times the cost of producing an ordinary labourer, then the scientist's salary should also be a maximum of 3 times more than that of the labourer.

While Karl Marx said every human being should be paid according to his contribution in the society, the lack of a measuring tool of contribution is what left his theory incomplete. How do you measure the contribution of a scientist who invents a life-saving drug versus the man who comes and cleans your toilet? Leave it in the hands of free market and the ratio could be anything between 10:1 to 1000:1 or more.

But the reality of the matter is that the only reason the sweeper is cleaning toilets is because he wasn't given perhaps as low as 5 to 7 years of extra education after, say, class 8th.

Post that, it's just a matter of chance which scientist invents what in the next how many years. This, of course, requires sacrifice of individual arrogance that "I am so capable because I am by myself special" and replacement of the same with "I am so good because I got the opportunity to be trained by teachers and develop my qualities".

To me, if the society believes this, then the theory outlined in this book is unbeatable and defines the foundation of a just society. In fact, every theory has a theoretical aspect and a psychological aspect. And I feel that even psychologically, a 3:1 ratio between the highest paid person and lowest paid person is a
very just feeling as well. In fact, it is something that is in any case bound to happen in a free market capitalist system eventually.

Surprised? As we drift towards an economy where education actually becomes free thanks to the Internet, soon we will have a situation where everyone could be educated and no one would want to do the job of low qualifications - say, that of a sweeper. And then we are bound to see a sweeper or driver getting paid more than an engineer. Because the market demand and supply decides prices in the free market. And with an over-supply of engineers and scarcity of sweepers, the sweepers would be costlier despite being less educated. Of course, this would eventually lead to disincentive in being educated. And finally we will have a perfect competition where engineers and sweepers will perhaps be paid the same; even if
the engineers are paid more, then the figure would be a psychologically acceptable 3 times more, unlike what it is now. The wage difference was skewed and differentiated till now in the world, as we know it, because education was restricted to a lucky few. So those with education could charge a super premium or what we call a monopolistic supernormal profit. As Internet brings about prefect competition in almost every sector, things are changing rapidly. Poverty is no more a reason for remaining uneducated. Remaining uneducated will soon be a conscious choice we will make. After all, getting educated requires a bit extra effort than remaining uneducated. So, many people actually would not mind earning a third of what a highly educated person earns and choose to not put in the extra efforts in education. However, if he sees that the educated man earns 5 to 10 times or

20 times more, and if education is freely available, in all probabilities, he will get educated and bring down the prices of the educated lot.

One might of course argue, what about entrepreneurs? This brilliant book answers that too. One might argue, what about people with the same qualifications but who have better skills due to harder work? Well, for that, there will be wage cuts depending upon your productivity. Not additional wages.

It must be pointed out that 3:1 ratio is applicable for those completing their education in a given year. This means that we assume that a class 8th pass worker and the most educated worker are starting their career in the same year. Then they should get a maximum differential of $3: 1$. However after 5 years when a new set of class 8th pass worker will join along with say a worker with a Ph.D., then they will
get again 3:1 though at that point of time the ones who had started 5 years back might be earning 3.3 and 1.1 due to additional experience or rather further education at work (assuming inflation has been adjusted for in both the cases). So at this point of time the wage ratio in the overall economy between highest paid worker and lowest paid worker will be 3.3:1.

However this 3.3:1 can't become infinitely more or b33:1 or 1,000:1 because, beyond a point more experience is not equal to more productivity specially in this age of technology. That's why corporations today opt for younger workers expecting lesser pay by replacing experienced people who are expecting a pay raise - more for additional years of experience (assuming inflation has been adjusted for in both the cases) than anything else.

This model thus draws an outline of education based fair pay. And the fact is all researches point out that education is the key differentiator when it comes to a person's income (experience is also in a way "practical education" and can be valued similarly and since we have established the cost of education to be so less it's clear this 3:1 ratio can hardly be changed much). And if that is so, then the most educated person most certainly doesn't deserve more than 3 times pay compared to the least educated person in a society.

One might ask, what about specially and uniquely talented people? Well, I firmly believe in a fair and just society; they will be very happy earning three times more, plus additional non-monetary rewards and recognition. That's what psychology says. No one has ever achieved greatness chasing money.

People achieve greatness chasing their passions. And what they expect in return is recognition, especially if they are financially as stable as their other friends whom they studied with.

We need to have a world where the difference in the lives of highest paid people and lowest paid should at the most be $3: 1$ irrespective of how highly qualified and creative the people at top might be feeling they are.

Earth would be a far better place with some human beings innovating and being more productive, either for just three times more income or for awards and recognition or just to take the human race forward; Than have such infinite scale inequality, millions dying of hunger and curable diseases while just $1 \%$ of the world's richest own more than $50 \%$ of the world's wealth in the name of competition and
innovation. We must never forget the reality of the world we live in, where, the bottom 70 percent of the working adult population of the world accounts for only $2.7 \%$ of the global wealth. Where, while the richest $8.4 \%$ of the world own $84 \%$ of the world's wealth, the remaining $91.6 \%$ of the world is left with the crumbs.

World can not be humane and equal if inequality of income remains. And inequality of income will remain till we don't have a world that fights for just remuneration for every individual - where there is wage equality wrt a person's ability to contribute. There was a time when women couldn't vote. Today such a concept is shameful and laughable just like the idea of public shooting or stoning of a criminal in a functional and humane democracy is. The day definitely is not be far away when living infinite times better
than others will be looked down upon and publicly shamed. Because with access to great education, the educated world of the future will have no human being who would consider another fellow human being so superior so as to deserve such infinite luxuries. In living like others and seeing everyone around us living with access to dignity as well as a fair share of luxury, is real happiness.

I am sure that whether you like or dislike the book, it will be hard for you to find a logical or humanitarian flaw within this treatise. Ever since I stepped into Malay Chaudhuri's classes way back in 1989, I have nurtured the dream of such a society. It's been a privilege for me to jointly author this book with him (and my son, Che, who brilliantly simplified the mathematical equations), the philosophy of which I have been teaching for more than two decades and
have been taking around the globe through my lectures on reducing wage inequality.

This cherished book reminds and inspires me yet again to dedicate the rest of my life to try and bring about a revolution around the world in order to make the dream of a fair world with $3: 1$ wage difference between the highest paid worker and the lowest paid worker, come true.

Hope you share the dream.

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## CHAPTER 1

## What Karl Marx Failed to say and its Consequences <br> in Arbitrary Practice in Socialist Countries

KARL MARX DEFINED
SOCIALISM AS A SOCIETY
WHERE EACH MEMBER WILL BE PAID ACCORDING TO HIS CONTRIBUTION. HE WAS HOWEVER SILENT ABOUT HOW TO MEASURE ONE'S CONTRIBUTION!

Karl Marx defined Socialism as a society where each member will be paid according to his/her contribution. He washowever silentabout how to measure one's contribution. When the revolutionaries faced the problem in USSR how to distribute the produced goods among different sections of society they felt difference in contribution can be taken care of, if the highest wage is ten times the lowest wage. Other groups' wages can be adjusted within the range of $1: 10.10$ was a beautiful number but nevertheless, an arbitrary number.

Chinese revolutionaries, to begin with, decided that if the highest pay is five times the lowest pay then there is
no exploitation in this society. Other groups' wages can be adjusted within the range of $1: 5.5$ is also an arbitrary number. Wages of other groups were fixed within this range quite arbitrarily. Albanians decided that the highest wage should not exceed twice the lowest paid workers.

We should not fail to mention that in all these societies certain elements of need oriented entitlements were incorporated, whether one contributes or not (for example, those who are handicapped - even when they could not contribute, they were taken care of). Which one is correct? An answer cannot be given unless one has solved the problem of measuring each individual's contribution in producing a commodity.

## CHAPTER 2

## Costs of Production of Skills: Quantitative and Qualitative Aspects

Hours spent in production process have two aspects: namely, quantity and quality of work. During an hour's work, quantum of work may differ on the basis of intensity of work done. Time and Motion study can help to approximately differentiate the quantum of work performed during a specific time period.

The other aspect is qualitative difference. Quality of work can be taken care of by the degree of skill needed to perform the work. Skills can be differentiated in terms of production costs of those skills.

Skills are imparted to trainees by teachers in a classroom / laboratory. Acquisition of skills requires training of different lengths of time. Some skills can be acquired in 1 year; other skills can be acquired in 10/20/30 years.

The following is an attempt to find out social costs of skills to be acquired through training of different lengths of time.

RELATIVE SOCIAL COST
OF DIFFERENT GRADES OFSKILLSTAKINGINDIA AS A CASE STUDY

## CHAPTER 3

## Relative Social Cost of Different Grades of

## Skills in India

Let us also clearly mention that here we are making an attempt to find the cost of production of different degrees of skills in Indian context. The same method may be applied to find out the cost in other countries. However this may differ from one country to another as per stages of economic development and the existing work-norms of a particular country. For example, in Europe, working hours in a week are around 35 hours. Annual working hours of a fully employed person (if we assume one works around 48
weeks a year) may come to $35 \times 48$, say around 1620 hours. This is actually $20 \%$ less than that of an Indian worker. Since on an average Europeans live longer than an Indian, they are able to work a few more years after they are 65. At the same time no European is allowed to work before they are 18, whereas in India one is legally employable after 14 . As a result, the cost of production and their contributions will also vary and so will the ratio between one's contribution with minimum qualification / training with the highest qualification.

## Relative Social Cost of Different Grades of Skill in India

According to Govt. of India, a person working 8 hours a day for 273 days of the year is regarded as employed on a standard person year basis. For our purpose we are assuming that a person who works 8 hours a day and 250 days a year, that is, 2,000 hours a year, he/she is fully employed. This assumption and many other assumptions below are result of a process of simplification to enable the reader to remember the figures easily. It may be mentioned here that such simplification does have little bearing on the conclusions that we shall arrive.

Indians retire from work normally at the age of 60 years and life expectancy at birth now is around 68 years. Considering that it was 59 years in 1990, we may safely assume that by the year 2020 life expectancy at birth will be around 70 years. On this basis we are assuming
here that an Indian will also be expected to work up to the age of 65 . Since a person is not allowed to work under 14 by the Factories Act 1948, the work life of an Indian is, therefore, 51 years $(65-14=51)$, say 50 years assuming 1 year has been lost during working life for training or due to illness or failure in class during training.

An Indian, therefore, works $100,000(8 x 250 \times 50=$ $100,000)$ hours in his working life of 50 years.

If a person wishes to acquire higher skill by undergoing one year's training in an educational institute / school, he works 49 years in his lifetime and not 50 years. He will therefore work in his lifetime $2,000 \mathrm{x} 49=980,00$ hours and not 100,000 hours. Similarly, for each additional years' training he will work 2,000 hours less. For example, if one undergoes training for 5 years after class VIII, he will work 45 years or $2,000 \times 45=900,00$ hours in his working life that is 2,000 hours less for each year's additional
training.
We may, therefore, state that each additional year's training means that the person is able to work in his working life $(100,000-n \times 2,000)$ hours, where " $n$ " stands for number of years of training.

Let us now see what is the cost of training in school/ college/ institute for each additional year of training.

Ministry of Human Resource \& Development, Govt. of India has laid down that classes in post graduate stage should be held at least 32 weeks a year. Number of classes to be held in each week differs depending on the course of study. It may be 15 hours a week for MBA level course in a very good institute. On an average, we may assume that at post graduate level 24 contact hours a week is normal. Let us apply this norm for education / training upto post graduate level after class VIII.

Therefore, number of classes held in each academic year
is $32 \times 24$ hours, that is, 768 hours a year. To simplify, we assume it is 750 hours a year. Let us also assume that for each contact hour in class a teacher has to study in library/ laboratory at least one hour. Therefore, for 750 contact hours in class, total teaching cost incurred is 750 $+750=1500$ hours.

Besides teaching costs, there are other costs involved to run the administration, establishment, etc. These costs are a mixed bag of skills of different grades. For reasons of simplification, let us assume these costs are equivalent to the same number of hours incurred in teaching costs and are also of the same grade of skill as that of the teachers involved.

Therefore, total cost involved for 750 contact hours in class is 1,500 skilled hours for a teacher plus another 1,500 skilled hours of the same grade as those of teachers for the establishment and administration etc.

Total cost is, therefore, $1500+1500=3,000$ skilled hours of the grade of a teacher.

The number of students varies from class to class depending on the subject and stage of education. Again, for reasons of simplification, let us assume that on an average, there are 30 students in a class. Therefore cost incurred per student for teaching a whole year is 3,000 hours divided by 30 , that is, 100 hours). Therefore, total cost is to be found by multiplying the direct teaching cost by a factor of 4 and dividing the same by the number of participant in a class.

## Let us find out teaching cost of each year of

 training:1) A teacher of class IX and $X$ must be a graduate and also must have one year's post graduate training in education. That means that the teacher has studied in all

16 years and has obtained B.A., B.Ed., or, B.Sc., B.Ed., or equivalent degrees. Cost incurred per student per year is 100 XVIth grade teacher's hours.

One, who has passed class IX, can work in lifetime: 100,000 hours $-1 \times 2,000$ hours $=98,000$ hours.

Therefore, to obtain 98,000 hours of IXth grade skill cost incurred is the cost of education for class IX, which is: 100 hours of XVIth grade skill.

One should also note that the society has to sacrifice in the process a lifetime of NSL (Non-Skilled Labour), that is, 100,000 VIIIth grade skill hours.

Therefore, to obtain 98,000 IXth grade hours the society has incurred total costs of 100,000 NSL + 100 XVIth Grade Skill Hours
: $\mathbf{A}, 98,000$ IXth Grade Skill Hours $=100,000$ NSL +100
XVIth Grade Skill Hours
[NOTE: Henceforth, we shall write XVIth Grade Skill

Hours as XVIth GSH ; XVIIth Grade Skill Hours as XVIIth GSH ; XVIIIth Grade Skill Hours as XVIIIth GSH ; XXIInd Grade Skill Hours as XXIInd GSH and so on]
2) One, who has passed class Xth, can work in his lifetime 100,000 hours $-2 \times 2,000$ hours $=96,000$ hours.

Cost of additional one year's education after education up to class IXth is another 100 XVIth grade teaching hours. Therefore, to obtain 96,000 hours of Xth grade skill hours total cost incurred is:

100,000 NSL +100 XVIth GSH +100 XVIth GSH
:., 96,000 Xth GSH $=100,000$ NSL +200 XVIth GSH
3) A teacher, who takes classes in class XIth and XIIth, must be a post graduate plus he must have one year's training in education. Also, he has studied XVIIIth grade, that is, he is M.A., B.Ed., or M.Sc., B.Ed., etc.

On the other hand, one who has passed class XI, can work
in his lifetime 100.000 hours $-3 \times 2,000$ hours $=94,000$ hours.
-•, to obtain 94,000 XIth GSH = 100,000 NSL+200 XVIth GSH + 100 XVIIIth GSH
4) Similarly, to obtain 92,000 XIIth GSH the total sacrifice is: 100,000 NSL +200 XVIth GSH +200 XVIIIth GSH
.•, 92,000 XIIth GSH = 100,000 NSL + 200 XVIth GSH + 200 XVIIIth GSH
5) In college, the faculty consists of M.A. /M.Sc. / M.Phil. and Ph.D. holders (to obtain M.Phil. Degree one has to study one year after M.A. M.Phil may, therefore, be described as XVIIIth grade skill. Ph..D. is awarded 4 years after M. Phil. Therefore, Ph..D. may be described as XXIInd grade skill. Let us assume that the composition of the faculty is $25 \% \mathrm{Ph} . \mathrm{D}$. holders $50 \%$ M.Phil. holders and 25\% M.A.s/M.Sc. holders. Therefore, each year in college costs 25 Ph.D. (XXIInd GSH) + 50 M.Phil. (XVIIIth

GSH) +25 M.A. / M.Sc. (XVIIth GSH) . Therefore to obtain 90,000 XIIIth G.S.H total sacrifice is: 100,000 NSL +200 XVIth GSH +200 XVIIIth GSH + 25 XVIIth GSH + 50 XVIIIth GSH + 25 XXIInd GSH Or,

100,000 NSL +200 XVIth GSH +25 XVIIth GSH +250
XVIIIth GSH + 25 XXIInd GSH
-•,90,000 XIIIth GSH = 100,000 NSL + 200 XVIth GSH

+ 25 XVIIth GSH +250 XVIIIth GSH +25 XXIInd GSH

6) Similarly, 2nd year in college gives us 88,000 XIVth GSH for which the total sacrifice is:

100,000 NSL + 200 XVIth GSH + 25 XVIIth GSH +
250 XVIIIth GSH + 25 XXIInd GSH + 25 XVIIth GSH

+ 50 XVIIIth GSH + 25 XXIInd GSH
0r,
88,000 XIVth GSH = 100,000 NSL + 200XVIth GSH +

50 XVIIth GSH + 300 XVIIIth GSH + 50 XXIInd GSH
7) To obtain graduate level skill that is $86,000 \mathrm{XV}$ th grade skilled hours the total sacrifice is:

100,000 NSL +200 XVIth GSH + 75 XVIIth GSH + 350
XVIIIth GSH +75 XXIInd GSH +25 VIIth GSH +50
XVIIIth GSH + 25 XXIInd GSH
Or,
86,000 XVth GSH $=100,000$ NSL +200 XVIth GSH + 75 XVIIth GSH + 350 XVIIIth GSH + 75XXIInd GSH
8) Next, to obtain XVIth grade skilled hours that is first year of Master's level, let us assume the faculty in the university consists of $50 \% \mathrm{Ph} . \mathrm{D}$. holders and $50 \%$ M.Phil. holders. Therefore, each year of education at the university level costs 50 XXIInd grade teaching hours and 50 XVIIIth grade teaching hours.

Therefore, to obtain 1st year of university level, that is, 84,000 XVIth grade skilled hours one has to sacrifice:

100,000 NSL +200 XVIth GSH +75 XVIIth GSH + 350 XVIIIth GSH + 75 XXIInd GSH + 50 XVIIIth GSH + 50 XXIInd GSH Or,

84,000 XVIth GSH= 100,000 NSL + 200 XVIth GSH

+ 75 XVIIth GSH +400 XVIIIth GSH +125 XXIInd GSH

9) Similarly, to get a Masters level skill, that is, 82,000 grade skilled hours of XVIIth grade the society has to sacrifice:

100,000 NSL + 200 XVIth GSH + 75 XVIIth GSH + 400
XVIIIth GSH + 125 XXIInd GSH + 50 XVIIIth GSH +
50 XXIInd GSH
Or,
82,000 XVIIth GSH = 100,000 NSL + 200 XVIth GSH

+ 75 XVIIth GSH +450 XVIIIth GSH +175 XXIInd GSH

10) Since M.Phil. classes are taken only by teachers having Ph.D., we obtain 80,000 M.Phil. hours or XVIIIth grade skilled hours for another 100 XXIInd grade teaching, so that the total sacrifice is:

100,000 NSL +200 XVIth GSH +75 XVIIth GSH +450
XVIIIth GSH + 175 XXIInd GSH + 100 XXIInd GSH
Or,
80,000 XVIIIth GSH = 100,000 NSL + 200 XVIth GSH + 75 XVIIth GSH + 450 XVIIIth GSH + 275 XXIInd GSH
11) Following assumptions for a Ph.D. curriculum have been made from our long experience in research.

The curriculum is usually of 4 years duration after M.Phil. (XVIIIth GSH). Ph.D. level skill is, therefore, equivalent to XXIInd GSH.

## This XXIInd grade skill is achieved after going through the following stages of training:

(a) In the first year Ph.D. candidates are to attend small
group classes. There are 3 hours class, 5 days a week and 32 weeks a year. Therefore, contact hours are $3 \times 5 \times 32=$ 480 hours in the first year. There are say, 5 candidates in a group. Therefore, direct teaching hour per candidate in the first year is $480 \div 5=96$ hours, say 100 hours. Inclusive of indirect costs, the costs in the first year per candidate come to 400 hours. Classes in this case are taken by D.Sc. level teachers, who are already $\mathrm{Ph} . \mathrm{D}$ holders with about seven years of research-level experience. D.Sc. Hours can be described as XXIXth GSH.
(b) A Ph.D. candidate must also meet his guide on one to one basis for consultation on an average of 3 hours a month, 8 months a year. The guide should be of D.Sc. standard. Therefore, direct cost on this account comes to $3 \times 4 \times 8=96$ hours, say 100 hours in 1 year. Inclusive of indirect costs, total cost on this account comes to 400

## XXIXth GSH.

(c) A Ph.D. candidate has to attend seminars of 6 hours a month, 8 seminars a year. There are about 15 participants on an average. Therefore direct cost due to seminar in a year is $6 \times 8 \times 15=720$ hours (say 750 hours) a year. Cost in four years comes to 3,000 hours a year. Therefore, total cost (including indirect cost) comes to 3,000 hours x $4=12,000$ hours in 4 years. Composition of seminar participants is assumed to be $50 \%$ from Ph .D. candidates (those who have completed M. Phil.), 25 \% Ph.D. holders and 25 \% D.Sc. holders.

Therefore, cost due to seminar is 6,000 M.Phil. Hours (XVIIIth GSH) $+3,000 \mathrm{Ph} . \mathrm{D}$. hours (XXIInd GSH) + 3,000 D. Sc. Hours(XXIXth GSH).

Therefore, the sum of the above three categories of costs is $3800(\mathrm{a}+\mathrm{b}+\mathrm{c})$ D.Sc. Hours (XXIXth GSH) + 6,000 (50\%
of 12,000 hours) M.Phil. Hours (XVIIIth GSH) $+3,000$ (25\% of 12000 hours) Ph.D. hours (XXIInd GSH) + $3,000(25 \%$ of 12,000 hours) D.Sc.( XXIXth GSH)

It is to be noted that during Ph. D. curriculum of 4 years, a candidate takes classes for 3 hours a week and 32 weeks a year. Therefore the candidate teaches in 4 years about $3 \times 32 \times 4=384$ (say 400) hours of M.Phil. Standard (XVIIIth GSH).

A Ph. D. can work 100,000 hours $-14 \times 2,000$ hours $=72,000$ hours in his working life after Ph.D. He has, however, taken 400 hours classes of M. Phil. standard during Ph.D. course. Therefore, his total contribution to society is 400 M . Phil. hours $+72,000 \mathrm{Ph}$.D. hours or 400 XVIIIth GSH + 72,000 XXIInd GSH.

Therefore, total sacrifice to obtain 72,000 XXIInd GSH
+400 XVIIIth GSH $=100,000$ NSL +200 XVIth GSH +
75 XVIIth GSH + 6,450 XVIIIth GSH + 3,275 XXIInd

GSH $+3,800$ XXIXth GSH
12) During research for D.Sc., a candidate attends one seminar of 6 hours duration in a month, 8 seminars a year. There are 15 participants in a seminar. The composition of these seminars is $50 \% \mathrm{Ph} . \mathrm{D}$. participants and another 50 \% having D. Sc.

Therefore, direct seminar cost is $6 \times 8 \times 15=720$ hours a year.

Or, in 7 years: $720 \times 7=5040$ hours, say 5,000 hours. Inclusive of indirect costs it come to $4 \times 5,000$ hours $=$ 20,000 hours.

Assuming equal participation of Ph.D. holders and D.Sc. holders, the cost is $100,00 \mathrm{Ph}$.D. hours plus 100,00 D.Sc. hours.

It is to be noted that during these 7 years a candidate for D.Sc. also takes 5 hours class per week for 32 weeks a year, therefore, he takes $5 \times 32 \times 7=1120$, say 1,100 hours
of Ph.D standard.
A D.Sc. can work $100,000-21 \times 2,000$ hours $=58,000$ hours in working life after D.Sc. As noted earlier, during his Ph.D. days he contributed 400 hours of XVIIIth level.

Therefore, his total contribution to society is:
58,000 D.Sc. hours (XXIXth GSH)+ 1100 Ph.D. hours (XXIInd GSH) +400 M . Phil hours (XVIIIth GSH).

The total costs for obtaining the above are, 100,000 NSL + 200 XVIth GSH +75 XVIIth GSH $+6,450$ XVIIIth GSH + 13,275 XXIInd GSH + 13,800 XXIXth GSH.
-•, 58,000 XXIXth GSH + 1,100 XXIInd GSH +400
XVIIIth GSH $=100,000$ NSL +200 XVIth GSH +75
XVIIth GSH + 6,450 XVIIIth GSH + 13,275 XXIInd GSH $+13,800$ XXIXth GSH

## To sum up the above equations of $\mathbf{1 2}$ categories of skill

## (12) XXIXth grade skill (D.Sc.)

To obtain 58,000 XXIXth GSH + 1,100 XXIInd GSH + 400 XVIIIth GSH

Total costs $=100,000$ NSL +200 XVIth GSH +75 XVIIth GSH $+6,450$ XVIIIth GSH + 13,275 XXIInd GSH + 13,800 XXIXth GSH
(11) XXIInd grade skill (Ph.D.)

To obtain 72,000 XXIInd GSH + 400 XVIIIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +75 XVIIth
GSH $+6,450$ XVIIIth GSH $+3,275$ XXIInd GSH $+3,800$ XXIXth GSH
(10) XVIIIth grade skill (M. Phil.)

To obtain 80,000 XVIIIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +75 XVIIth

GSH +450 XVIIIth GSH +275 XXIInd GSH
(9) XVIIth grade skill (M.A. / M.Sc.)

To obtain 82,000 XVIIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +75
XVIIth GSH +450 XVIIIth GSH + 175 XXIInd GSH
(8) XVIth grade skill(B.A. / B.Sc. B.Ed.)

To obtain 84,000 XVIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +75
XVIIth GSH+ 400 XVIIIth GSH + 125 XXIInd GSH
(7) XVth grade skill (B.A.)

To obtain 86,000 XVth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +75
XVIIth GSH +350 XVIIIth GSH +75 XXIInd GSH

## (6) XIVth grade skill:

To obtain 88,000 XIVth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +50 XVIIth GSH + 300 XVIIIth GSH + 50 XXIInd GSH

## (5) XIIIth grade skill (B.T.)

To obtain 90,000 XIIIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +25 XVIIth
GSH + 250 XVIIIth GSH + 25 XXIInd GSH

## (4) XIIth grade skill (H.S)

To obtain 92,000 XIIth GSH
Total costs $=100,000$ NSL +200 XVIth GSH +200
XVIIIth GSH

Total costs $=100,000$ NSL +200 XVIth GSH +100
XVIIIth GSH

## (2) Xth (Secondary)

To obtain 96,000 Xth GSH
Total costs $=100,000$ NSL +200 XVIth GSH
(1) IXth grade skill

To obtain 98,000 IXth GSH
Total costs $=100,000$ NSL +100 XVIth GSH

## (3) XIth grade skill

To obtain 94,000 XIth GSH

This set of 12 equations has 13 unknowns, namely, the costs of one unit of NSL, one unit of IX, one unit of X etc. From them we now proceed to find the ratios of the costs at various levels since finding them individually is not possible.

Bringing all terms of (12) and (11) to the left of equal sign and then solving between them:
(Henceforth, we shall write XXIX in place of XXIXth GSH and so on )

13,800 XXIX + 13,275 XXII + 6,450 XVIII
+75 XVII +200 XVI $+100,000$ NSL -
58,000 XXIX- 1,100 XXII - 400 XVIII
$=$
3,800 XXIX + 3,275 XXII + 6,450 XVIII
+75 XVII +200 XVI $+100,000$ NSL

- 72,000 XXII - 400 XVIII

Or,
$80,900 \mathrm{XXII}=48,000 \mathrm{XXIX}$
Or,
XXIX GSH / XXII GSH $=1.69$

## Similarly, from (11) and (10) we get:

3,800 XXIX + 3,275 XXII + 6,450 XVIII + 75 XVII + 200XVI
$+100,000$ NSL - 72,000 XXII - 400 XVIII
$=$

275 XXII + 450 XVIII + 75 XVII + 200 XVI
$+100,000$ NSL - 80,000 XVIII
Or,
3,800 XXIX $+(3,000-72,000)$ XXII +
$(6,000-400+80,000)$ XVIII $=0$
Or,
$3,800 \div 1.69$ XXII $-69,000$ XXII $+85,600$ XVIII $=0$
using (A)
Or,

```
62,578 XXII = 85,600 XVIII
Or,
XXII / XVIII = 1.28
```


## Similarly, from (10) and (9) we get:

```
275 XXII +450 XVIII +75 XVII
+ 200 XVI + 100,000 NSL - 80,000 XVIII
\(=\)
175 XXII +450 XVIII +75 XVII +
200 XVI + 100,000 NSL - 82,000 XVII
Or,
XXII +820 XVII \(=800\) XVIII
Or,
( \(800-1 / 1.28)\) XVIII \(=820\) XVII
Using (B),
\(1 / 1.28=0.78125\)
Or,
\((800-0.78125)\) XVIII \(=820\) XVII
```

```
(799.21)XVIII = 820 XVII
XVIII / XVII = 820 / 799.21 = 1.026,
Or, 1.03

\section*{Similarly, from (9) and (8) we get:}
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175 XXII + 450 XVIII + 75 XVII + 200 XVI

+ 100,000 NSL - 82,000 XVII
=

```
125 XXII +400 XVIII +75 XVII +
200 XVI + 100,000 NSL - 84,000 XVI
Or,
\(50 / 1.28 \times 1.03+50 / 1.03\)
XVII \(=82,000 \mathrm{XVII}-84,000 \mathrm{XVI}\)
Using (B) and (C)
Or,
\((82,000-48.54-37.92) \mathrm{XVII}=84,000 \mathrm{XVI}\)
Or,
XVII/XVI \(=84,000 / 81,913=1.03\)

Or,
(86,000-45.75-17.87-23.56) XV
\(=88,000\) XIV using \((B),(C),(D) \&(E)\).
Or
85,912.82 XV = 88,000 XIV
Or
\(\mathrm{XV} / \mathrm{XIV}=1.0242\) 0r, 1.02
Similarly, from (6) and (5) we get:
50 XXII +300 XVIII +50 XVII +
200 XVI + 100,000 NSL - 88,000 XIV
\(=\)

25 XXII + 250 XVIII + 25 XVII
+200 XVI + 100,000 NSL - 90,000 XIII
Or,
88,000 XIV - 25 XXII - 50 XVIII -
25 XVII \(=90,000\) XIII
\([88,000-25 /(1.28) \times(1.03) 3 \times(1.02)-\)
\[
\begin{aligned}
& 50 /(1.03) 3 \times(1.02)-25 /(1.03) 2 \times(1.02)] \text { XIV } \\
& =90,000 \text { XIII using (B), (C), (D), (E) \& (F). } \\
& \text { Or, } \\
& (88,000-17.52-44.85-23.10) \text { XIV }-90,000 \text { XIII } \\
& \text { Or, } \\
& \text { XIV / XIII }=9,000 / 87,914.53=1.02 \\
& \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots . .(\mathrm{G})
\end{aligned}
\]

Similarly, from (5) and (4) we get:
25 XXII + 250 XVIII +25 XVII +
200 XVI + 100,000 NSL - 90,000 XIII
\(=\)

200 XVIII +200 XVI \(+100,000\) NSL - 92,000 XII
Or,
25 XXII + 50 XVIII + 25 XVII - 90,000XIII
\(+92,000 \mathrm{XII}=0\)
Or,
\([90,000-25 /(1.28) \times(1.03) 3 \times(1.02) 2-50 /(1.03) 3 x\)
```

(1.02)2 - 25/(1.03)2 x (1.02)2
XIII = 92,000 XII using (B) ... (G)
Or,
(90,000-43.98-17.18-22.64) XIII = 92,000 XII
Or,
XIII/ XII = 92,000 / 89,916.20 = 1.02
(H)

```

Similarly, from (4) and (3) we get:
200 XVIII +200 XVI \(+100,000\) NSL - 92,000 XII \(=\)

100 XVIII +200 XVI \(+100,000\) NSL \(-94,000\) XI
Or,
100 XVIII - 92,000 XII + 94000 XI
\(=0\)
Or,
\((92,000-100 \div 1.033 \times 1.023) \mathrm{XII}=94,000 \mathrm{XI}\) Using
(C) \(\ldots \ldots\). (H)
```

Or,
XII / XI = 94,000 / 91,913.77 = 1.02

## Similarly, from (3) and (2) we get:

```
100 XVIII +200 XVI \(+100,000\) NSL - 94,000 XI \(=\)
200 XVI + 100,000 NSL - 96,000 X
Or,
100 XVIII - 94,000 XI + 96,000 X = 0
Or,
\((94,000-100 \div 1.033 \times 1.024) \mathrm{XI}=96,000 \mathrm{X}(\mathrm{C})\)
Or,
XIth \(/\) Xth \(=96,000 / 93,915.45=1.02\)

\section*{Similarly, from (2) and (1) we get:}
```

200 XVI + 100,000 NSL - 96,000X -
100 XVI + 100,000 NSL - 98,000 IX
Or,
100 XVI - 96,000 X + 98,000 IX = 0

```

Or,
\((96,000-100 \div 1.03 \times 1.025) \mathrm{X}=98,000\) IX using (E)
\(\qquad\)
Or,
\(\mathrm{X} / \mathrm{XI}=98,000 / 95912=1.02\)

\section*{And finally writing (1) again:}

100 XVI \(+100,000\) NSL \(=98,000\) IX
And substituting from (E), \(\qquad\) (K)
[98,000-100 \(\div(1.03 \times 1.026)]\) IX - 100,000 NSL
Or,
IX / NSL = 100,000 / 97,913.79 = 1.02

The contribution of different skills with respect to the Non-skilled labour (NSL) are summarized below:
D.Sc.
i.e., \(\mathrm{XXIX}=2.70 \mathrm{NSL}\), say 3

Ph.D.
i.e., \(\mathrm{XXII}=1.60 \mathrm{NSL}\)
M.Phil.
i.e., \(\mathrm{XVIII}=1.25 \mathrm{NSL}\)
M.A/ MTech / MSc / MBA
i.e., \(\mathrm{XVII}=1.22 \mathrm{NSL}\)

BA, B.Ed / B.Tech
i.e., \(\mathrm{XVI}=1.20 \mathrm{NSL}\)
B.A. / B.Sc. Final Year
i.e., \(\mathrm{XV}=1.15 \mathrm{NSL}\)
B.A / B.Sc. 2nd Year
i.e., \(\mathrm{XIV}=1.12 \mathrm{NSL}\)
B.A. / B.Sc. First Year
i.e., \(\mathrm{XIII}=1.10 \mathrm{NSL}\)
H.S.
i.e., \(\mathrm{XII}=1.08 \mathrm{NSL}\)

XIth
\(\mathrm{XI}=1.06 \mathrm{NSL}\)

Secondary
i.e., \(X=1.04\) NSL

IXth
i.e., \(\mathrm{IX}=1.02 \mathrm{NSL}\)

\section*{CHAPTER 4}

\section*{A Mathematical Model for Comparative valuation of skills}

The cost of imparting training and the corresponding returns give rise to a set of simultaneous linear equations. In a 12 stage problem none of the twelve equations have any free term, i.e. term without unknown. Such a system is called a homogeneous system and do not have a unique solution. However, finding relative values do not pose a problem, so that one can easily find out the ratios XXIX / XXII, XXIII / XVIII, ..... X / XI, IX . NSL. Using them together, one can easily find out the relative weightage of any stage of skill with respect to NSL.

We can write the 12 equations in a more compact form as \(C Z=R Z\), where C is the cost matrix, R is the return matrix and Z , the stage vector. The rows of C contain the costs of training of NSL, IX, X, ... XXIX bottoms up i.e. from the last row upwards. Similarly, the rows of R contain the corresponding returns.
\(\square\)


By way of illustration, we get the equation for XXIX level by multiplying the first row of \(C\) by \(Z\), element by element, and then multiplying the first of \(R\) by \(Z\), element by element and then equating the two expressions.


13800 XXIX + 13275 XXII + 6450 XVIII +
75 XVII +200 XVI +100000 NSL \(=\)
58000 XXIX + 1100 XXII +400 XVIII

Similarly, to get the equation for IX level, multiply the last row of \(C\) by \(Z\) and the last row of \(R\) by \(Z\) and then equate the two expressions.


We now want to make an interesting observation and also show that the costs of training rise, indeed very slowly from year to year. The cost in every row of \(C\) is basically some addition over the cost in the row below. Similarly the returns, which mostly are


We formalize the observations as a recursive relation, \(\mathbf{R}\) [present_stage] \(\mathbf{Z}=\mathbf{R}\) [previous_stage] \(\mathbf{Z}+\mathbf{I}\) [present_stage] Z

And
R [NSL] = BL
Also, B (present_stage)
\(=\mathbf{B}(\mathbf{N S L})-\mathrm{Y} \times\) ( Ipresent_stage I - I NSL I )
With B (NSL) = BL, where Y-2,000, yearly working hours as calculated at the outset and \(B L=100,000\), NSL working life in hours.
present_stage, previous_stage are members of [XXIX, XXII, ...., X, IX, NSL]

We have taken the liberty of interpreting the difference I present_stage I \& I NSL I numerically in the expression for \(B\), that is, \(I\) XXIX \(I=29\), I XXII I = 22, ..... I NSL I = 8

\section*{Note 1:}

R: Return matrix,
E: Incremental Cost Matrix,
Z: Stage Vector
Note 2:
B: Basic Return of any grade return, for eg: return of IX / X /XI ,etc.

BL: Basic Return of Non Skilled Labour (NSL),

\section*{Y: Yearly Output}


Rows of E are obtained by subtracting from the contents of the corresponding rows of C , the contents of their earlier rows. For example, E [XXIX] \(=\mathrm{C}[\mathrm{XXIX}]-\mathrm{C}[\mathrm{XXII}]\); I \([\mathrm{XXII}]=\mathrm{C}[\mathrm{XXII}]-\mathrm{C}[\mathrm{XVIII}], \ldots ., \mathrm{I}[\mathrm{IX}]-\mathrm{C}[\mathrm{NSL}]\).

We can, therefore, easily get the rows of C from the rows of \(E\) and thus our 12 cost - return equations.

Using now the recurrence relation, the return at XXIX level is
\(\mathrm{R}[\mathrm{XXIX}] \mathrm{Z}=\mathrm{R}[\mathrm{XXII}] \mathrm{Z}+\mathrm{I}[\mathrm{XXIX}] \mathrm{Z}\)
Or,
\(\mathrm{B}(\) XXIX \()+1100\) XXII +400 XVIII \(=\mathrm{B}(\) XXII \()+400\)
XVIII + 10000 XXIX + 10000 XXII.
Or,
\(\{100,000-2000 \times(\) XXIX I - I NSL I) \(\}\) XXIX + 1100
XXII + 400 XVIII
\(=\{100,000-2,000 \times(\) XXII I - I NSL I \()\}\) XXII +400
XVIII + 10,000 XXIX + 10,000 XXII
```

Or,
{100,000 - 2,000 x 21} XXIX + 1,100 XXII + 400 XVIII
={100,000-2,000 X 14} XXII + 400 XVIII + 10,000
XXXIX + 10000 XXII
Or,
58,000 XXXIX + 1100 XXII + 400 XVIII = 72,000 XXII
+400 XVIII + 10,000 XXII
Or,
XXIX / XXII = 72,000 + 10,000 - 1,100 / 58,000 - 10,000
= 1.69

```

Similarly, for the return at XXII level,
\(\mathrm{R}[\mathrm{XXII}] \mathrm{Z}=\mathrm{R}[\mathrm{XVIII}] \mathrm{Z}+\mathrm{I}[\mathrm{XXII}] \mathrm{Z}\)
Or,
\(\mathrm{B}(\) XXII \()+400 \mathrm{XVIII}=\mathrm{B}(\) XVIII \()+38000 \mathrm{XXXIX}+3,000\)
XXII \(+6,000\) XVIII
Or,
72,000 XXII +400 XVIII \(=80,000\) XVIII \(+3,800\) XXIX
\[
+3,000 \text { XXII + 6,000 XVIII }
\]

Or,
72,000 XXII +400 XVIII \(=80,000\) XVIII \(+1.69 \div 3,800\)
XXIX \(+3,000\) XXII \(+6,000\) XVIII
Or,
XXII / XVIII \(=80,000+6,000-400 / 72,000-1.69 \div\)
\(3,800-3,000=1.28\)
Once again,
\(\mathrm{R}[\mathrm{XVIII}] \mathrm{Z}=\mathrm{R}[\mathrm{XVII}] \mathrm{Z}+\mathrm{I}[\mathrm{XVIII}] \mathrm{Z}\)
Or
\(B(X V I I I)=B(X V I I)+100\) XXII
Or
80,000 XVIII \(=82,000\) XVII +100 XXII
Or
80,000 XVIII \(=82,000\) XVII \(+1.28 \div 100\) XVIII
Or,
XVIII \(/\) XVII \(=82,000 / 80,000-1.28 \div 100=1.03\)

It is easy to show that XVII \(/ \mathrm{XVI}=1.03, \mathrm{XVI} / \mathrm{XV}=1.03\), \(\mathrm{XV} / \mathrm{XIV}=1.02, \mathrm{XIV} / \mathrm{XIII}=1.02, \mathrm{XIII} / \mathrm{XII}=1.02, \mathrm{XII}\) \(/ \mathrm{XI}=1.02, \mathrm{XI} / \mathrm{X}=1.02, \mathrm{X} / \mathrm{IX}=1.02\).

And, finally \(\mathrm{R}[\mathrm{IX}] \mathrm{Z}=\mathrm{R}\) [NSL] \(\mathrm{Z}+\mathrm{I}[\mathrm{IX}] \mathrm{Z}\)
Or,
\(98,000 \mathrm{IX}=100,000 \mathrm{NSL}+100 \mathrm{NSL}+100 \mathrm{XVI}\)
Or,
98,000 IX = 100,000 NSL + \(100 /(1,03) \times(1.02) 6\) IX
using the ratio obtained earlier.
Or,
IX / NSL = 100,000 / 97,913.79 = 1.02
Hence,
XXIX / NSL \(=1.69 \times 1.28 \times(1.03) 3 \times(1.02) 7=2.70\),
say, 3.

Note : Certain differtiated costs like maintenance, scholarship as an incentive to study higher classes have not been considered as not very much significant.

\section*{CONCLUSION}

From the above findings we conclude that if we desire to create a society where there is no exploitation of man by man, i.e., we pay to each according to his contribution, the highest wage rate can only be 3 times higher than the lowest wage rate for each hour of work.

However various adjustments might be required during the transitional period from market based wages to social cost based wages which take into account cost of reproduction of higher degree of skills as outlined in the book. What is more important is that when we make such adjustments for practical reasons, we should know what just wages are, if we really want to take pride in creating a society where exploitation of man by man is to be abolished.

Whatever we have said in this treatise is quite relevant for designing a humanized society, which is essentially nothing else but Democratic Communism.

In fact this theory, I hope, will not just make a more equitable society but also make us better human beings who feel proud to treat other human beings as our equals by helping them get what they truly deserve. This should not only include paying people according to their contribution but even according to their needs (Communism) whenever required. There are large sections of people in the society who are incapable of contributing, yet their needs might be not only similar to those who are contributing, but even more. They might include your little child or your ageing father or the homeless paralyzed neighbor or the totally unknown person with physical challenges. A great society pays to everyone according to his contribution and at the same time takes care of the needs of all those
who are unable to contribute due to various reasons.
A more equitable world would eventually make the concept of unending satisfaction of material needs something to be looked down upon. After all, the earth also needs to sustain itself, and, for that allowing a few people to satisfy endless material comfort at the cost of dying millions is a crime. A more humanized society with a fair wage rate, thus, is what this planet perhaps needs for the concept of sustainable development to thrive.

\section*{Appendix 1}

\section*{How to measure contribution of Entrepreneurs}

\section*{Che Kabir Chaudhuri}

Earlier it was believed that managers are born and cannot be reproduced in training institutes. This myth is now universally rejected. The latest myth is about entrepreneurs; that they are born and cannot be reproduced in training institutes. This myth was challenged by IIPM when we started designing Entrepreneurship Programme. The table as given at the end of this appendix shows a list of billionaire entrepreneurs coming out of US universities. Harvard University produced 35 of around 110 top billionaire entrepreneurs. University of Texas at Austin produced 5 of them. Average for top 11 universities was 10 billionaire entrepreneurs. Therefore, uneducated successful billionaire entrepreneurs are exceptions and not the rule. USA (along with UK) is perhaps the only country where billionaire
entrepreneurs are products of market driven capitalist environment. Everywhere else (including China, Indonesia and India) billionaire entrepreneurs came about because of crony capitalism in one form or another.

The second exception of a formally uneducated billionaire would be an accidental billionaire or someone like Amancio Ortega, who is currently the third richest man in the world but dropped out of school at the age of 14 .

There is no doubt that the entrepreneurs can also be reproduced in training institutes. In the case of entrepreneurs ratio of failure to success may be relatively high. Failures can always be socially insured and costs can be absorbed by the society.

Let us now see how we can measure entrepreneurs' social contribution.

Entrepreneurs'skills may be of the lowest grade to the highest grade. Entrepreneurs normally work more than 8 hours a day - often 10 hours to 16 hours, say on an average 12 hours. An over-time of 4 hours may be considered equivalent to normal 6 hours ( \(3 / 4\) th of normal 8 hours) of work because of
the intensity and total involvement in the work.
a) If the entrepreneur has the lowest grade of skill:
his contribution is then \(1+3 / 4\) th of 1 , that is equivalent to 1.75 NSL (Non-skilled Labour).
b) If the entrepreneur has 4 years' education after 8th class:

In this case his contribution for normal 8 hours is 1.13 NSL.
Therefore his 12 hours \(=1.13 \mathrm{NSL}+3 / 4\) th of \(1.13=1.13\)
NSL \(+.84=1.97\) NSL, say 2 NSL.
c) If the entrepreneur has the skill equivalent to that of D Sc.:
his contribution can be assumed as equivalent to \(3 \mathrm{NSL}+3 / 4\)
th pf \(3=3\) NSL \(+2.25 \mathrm{NSL}=5.25 \mathrm{NSL}\), say 5 NSL .

\section*{The Universities Churning Out The Most Billionaires}

Number of billionaire graduates from global universities \& total wealth (2016-17)


Source: Statista - Niall McCarthy, The Statistics Portal ,30th November 2016 (https://www.statista.com/chart/7003/the-universities-churning-out-the-mostbillionaires/)

\section*{Appendix 2}

\section*{How to measure Contribution by extraordinary talents:}

\section*{Che Kabir Chaudhuri}

Music classes can reproduce music teachers, but cannot create an extra-ordinary talent like that of Lata Mangeshkar or Michael Jackson. Therefore their contributions cannot be accurately measured by the method outlined in this book. Thus they may be recognized with awards like Bharat Ratna (Gem of India) etc.

People like Albert Einstein or Stephen Hawkins can be recognized with Vishwa Ratnas (Global Gems) or with Nobel Prizes etc. in addition to what a D. Sc. equivalent entrepreneur is entitled to. They must also be provided with all the facilities required for their research.

This will ensure people like Elon Musk have all resources available to contribute to the growth of society and humanity.

\section*{Appendix 3}

\section*{In view of the contemporary society's extreme wage difference, how to achieve the desired ratio of 3:1 between the highest and lowest wages within a reasonable time period and of course in a non-violent way}

\section*{Dr. Malay Chaudhuri}

How to achieve the desired ratio of \(3: 1\) between highest and lowest wages in a society with huge existing wage differences, within a reasonable time frame of say, 25 years.

Let us assume that we have a society with a current wage ratio of \(1: 48\), where the poorest group is paid Rs. 100,000 annually and the highest group is paid Rs. 4,800,000 annually. If the lowest wage is increased by \(14 \%\) a year, it doubles every 5 years. If it is increased at that rate for 25 years, it will become 32 times at the end of 25 years.

So the initial wage would increase from Rs. 100,000 a year to around Rs. 3,200,000 a year.

If we increase the wages of the highest paid section by \(2.9 \%\) a year, the initial wage of Rs. \(4,800,000\) a year will become around Rs. \(10,000,000\) a year. So the ratio achieved after 25 years between the highest paid group and the lowest paid group would become approximately 3:1. Thus, a society which lacks the courage to make an immediate shift to a \(3: 1\) wage ratio can do the same over a period of 25 years. Given hundreds of years of exploitation; 25 years - as a historical compromise - to make a new humanized society is hardly anything.

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[^0]:    + We are grateful to Mr Ratul Kumar Shome, Secretary, IIPM's Award Committee and my research associate, for drawing attention to historical roles of people like Bernie Sanders \& Jeremy Corbyn in implementing policies visualized by theoreticians like Thomas Piketty.

