

Theory of Employment, Wealth and Efficient Labour Market through National Labour Exchange (NLX)

J.D. AGARWAL*
MANJU AGARWAL**
AMAN AGARWAL***
YAMINI AGARWAL****

Abstract

The paper proposed setting up of a National Labour Exchange (NLX) along the lines of National Stock Exchange, Bombay Stock Exchange and Commodity Exchanges Worldwide in order to promote efficiency in the labour market, full employment and generating wealth and positive contributions to GDP. The paper also considers that Labour is a valuable Resource and a Wealth of the Nation, having potential to generate more wealth. The paper opposes the concept of Wages or price of Labour as in classical economics, but supports Ricardo's theory of Value and Laissez faire through efficient labour market. The paper opposes Keynesian theory outlining Government Intervention to generate Employment. The paper critically evaluates various theories on Labour. The proposed Model of creating efficient Labour Market through NLX will facilitate an automatic way for Full Employment, generating wealth for the Nation, Firm and Labour, easy access to information about the availability of Labour (man hours) and jobs.

I. Introduction

LABOR IS THE most important resource that utilizes natural or capital resources in most productive manner to create and generate wealth for nations, companies, organizations and for themselves. Despite the technological revolution and advancements in the artificial intelligence, labor continues to be supreme and guides the functioning of all economic events and economic systems. Labor in itself is wealth of a nation. But it is not effectively utilized. Labor suffers from lack of employment opportunities, poverty, poor wage, income variations, immobility and many other problems.

* Senior Professor of Finance and Chairman (The Board of Governors), Indian Institute of Finance, 45 A, Knowledge Park III, Greater Noida, Uttar Pradesh 201308, INDIA

** Professor of Economics and Principal, The University of Delhi, Moti Lal Nehru College, Benito Juarez Marg, Delhi 110021, INDIA

*** Professor of Finance, Dean and Director (Rektor), Indian Institute of Finance, 45 A, Knowledge Park III, Greater Noida, Uttar Pradesh 201308, INDIA

**** Professor of Finance and Dean (Research), Indian Institute of Finance, 45 A, Knowledge Park III, Greater Noida, Uttar Pradesh 201308, INDIA

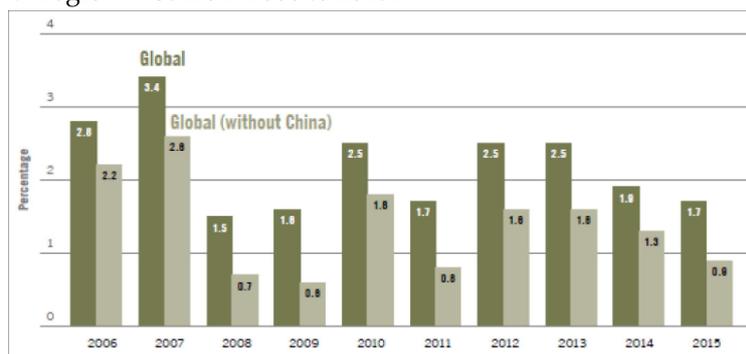
Submitted March 2017; Accepted June 2017

1.1 Background : Global Perspective

There is a wide gap between the job seekers and the jobs available because of information asymmetry. The matching of the two is being done through advertisements, through personal contracts or placement agencies and placement consultants. The cost of hiring and also getting jobs through any of the existing sources is costly and does not give the desired choice either to job seekers or to the employers at any level. This is more so when it comes to labor (as defined by ILO). Analysis of the unemployment rate in different countries is indication of the people suffering from income insecurity, poverty and lower quality of life. It is one of the major objectives of any government in any country that employment is generated to alleviate poverty and meet other economic and political motives. Employers always claim that there is a shortage of appropriate skilled and trained labour while skilled labour and trained personnel cry that there are no jobs in the market.

As per ILO estimates 73% of the world population or about 5.2 billion people continue to live without adequate social protection that highlights the social crisis and grave social injustice our economies and societies exist with. About 800 million are poor workers and many of them work in the informal markets. Fiscal Consolidation and adjustment threaten the ongoing processes of egalitarian distributive justice as they impact the living standards of several thousand of households in an economy. High level of poverty, vulnerability and inequalities deepen the social crisis.

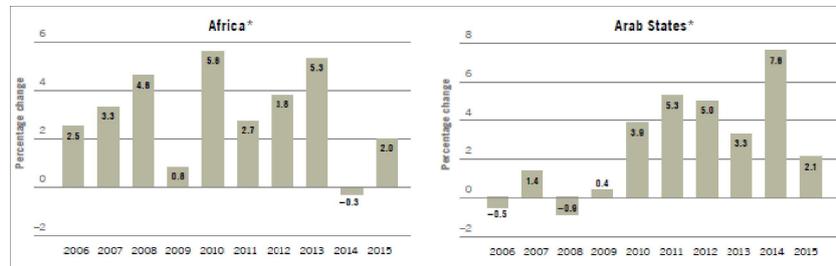
In Figure 2 we can see the estimate of real and estimated wage rates for 132 economies. The second column gives an estimate of the real and estimated wage rates without China owing to its large population of wage earners that weighs heavily on the global estimates. Ever since 2007, the annual average real wage growth rates have been on a decline from 3.4% (2007) to 1.7(2015) excluding china they dipped from 2.8% (2007) to 0.9% (2015). Figure 3 and Figure 4 give the estimates of the annual average real wage growth region wise from 2006 to 2015.



Note : 2015 figure are preliminary estimates as national estimates are not yet available for all countries.

Source : ILO Global Wage Report 2016/17

Figure 2
Annual Average Real Wage Growth 2006-2015



Source : ILO Global Wage Report 2016/17

Figure 4
Annual Average Real Wage Growth Rate by Region 2006-15

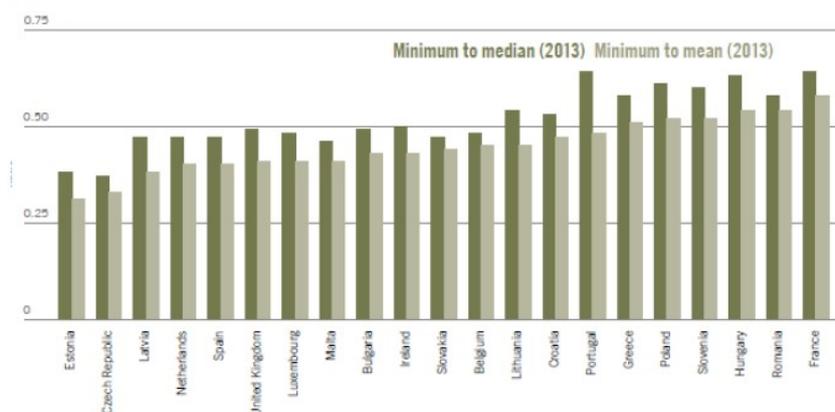
Change in the labor income share in different countries before, during and after crisis in many countries is presented in Figure 5. Pre-crisis (2002-07) positive change was observed in United Kingdom, Denmark, Italy, Lithuania, Estonia, Iceland, New Zealand, Ireland and Latvia. Negative change in labour income share during the crisis period of 2007-10 was observed in Iceland, Republic of Korea, Lithuania, Hungary, Latvia, Australia, Malta and Mexico. Post Crisis 2010-15 positive change in labor income share was observed in Malta, Japan, United States, Slovakia, Belgium, Netherlands, Austria, Germany, France, Canada, Latvia, Republic of Korea, Lithuania, Norway, Sweden, Estonia, Switzerland, Bulgaria and Iceland.

Globally, it is estimated that unemployment rates would rise from 5.7% in 2016 to 5.8% in 2017 which is approximately 201 million people unemployed in 2017. It is expected to increase by 2.7 million in 2018. In developing countries, unemployment is likely to be 5.7% in 2017 an increase from 5.6% in 2016. Latin America and Caribbean would observe an unemployment rate of 8.4%. Developed economies would observe a fall in unemployment rate from 6.3 % in 2016 to 6.2% in 2017.

About 12% of the total work force unemployed in the world received unemployment benefits. ILO (2016) further estimates that globally about 2.3 % of GDP is allocated to public social protection expenditure. This expenditure ensures income security during working age that varies regionally ranging from 0.5 % in Africa to 5.9 % in Western Europe. ILO further estimates that only 28 % of the labor force worldwide is eligible for social protection provided they become unemployed. It is further estimated that 33.9 % of the world labor work force is covered by mandatory social insurance in employment by law. Strengthening and implementing minimum wage standards in many countries have enabled them to reduce wage inequality and working poverty. Global Financial Crisis and the recent trends in rising inequalities have emphasized the need for labor market institutions and minimum wages. Kaitz Index, ratio of minimum wages to median wages, is used to evaluate the level of minimum wages relative to national economic and social circumstances. Another ratio for the evaluation of the similar measure is the minimum wages to mean.

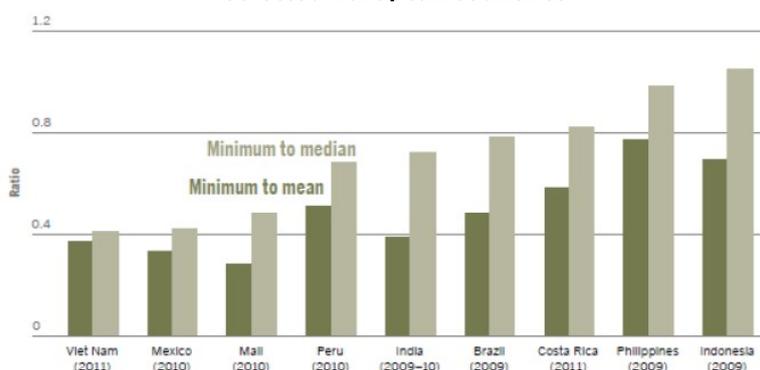
inequalities are hence observed between enterprises and within enterprises. A strong labor market institution, like the exchange we intend to propose, and wage policies can help reduce these disparities.

There is also danger of labor unrest in situations where labor is exploited beyond a particular level. However, if there is a mechanism where they can have an opportunity to seek gainful employment, help raise income level, quality of life and level of job satisfaction. Such mechanism would greatly help both the job seekers and job providers and the nation to utilise this resource (wealth) effectively. Labor as a resource has time dimension. If not utilized to contribute and generate wealth at a given time is wasted forever for the contributions which could have been made during that time. It is unlike other natural or man-made resources which do not get wasted over time. There



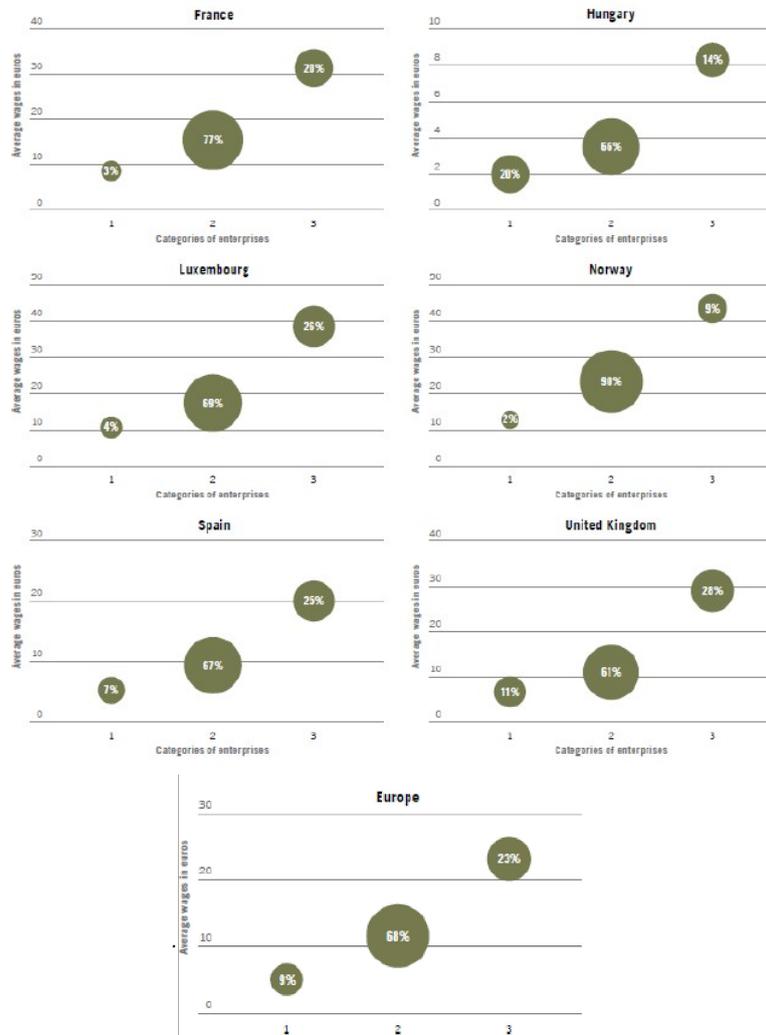
Source : ILO Global Wage Report 2016/17

Figure 6
Minimum Wages relative to Mean and Median Wages in selected European countries



Source : ILO Global Wage Report 2016/17

Figure 7
Minimum wages Relative Mean and Median Wages in Selected Emerging Economies



Note : The Figure shows the proportion of enterprises in each of three categories: low pay (enterprises with an average wage at or below 60 percent of median enterprise average hourly wages; middle pay (enterprises with an average wage above 60 percent of the median wage and at or below 140 percent the median wage) and high pay (enterprises with an average wage above 140 percent of the median wage). The median estimates and category classification are done on a country-by-country basis comparing each enterprise's average gross hourly wage to the country-specific gross hourly wage. The estimate for Europe shows the weighted average of all 22 economies, taking into account the relative numbers of individuals and enterprises in each of these economies in Europe. Estimates based on the weighted average of all enterprises in the 22 economies represented in the SES

Source: ILO Global Wage Report 2016-17.

Figure 9
Share of the enterprises low, middle and high average wages in selected European Economies and in Europe as Whole, 2010

leading to vast changes in Western Europe. It was also a period when capitalism was emerging and replacing feudalism and imperialism in which slavery and exploitation of labor was quite prevalent.

In connection of labour and labour markets, classical economics recognizes that the income produced by various factors of production i.e. land, labour and capital is the national income instead of King's income.

Classical economics also recognizes that total wealth increases when two parties freely agree to exchange things of value because there is profit in exchange for both parties. In the context of labor markets employer and employee would be involved in exchange. However, for classical economists, market is not the best way to serve the common good. The observations of classical economist that markets generally regulate themselves holds good in case of efficient labour markets.

We believe and support the assertion of classical economist that market function with minimal government interference. This holds true in case of labor market through policies of reservation, minimum wages, pay commission determining wages and salaries and labour related regulations as against the Keynesian theory of government interference which emerged during great depression, when firms were failing and labor was being laid off.

In our opinion the Classical economist's theory of value or price is relevant in terms of labour market. Petty's assertion that there is a par between land and labour assigns importance to the contribution of labour to wealth and national income. While Adam Smith's assertion that national prices distinct from market prices were sum of natural rates of wages, profits (including interest on capital and wages of superintendence) and rent, recognizes the contribution of labour in generating wealth. Despite the fact that Adam Smith described rent as price determining factor, David Ricardo disputed Adam Smith's assertion and stated that labour theory of value was a price determining factor than rent. In the present context Ricardo's assertion is better approximation. In our opinion Ricardo's view is more relevant in the context of efficient labour market and our proposed model for generating full employment, maximizing wealth, (both individual and national) and social welfare.

The proposed model would induce competition both among employers and labour to maximize the productivity, wealth, GDP and social welfare. Adam Smith's fears about the dangers of monopoly in labor market would be automatically taken care off.

2.2 Neo Classical Theory & Labour Market

Alfred Marshall and other Neo Classical economists believed that there is one theory of Value and distribution. In connection with labour and labour market, Neoclassical Theory states that labor makes a conscious consumer choice between work and leisure while estimating the consumption of goods on the Y-axis and leisure-work tradeoff on the X-Axis. Labor supply curve is well known to be backward bending. The trade off between consumption and leisure can be shown using a utility curve which is $U(C, L)$ where, C is the

Optimal solution is C^* and L^* given as

$$\frac{U_L(C^*, L^*)}{U_C(C^*, L^*)} = w$$

$$C^* + wL = R_0$$

The basic model suggests that as labor supply increases when wage is low and subsequently diminishes as it becomes extremely high. With the concept of utility and consumer choice between two products work and leisure, one based on the utilities of the commodities can derive indifference curve. The convexity of the indifference curve would give the marginal rate

of substitution $\frac{U_L}{U_C}$ between work and leisure which would decrease as one moves to the south-east direction of the indifference curve.

Since the marginal rate of substitution also represents the slope of the tangent to an indifference curve, an agent offers strictly positive quantity of hour of work if and only if the following condition is satisfied that is

$$\frac{U_L}{U_C} < w$$

The labor would supply work hours only if the wage rate is higher than the reservation wage². The reservation wage would be defined as

$$W_R = \frac{U_L(R, L_0)}{U_C(R, L_0)}$$

With respect to the reservation wage, the labor supply is strictly positive if and only if the leisure considered as a normal good. Increase in non-wage incomes or other resource endowments increases the reservation wage.

The labor supply curve is a combination of substitution effect and income effect. Hicksian elasticity which is also compensated elasticity suggests that income of a labor varies for him to stay on the same indifference curve. Demand for Leisure L^* is function of wage and potential income given as

$$L^* = \wedge_1(w, R_0)$$

The corresponding labor supply is $h^* = L_0 - L^*$ called the Marshallian or uncompensated labour supply curve. Partial derivative would give the effect of the non-wage income on the leisure demand and can be given as

$$L^* = \wedge_2(w, R_0)$$

The impact of variation in wages is by differentiating function with respect to w such that

Further, family has considerable role to play in participation of a labour force. Unitary Models and Collective Approach takes into account this consideration and its utility functions with enlarged constraints that impact the decision making ability of individuals or a particular labor group. Additionally, economists have a choice to select from static versus dynamic models of labor markets. Within the income-leisure choice framework, unemployment simply has no interpretation as a consequence of the assumptions that jobs are instantaneously available at market clearing wage rates known to the labor, Mortensen (1986).

In a dynamic model, labor one must make his or her choice over life cycle measured over different interval of time periods. The utility function then produces different consumption and leisure allocations for different time periods. To understand the utility function better they may be temporally separated and be called instantaneous utility of a given period. The equality between marginal rate of substitution and current wages is maintainable in all time periods. This wage would be cumulatively creating marginal utility of wealth. Elasticity is then called intertemporal substitution elasticity. Marginal utility of wealth is a stochastic process where the multipliers of wealth utility depend solely on the interest rates.

Aggregate Employment in any economy fluctuates a great deal with business and economic cycles. Real business cycle theory proposes the intertemporal substitution of leisure as the principal cause for fluctuations in the employment levels in an economy. Shocks in an economy of technology, allocation and distribution impact the rewards of labour and capital to which the factor markets respond in their supply curves. According to theory of real business cycles, employment is very sensitive to small changes in wages. Further, level of employment may also be influenced transitorily by movements in interest rates as increase in interest rates have an inverse movement towards consumption of goods. Employment levels in an economy are also impacted by the financial incentives given for early retirements or continued wage earners.

“Yet the theories that we were taught paid little attention to poverty, said that all markets cleared - including the labor market, so unemployment must be nothing more than a phantasm, and that the profit motive ensured that there could not be economic discrimination” Stiglitz (2001).

The proposed model may take care of employment levels in a country automatically.

2.3 Keynesian & New Keynesian Economics and Labour Market

Theories forming a part of Keynesian economics are based on John Maynard Keynes book 1936 - *The General Theory of Employment, Interest and Money*. Keynesian thought in the book was highly affected by the issues, challenges and problems of Great Depression (1931-36). Subsequent extensions of Keynesian theory was influenced by the happenings of World War II (1939-45), and post war expansion and changing world economic order (1945-73).

2.5 Job Search Models

Unemployment cannot always be reasoned by the acts of the unions or minimum wage laws (Stiglitz 2001) there would be more to the reason for existence of natural and cyclical unemployment. Burdett (1978) work explained the job-to-job transitions and wage growth with the same employer.

Pissarides (1979) search model with an employment agency, no wage variability and the separation rate is exogenous. His search models are random search and search via an employment agency favoring random search for increasing the overall matching rate. Job searches may register themselves with agencies and receive offers or may apply themselves to different jobs. Jobless workers may choose random searches. Firms, on the other hand, may use advertisement to optimize their strategy. He assumes that firms offer same wages to rule out search on the job. Fraction of unemployed, let's say S may register themselves with employment agencies such as $S < U$ where vis the total unemployed Labour force. In a simple one open position, with total number of firms V, R firms register themselves with employment agency. Vacancies left for random searches taken as A are given as $A = V - R$ Jobs that are over are given at a rate δ . Total separation are given by $\delta(L - U)$, L given as the total labor force and U as the unemployed labor force. Probability that a vacancy will not be searched by any of those Unemployed workers S is given by $(1 - 1/A)^S$. Probability the number of vacancies will be filled $1 - (1 - 1/A)^S$. Total number of job matched by random searches be x and by employment agencies be y. The total number of job matched will be x+y.

Unemployment Equilibrium will be given by

$$x(S,A) + y(U,R) = \delta(L - U)$$

Probability that a job seeker would receive job from Employment agency is given by $q = y / U$

Probability that a job seeker would receive a job by random search is given by $p = x / S$

$$\Omega^U = b + \frac{q}{1+r}W + \frac{1-q}{1-r}\Omega^U - q.h$$

$$W = w + \frac{\delta}{1+r}\Omega^W + \frac{1-\delta}{1-r}W$$

where, Registered Job seeker receive benefits b; Random search costs is c ; Agency charges for job searches is h ; Return per vacancy be given by w ; Lifetime returns of the employee be W which would be function of Ω^u ; Return of unemployed working not in the Random searches is given by Ω^u

Unemployed engaged in random search would then be

unemployment and employment durations. Efficient durations using the human resource concept are defined as the cost of recruitment and training for firms and for the labour as the cost of finding a job.

With V firms offering jobs to S job seekers such that the probability of finding a job is $1/S$. The probability that the agent would receive no job is given by

$$1 - f = (1 - 1/S)^V = [(1 - 1/S)^{-s}]^{-V/S}$$

where, f is the finding rate of a job $S \rightarrow \infty$, $(1 - 1/S)^{-s} \rightarrow e$ and hence the job finding rate would be

$$f = 1 - e^{-V/S}$$

$$\rho = V / (f \cdot S)$$

$$V/S = -\ln(1 - f)$$

where, ρ is the number of vacancies needed to be opened for one job opening.

$$\rho(f) = -\ln(1 - f) / f$$

$$S = (1 - f)S + s \cdot E$$

where, s is separation rate and E is number of employed workers.

Unemployment rate (U) would then be given as

$$U = \frac{(1 - f)S}{E + (1 - f)S} = \frac{s}{s + f / (1 - f)}$$

when, $\lambda(s)$ probability that job is filled as a function of separation rate then expected cost is given by $w \lambda(s)$. Unconditional probability that the job is vacant is s . Conditional probability given by $s \lambda(s)$ flow of offers would be given by $\rho(f)s \lambda(s)$. If μ is the cost of an offer to the firm then it would be minimized as follows

$$C(w, s, f) = w \cdot \lambda(s) \cdot (r \cdot s \cdot \rho(f) + 1)$$

Effective income would be given as where u is the expected time the agents or worker expect to be unemployed.

$$y = (1 - u)w \frac{f}{(1 - f)s + f} w$$

$$s = f = \arg \min \left\{ \left(1 + s \frac{1 - f}{1 - f} \right) y \cdot \lambda(s) \cdot (\mu \cdot s \cdot \rho(f) + 1) \right\}$$

$$\frac{(b-c)(1+r)}{r = p(z, w^R)} + p(z, w^R) \cdot E(w/w \geq w^R) \frac{1+r}{r(r + p(z, w^R))}$$

Optimum discounted returns to the wage would be equal to discounted reservation wage given by

$$w^R = \frac{r(b-c) + p(z, w^R) E(w/w \geq w^R)}{r = p(z, w^R)}$$

Reservation wage once affected by individual characteristics would vary as follows

$$\frac{\partial w^R}{\partial p(z, w^R)} = \frac{E(w/w \geq w^R)(r + p(z, w)) - r(b-c) - p(z, w^R) E(w/w \geq w^R)}{(r + p(z, w^R))^2}$$

$$\frac{r(R[w/w \geq w^R + c = b])}{(r + p(z, w^R))^2} > 0$$

McCall (1970) gave classical search model. He identified the loss of a job as a capital loss, and a spell of unemployment as an investment in searching for an acceptable job. Mortensen(1976) is an extension of the model presented here. The special feature of the model is that it considers multiple offers that are made to the agent for his choice of the highest bid. The model assumes perpetuity of work for the agent with no separations or quit from employment. Once a job offer is refused, the agent cannot retrieve it back. The cost of search is c per time period and $\beta(h)$ is the discounting factor for time τ . The distribution of wage is given as $F(w)$ with n job offers in a given time period and n being the random variable that follows Poisson distribution given by

$$q(m, \tau) = \frac{e^{-\lambda\tau} \lambda^{\tau m}}{m!}$$

where, λ is the arrival rate. Continuous discounting rate is given for $\beta(\tau) = e^{-r\tau}$. If the agent receives multiple offers he chooses the maximum then the wage function would be $w_m = \max \{w_1, w_2, w_3, \dots, w_m\}$ which follows an extreme value distribution $G(w_m)$. Assuming $F(w)$ and $q(m, \tau)$ are time invariant the Bellman equation would be given as where Ω denotes the value for search, b the value for leisure period, $W(w)$ value of employment

$$\Omega = (b-c)\tau + \beta(\tau) \left[\sum_{m=1}^{\infty} q(m, \tau) \int_0^{\infty} \max(\Omega, W(w)) g(w_m) \delta w + q(0, \tau) \Omega \right]$$

inappropriate. The labor is to be looked at in this new perspective i.e. as resource or wealth exactly any other resources including as securities. There is need to use this resource through a mechanism whereby this wealth can be effectively utilized through capacity building through human resource. This can be done by having National Labor Exchange along the lines of National Stock Exchange of India, Bombay Stock Exchange or Commodity Exchanges Worldwide where information about the jobs available and jobs offered are traded freely to utilize the available human resource. It will give boost the market driven economic system in the labor market. To the best of our knowledge there is no such labor exchange in any country of the world.

For such a National Labor Exchange, information about the resource available in a country or world economy is pertinent. As rightly pointed out by Stigler (1961) Information is valuable resource and knowledge is power.

Many of the major political debates over the past two decades have centered around one key issue: the efficiency of the market economy, and the appropriate relationship between the market and the government, Stigler (2001). Stigler (2001) further in noble prize winning lecture said that the Pareto Optimal states are not a reality and we do not live in a world of Pareto Optimal best possible efficient frontiers. These states belie us for the want of information efficiency. Imperfection of Information, absence of markets and dysfunctional institutions were a reality. Recession and Depression with massive unemployment echoed the market failures⁵ which Adam Smith (1776) invisible hand could not correct in all market including goods, labor and capital markets. Stiglitz (2001) reiterated that market imperfections caused by information asymmetries magnified economic shocks and made them persistent. Pooling information and reducing the information asymmetries could lead to correcting some part of market failure that leads to allocation or distributional distortions.

Labor market in economic theories implicitly assumes perfect information and labor as wage earner or physical or manual labor. It believes that each individual knows everything about all the existing job offers and he or she is just choose the number of man hours he or she would like to contribute to earn a desired wage which is offered as per segmented market determined wage rates⁶ which are universally known and accepted. Firms also do not know the productivity level of potential employees but may be better informed about their market conditions than the labor⁷. The chief cost for firms is time and money spent by them in developing and retaining the requisite human resource. Unfortunately this assumption of perfect information is not true in the real world. The only means to achieving some symmetry is signaling by workers and screening by employers. The real world is full of contradictions, segmentation and paradigms of changes over time and space. Information between the labor and firms is not symmetrically distributed. Information asymmetries create inefficiencies in market for exchange. Imperfections arise because buyers and sellers do not have perfect knowledge. The forces of demand and supply tend to be distorted by creation of convex or concave elasticity of the two forces namely demand and supply.

decision making in every context – not just inside firms and households, Stiglitz (2001). It is this information that needs to be freely accessible to the household and firms. Accessibility of this information would play an important role in reducing poverty and enabling several old models of economics that do not hold good to approximate their goodness with this near perfect information transmittal system. As reiterated by Stigler (1961) who while recognizing the importance of information, argued that once the real costs of information were taken into account, even with imperfect information, the standard results of economics would still hold. He further argued that with economies of scale, competition among firms would eliminate the profitability of quoting very high selling prices and low buying prices and will render impossible some of the extreme price bids which in context of wage inequalities can easily draw its parallel when a centralized market system like National Labor Exchange which, as, proposed to be developed would register and take record of the entire labor force of an economy. It would result in greater efficiency in all respects like in the capital markets and financial markets. Greater the reduction in the average cost with volume, the smaller will be dispersion of wages. Search⁸ would be simpler and repetitive searches would not command premium but unique searches would command premiums. This would optimize the search process for both the buyers and sellers. Identification of buyers and sellers would reduce the cost of search. In case of markets for part time workers there would an opportunity for price discrimination in individual contracts. Expected savings of search the National Labor Exchange would create would be the present value of all expected savings of the buyers and sellers. Specialization in labor and differentials in wages⁹ would add to the search costs for firms and labor. A new firm or labor would not be exploited by the market as the norms would be transparent and accountable. Some known benefits of this centralized labor market at the national level which would also highlight the dispersion in the wages would be (a) Larger the expenditure on labor greater would be the saving from the search and better the quality of search (b) Greater the number of repetitive demands for a specified labor the more effective would be the search with labor contract being more standardized with standardized pays with more effective search results (c) Greater the number of similar labor offerings the more similar the wage demands leading to lesser dispersions in standardized wage rates (d) the saving on cost of search would be smaller, greater the integration of the geographically diversified and differently specialized labor markets. The effects of pooled information and comparison would lead to higher utility indifference curves for both the firms and labor and would reduce the cost of search. The distribution of demand and supply would be self evident and it would be possible to empirically estimate the same. Correlations between several factors like gender, race, educational qualification, wealth, experience, marital status and network effects could be easily estimated by determining the correlations between successive wage rates¹⁰ within a group of similar and dissimilar labor class. Policy guidelines for discriminating between relevant knowledge and skill to one that become obsolete leading

also advice employees on whether a labor contract is exploitative or not and what would be quantitative and qualitative implications of such contracts. A fee or charge may also be taken by the exchange for providing such legal advice.

Any discord in the labor matter would be resolved in the exchange via arbitration request from the firms or at the behest of an employee which can be further addressed by the courts of the land. This would reduce the cost of strikes or other discords that prove to be expensive for either the firm or the employees. The exchange would also enable labor reforms that are much needed to provide the requisite impetus to the manufacturing and other sectors in the economy. The exchange would reduce the search costs, add convenience and confidence to the markets. The exchange can find penetration with the Jan Dhan¹¹, AADHAR and Mobile (JAM) trinity that the present government has initiated to reach to more and more people. The introduction of the new contract class of labour in the agriculture sector with contract farming would also find gainful employment once they are registered with the exchange.

Social Protection Scheme and introduction of any transfer payment can also be easily identified and introduced through this exchange, whether it is distribution of unemployment allowance, or minimum job offer like in MGNREGA¹² or the cash subsidy transfers to the vulnerable groups would also be permitted using the exchange.

Foreign Direct Investment in need of requisite labour would be well informed about the availability of labor, its nature, quality and wage distribution before they plunge into taking the decision to invest in any region or part of the country. Malpractices of lower wages than the minimum wage rate or the corruption in distribution of wages either at the private and public level would also be rectified if the labor employment records are linked to bank record and the exchange ensures that the employers pay their dues to the labor. The exchange would also play a key role in preventing child labor as the excesses would match the deficits. Gainful employment can then be linked to loan grants for health care, education and skill development for weak and vulnerable. Labour Markets aide the primary source of income security for the present and future of an individual needs, the exchange would play a major role in smoothing incomes and matching them to aggregate demands creating a structural paradigm change in the exchange in labor markets empowering them to take advantage of economic opportunities. Social protection Schemes tend to support men and women by stabilizing their incomes in the event of unemployment, employment injury, disability, sickness and maternity. They ensure that they have at least a basic level of income security but do not provide an equitable opportunity to earn with dignity. The schemes are a burden on the governments expenditure and do not ensure livelihoods in a permanent course of life. The exchange would provide for a renewed opportunity to reenter the work life in case any of the above circumstances arise.

The proposed work would create one NATIONAL market for labor exchange, uniting the country and its countrymen to one Common Working Platform removing the discrimination of regional imbalances, labor immobility and information asymmetries that create distortion in the demand or supply of labor. It would encourage labour at all levels to acquire certificates, degrees, skill and focus on maximizing productivity so as to qualify for a composite score that is high to get better return on jobs and choice of firms.

The proposed Model of creating efficient Labour Market through National Labour Exchange will facilitate an automatic way for Full Employment, generating wealth for the nation, firm and labour, easy access to information about the availability of labour (man hours) and jobs. It would also help save employment costs in a Market Driven Economic System with Asymmetric Information. National labour Exchange as proposed would also help Rating Certificates, Diplomas, Degrees, skill development and experiences based on Scores and would facilitate transparency in the Efficient Labour Markets. It would automatically adjust the return to labour based on value addition and economic and business conditions avoiding the problems of laying off. Efficient Labour Market would facilitate perfect or nearly perfect mobility of labour through National Labour Exchange.

Notes

1. Labor involved in preparing oneself for a job including preparation of meals, arranging clothing, housekeeping and other jobs like educating children
2. For empirical work see Kasper (1967). Axel (1984) provides for variations in the reservation rates with different utilities for leisure.
3. Wages higher than the minimum wages to promote higher productivity and to incur lesser turnover costs.
4. Unemployment is not always a cost to the economy as the labour may then have the incentive not to shirk his responsibilities for the fear of being unemployed. If there is no fear of being unemployed, productivity would be adversely impacted. Firms also do not own any responsibility for clearing markets. Though they are willing to pay higher wage rates to attract more able employees, if it guarantees by better production efficiencies. Full employment would also lead to the problem of moral hazard where the employee would be reckless with his work as he is full insured from any uncertainty to his incomes.
5. Stiglitz (2001) rejected the cornerstone of basic economic laws like the law of demand and supply (holding that market equilibrium was characterized by market clearing), the law of the single price, holding that the same good sold for a single price throughout the market, the law of the competitive price, holding that in equilibrium price equaled marginal cost, the efficient markets hypothesis, holding that in stock markets prices convey all the relevant information from the informed to the uninformed under restrictive market conditions.
6. Stigler (1961) noted that whatever be the distribution of prices (in our case wages) it is certain that increased search would diminishing returns as measured by expected reduction in the minimum asking price. This is obviously true for rectangular distribution with minimum asking price of $1/n+1$ with n searches and also of normal distributions. if the asking distribution did not display this feature then it would be an unstable distribution.
7. Stigler (1961) also noted the saving for the buyer (for us the firms) searches as the expected reduction in price with additional searches. The saving on labor cost

Ashenfelter, O and D. Card, (1999), "*Handbook of Labour Economics*", Vol. 3A, Elsevier Science B.V.

Azariadis, Costas, (1983), "Employment with asymmetric information", *Quarterly Journal of Economics*, Vol. 98, Supplement Issue, pp. 157-172.

Bontemps C, J.M. Robin and G.J. van Den Berg, (2000), "Equilibrium Search with Continuous Productivity Dispersion: Theory and Nonparametric Estimation," *International Economic Review*, Vol. 41, No. 2, pp. 305-358.

Bontemps, C., J.M. Robin, and G.J. Van den Berg, (1999), "An Empirical Equilibrium Job Search Model with Search on the Job and Heterogeneous Workers and Firms," *International Economic Review*, Vol. 40 No. 4 pp. 1039-1074.

Burda, M. and S. Profit, (1996), "Matching Across Space: Evidence on Mobility in the Czech Republic", *Labour Economics*, Vol. 3, pp. 255-278.

Burdett K., (1978), "A Theory of Employee Job Search and Quit Rates," *American Economic Review*, Vol. 68, No. 1, pp. 212-220.

Burdett, K. and D.T. Mortensen, (1998), "Wage Differentials, Employer Size and Unemployment", *International Economic Review*, Vol. 39, May 1998, pp. 257-273.

Burdett, K. and T. Wishwanath, (1984), "Declining Reservation Wages and Learning", *Review of Economic Studies*, Vol. 5, pp. 655-665.

Cahau Pierre and Andre Zyleberberg, (2004), "*Labour Economics*", The MIT Press

Ferguson, D and A Zhang, (1994), "Strategic labour contracts", *Canadian Journal of Economics*, Vol. 27, No. 3, pp. 731-754.

Franz, W., (2006), "*Arbeitsmarktökonomik*" Vol. 6. Auflage, Springer

Hall, R.E., (1979), "A Theory of Natural Unemployment Rate and the Duration of Employment", *Journal of Monetary Economics*, Vol. 5, pp. 153-169.

ILO, (2016), "*World Employment Social Outlook, Transforming Jobs to end poverty*", International Labour Organisation,

ILO, (2016, 2017), "*Global Wage Report*", International Labour Organisation,

ILO, (2017), "*World Employment Social Outlook:Trends*", International Labour Organisation

Kar, Saibal and Bibhas Saha, (2011), "*Asymmetric Information in the Labor Market, Immigrants and Contract Menu*", Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor, IZA DP No. 5508, February 2011, pp. 1-37

Kasper, H., (1967), "The Asking Price of Labour and the Duration of Unemployment", *The Review of Economics and Statistics*, Vol. 49, pp. 165-172.

Katz, Eliakim and Oded Stark, (1987), "International migration under asymmetric information", *Economic Journal*. Vol. 97, No. 387, pp. 718-726.

McCall, J.J., (1970), "Economics of Information and Job Search", *Quarterly Journal of Economics*, Vol. 84, pp. 113-126.

Moller, J. and A. Aladashev, (2006), "Interregional Differences in Labor Market Participation", *Jahrbuch für Regionalwissenschaft Review of Regional Research*, Vol. 26, No. 1, pp. 25-50