

ECONOMIC ANALYSIS OF LAW: EVOLUTIONARY, MULTIDISCIPLINARY AND INTERDISCIPLINARY APPROACH

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ABSTRACT

This paper explores the necessity for the study of economic analysis of law. In this paper the author examine how economic reality serves as the foundational base of our civilization and how it is the economic material reality on which our world is based. This makes economics much more than an abstract discipline of ideas, it is in fact, a *world view* which can be used to understand the story of evolution of our civilization over the time span of nearly 2000 years. In the subsequent stages of evolution of knowledge, economics emerged as a distinct domain of knowledge branching out to various schools. Within the neoclassical school, the branch of microeconomics establishes itself and the Keynesian school consolidated the macro economic foundations. From here further specialisations emerged and the core of this paper is the interface of evolution of knowledge from a multidisciplinary to an interdisciplinary methodology with the interface between law and economics.

Key words: Knowledge, multidisciplinary, interdisciplinary micro economics, macro economics and Law and economics

This paper explores the necessity for the study of economic analysis of law. In this paper the author examine how economic reality serves as the foundational base of our civilization and how it is the economic material reality on which our world is based¹. This makes economics much more than an abstract discipline of ideas, it is in fact, a *world view* which can be used to understand the story of evolution of our civilization over the time span of nearly 2000 years. In every stage of evolution, it was the *economic reality* which reflected the *scientific material reality* which at every instance shaped the discourse of world philosophy, polity and governance². It was not good people or good ideas which created change, but it was an inherent contradiction between production relations and means of production which, on acquiring the stage of critical contradiction, led to change. Therefore, the paper seeks to establish economics as the scientific material reality on which a world view is based.

¹ Kornhauser, Lewis, "The Economic Analysis of Law", The Stanford Encyclopedia of Philosophy (Fall 2017 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/fall2017/entries/legal-econanalysis/>>.

² Bowden, B. (2016, February 11). Civilization and Its Consequences. Oxford Handbooks Online. Retrieved 1 Jun. 2019, from <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199935307.001.0001/oxfordhb-9780199935307-e-30>.

Today, we live in a world of information. Information about everything is available and easily accessible. However, an integrated understanding of this information spanning across different disciplines creates knowledge. Knowledge is gained by *scaling the walls of information*. Knowledge can also be based on belief. During the age of belief, knowledge was based on ideas that people had, which were not tested or verified. Now, knowledge mostly emanates from *philosophy*. Philosophy is an outlook to life, and it emanates from the scientific material reality itself. It is an understanding of things which exist before oneself having a testable and verifiable methodology of its own. Since philosophy is a world view, one must question whether there can be a common world view³. Further, should a particular world view necessarily be correct? Even if a world view is not completely correct, it must be closer to being correct rather than being incorrect. This would mean having a world view which is tested and verified. The world view thus must be scientific⁴. It must also mean that one should know whatever is available at a given point of time, which means that one should know or that things are knowable in a world that is material and existing. Science is less incorrect than belief as it can be visibly tested, and verified. Further, having such a world view reduces the ruckus which could be created by having a world view based on different people's beliefs. Therefore, scientific material reality forms the base of evolution, rather than ideas. This view also accepts the precedence of matter over idea, to take an example, Aristotle's view that the earth is the centre of the universe was based on belief, which was disproved by Galileo using the scientific material reality, by way of experimentation. Thus, science and matter is less incorrect than belief and idea.

Now, understanding evolution- Evolution must not be looked at in an absolute sense. That would mean that at any given stage, no society can be called completely evolved. In fact, *evolution is a relative process*. The world is still undergoing evolution, and is currently in transition. In every society, and in every stage of evolution, the material realities are vastly different and these determine the laws that are created, and the laws then further guide the evolution process. Economics is the material reality based on which superstructures of political science, policy and law are created. Economics serves as the base in every society.

The ideas of economics have also changed over ages. It began in 1700s, with the classical conception of economics as a tool of distribution in a world of limited means but unlimited wants. Economics, however is much more than that. Economics is a discipline which has existed forever, and just being alive is economics⁵. From agriculture, to industrialisation, anything which sustains life is economics⁶. But economics is not only about sustenance, it is also about improvement. Economics is *not an idea*. It is in fact a reality which is based on matter and cannot be imagined. It is argued that economics is the scientific material reality as well as the world outlook⁷. Evolutionary changes in structures are brought about changes in the material reality.

³ Steve Schramm. 2018. Is Atheism a Worldview? <https://www.steveschramm.com/is-atheism-worldview/>

⁴ DOES YOUR WORLD VIEW PASS THE TEST? <https://schooloffish.wordpress.com/2008/04/28/does-your-world-view-pass-the-test/>

⁵ Vikas Shah MBE. 2012. The Role of Architecture in Humanity's Story. <https://thoughteconomics.com/the-role-of-architecture-in-humanitys-story/>

⁶ What is economics? American Economic Association. <https://www.aeaweb.org/resources/students/what-is-economics>

⁷ What is the difference between social and natural sciences? 2011. https://www.collier.sts.vt.edu/sciwrite/pdfs/boutellier_2011.pdf

Imagine, for instance, whether there can be the presence of democracy in a slave society⁸. It is clearly not possible, owing to the fact that the economic structures at that time did not allow for democracy to exist⁹. The economic reality of a society determines how a society will be arranged and politically organized¹⁰. When there is a clear change in economic possibilities, at that time, society develops further. This means that the concept of economics is not just about markets and profits. It is in fact a world view¹¹.

As the economic material reality changes, the very fundamentals and the base of any society change. This has to then be accompanied by the creation of new superstructures which are created as per the distinct phases of civilization.

I. Primitive Slave Society

Initially, slave society was not settled, and man was a nomad moving from one place to another, largely engaged in food hunting and gathering. Here, men lived as collectives. There was no profit, and no property rights.

Science led to the discovery and usage of metals which in turn created the material possibility of settled agriculture. This created the possibility of profits and the necessity of property rights in order to accumulate. At this stage the material reality of agriculture and associated profits created a distinct level of wants, in the form of the more profits for the slave owners and the minimum right to life for the slaves.

We see the beginning of the **Imagine, for instance, whether there can be the presence of democracy in a slave society..** The means of production got enhanced and then the production relations began to get private and exploitative. When this contradiction reached a critical point the new form of society emerged ie, feudalism, the next stage of society¹².

II. Feudalism

Feudalism saw large scale agriculture with the development of mills, ploughs etc which increased productivity from agriculture and opened higher possibilities of profits for the landowners. The position of the Serfs was better than the slaves. Further the emergence of towns is a distinct feature of feudalism existing along with the villages. Again we see the aspiration of wants attaining a higher level as compared to the wants in the slave society as a result of the advanced material conditions of production. We also see

⁸ Oyekan, Adeolu Ouwaseyi. 2009. Democracy and Africa's Search for Development The Journal of Pan African Studies. vol.3, no.1

⁹ Rudolf Hilferding. 1905. "Parliamentarianism and the General Strike," The Social Democrat, Vol. IX No. 11, November, pp. 675-687. <https://www.marxists.org/archive/hilferding/1905/11/parliamentarianism-strike.htm>

¹⁰ ibid

¹¹ Dani Rodrik. 2012. The fatal flaw of neoliberalism: it's bad economics. <https://www.theguardian.com/news/2017/nov/14/the-fatal-flaw-of-neoliberalism-its-bad-economics>

¹² Rachel Tolhurst, et al. 2012. Intersectionality and gender mainstreaming in international health: Using a feminist participatory action research process to analyse voices and debates from the global south and north, Social Science & Medicine, Volume 74, Issue 11, Pages 1825-1832, ISSN 0277-9536,

growing difference between the available resources and the wants leading to scarcity because the resources are in control of the landlords.

In order to retain the control over land, ie, the property of the landlords, we see the powerful impact of the church and the promulgation of the theory of divine rights. A serf had more rights than a slave but still production relations remained exploitative, though they were more public now. At the same time, this was also age of voyages and discovery, scale of agriculture and trade possibilities both increased drastically. This was the time when thinkers such as Copernicus, Newton and Galileo also began questioning many belief systems. The increased scope of profits and growing exploitation again created a contradiction, as the serfs who worked extensively only got a limited number of resources. This contradiction led to the next stage of evolution.

III. Capitalism

Capitalism is a mode of production based on private ownership of the means of production in which wage-based labor produce for the market¹³. Capitalism emerged from the feudal system at a critical point when the means of production ie, advanced mechanization and growth of technology made unparalleled possibility of profits ever witnessed in the history of human civilization¹⁴.

On one hand we see unprecedented possibility of production and on the other we see production restricted to making of profits in the market. Profits will happen only when supply is less than the demand and thus production is designed to meet this end. This creates the omnipresent scarcity. We also see the sharpest division between the haves and have nots and unprecedented increase in inequality leading to the psychosis of scarcity.

All evolutions thus, take place only due to contradictions which exist in society, within the scientific material reality. Matter always exists in contradiction and this contradiction results in change and growth. Thus, after capitalism, the world usually descends into socialism or communism because of lack of satisfaction with the way in which profits are distributed and the creation of the idea of scarcity.

The Case of India

In India as well, regimes and the form of the economic laws changed with the change in the economic material reality. When India got independence in 1947, there was poverty and lack of technological growth¹⁵. At that time, privatization was not possible which is why the government became actively involved in the economy. This led to the government establishing policies of socialism, with initiatives such as the five-year plans This led to the creation of the policy of Liberalisation-Privatisation-

¹³ Mousumi. 2018. The abolition of capitalist mode of production. <https://monomousumi.com/the-abolition-of-capitalist-mode-of-production/>

¹⁴ Chris Harman. 2004. The rise of capitalism. INTERNATIONAL SOCIALISM JOURNAL. Issue 102

¹⁵ Dushyant Gosai. 2013. History of Economic Growth in India. <https://intpolicydigest.org/2013/04/24/history-of-economic-growth-in-india/>

Globalisation and the government allowed private actors as well as foreign players to be included¹⁶. This, then underwent a change, with the creation of more possibilities and some development. This enabled the government to move from a socialist approach to establishing a mixed economy where some sectors were opened for private players as well. Thereafter, in 1990s, the increase in technological growth as well as the boom in the field of information technology mandated another change. This led to the creation of the policy of *Liberalisation-Privatisation-Globalisation* and the government allowed private actors as well as foreign players to be included into the market and participate in the economy¹⁷.

Now, we see a further change in the realities of India. There is great disparity and inequality in India particularly with reference to the lack of jobs and employment in India¹⁸. This has further created a contradiction as the economic growth is increasing but the benefits thereof are not equally distributed. Such a contradiction will result in further stages of development.

Interface between Law and Economics

From a multidisciplinary approach, the author narrows down to an interdisciplinary approach. The pillars of economic analysis are traditionally considered to be micro and macroeconomics¹⁹. In applied economics specially law and economics, the difference between micro-marco is disappearing. In micro-economics, while you look at primarily the concepts of rationality and efficiency for analysis of laws, while using other micro-economic tools such as cardinal and ordinal analysis²⁰.

Laws are primarily instruments for creating and maximizing surplus. Rights are a value based idea. If a law is rational and efficient, it will be effective, will ensure greater compliance and will save resources. There is a misconception that law and economics prioritizes costs over the lofty ideals of justice and rights. This is incorrect. End goal can be the same, while the route can be more efficient for lower costs to create surplus. Saving costs by default means maximizing surplus. While we started out with micro-economic concepts to analyze laws, the resulting surplus results in macro-economic implications. For example, efficient laws lead to not just individual surplus, but also national surplus. Thus the macro-economic surplus is a macro-economic objective. Macro concepts of income, employment will become variables for testing the success of micro-economic tools and different laws. Thus, the distinction between micro and marco disappears beyond a point. Eg- Competition Law is a tool for efficient markets for maximizing surplus with macro implications.

¹⁶ Gautam Chikermane. 2018. 70 POLICIES THAT SHAPED INDIA 1947 to 2017, Independence to \$2.5 Trillion. Observer Research Foundation. ISBN: 978-81-937564-8-5. https://www.orfonline.org/wp-content/uploads/2018/07/70_Policies.pdf

¹⁷ IES GS. 2018. Liberalisation, Privatisation and Globalisation. <http://iesgeneralstudies.com/article-6-lpg/>

¹⁸ Socio-Cultural Issues In contemporary India. Social Structure.

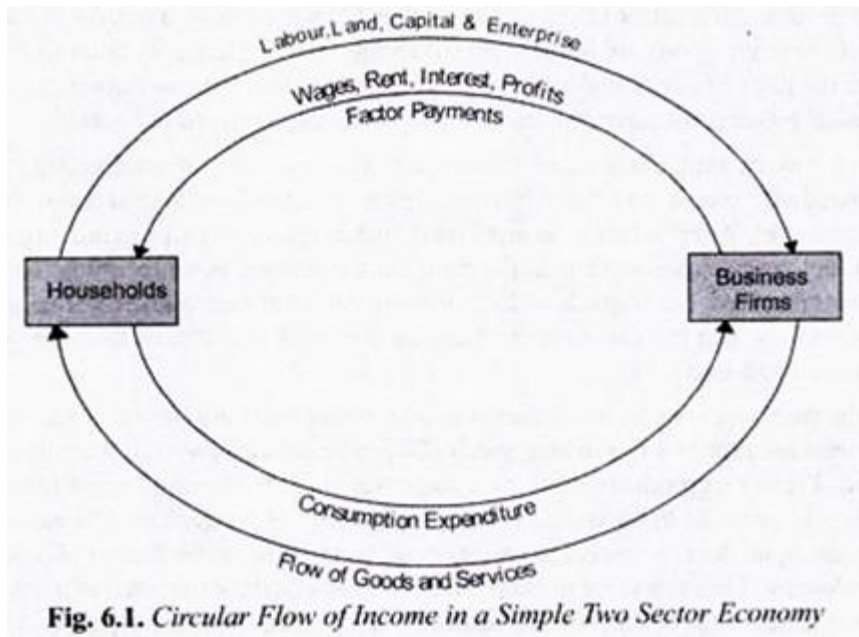
<https://nios.ac.in/media/documents/SecIHCour/English/CH.20.pdf>

¹⁹ Surbhi S. 2014. Difference between Micro and Macro Economics. <https://keydifferences.com/difference-between-microeconomics-and-macroeconomics.html>

²⁰ Hsieh, Nien-hê & Boatright, John. (2011). Finance Ethics: Critical Issues in Theory and Practice. 10.1002/9781118266298.ch4.

The classical school took exogenous factors of classification into considerations whereas institutionalists looked at the internal factors. Institutionalists say that economic action is embedded in legally defined entitlements, procedural rules and sanctions for misconduct²¹. Law and Economics bridges the gap between the two by employing neo classical tools into institutional methods²².

Circular Flow Of Income (The Two Sector Model)



Law is integrated in every part of it. For example, labour laws determine labour, wages, which impact demand and purchasing power. So, law becomes a tool of social engineering for maximizing surplus²³. All policies and laws ripple to have an impact on the circular flow of income²⁴.

Example of Bitcoins can be stated. If the Bitcoin market is not restricted, then it's impact on the stock and consumer markets would be far too great for the law to regulate and thereby would lead to a circular flow of income crashing²⁵.

²¹ Weigel Wolfgang, 2008. Economics of the Law - A Primer, Routledge Taylor & Francis Group, New York,

²² Parada, Jairo. (2005). Original Institutional Economics and New Institutional Economics: Revisiting the Bridges (or the Divide). Revista de Economia Institucional. 5.

²³ Daraban, Bogdan. "Introducing the Circular Flow Diagram to Business Students." Journal of Education for Business 85.5 (2010): 274-279.

²⁴ ibid

²⁵ Shakeri, Abbas. Macroeconomics: Theories and Policies. p. 82. ISBN 9789646378292.

The Scope of Economic Analysis of Law

The following questions are important and are applicable to all areas of law where efficiency principles are tested in order to assess the role and efficacy of property, tort, contract and criminal law. Property rights and their positive impact on property value including their varied signaling, trust and value enhancing roles are significant. Similarly for contract law and tort law, strategic behavior in terms of interdependent behavior of agents involved, the avoidance of breach and harm and the internalization through respective liabilities and impacting desired behavior thus are studies in the interface of Law and Economics. The interface in criminal law looks at the least cost of deterrence by assigning distinct cost and returns to instrumentality of severity and certainty of punishment and their varying elasticities.

1. How do legal norms affect human behavior²⁶?
2. Are these effects socially desirable?
3. If the effects are undesirable, why is that so?
4. If one knows why they are undesirable, how can the situation be changed?

Private Property

Private Property must be recognized for efficient markets and surplus. Effective institutions must enforce private property rights. Markets have both institutional and legal frameworks. This conjecture relates economic and legal issues to one another²⁷.

What is the difference between surplus and profit given the concept of private property rights? A classic contradiction has existed where high profits have not led to increase in surplus. While profit is a single stakeholder concept, surplus is a multi stakeholder concept that looks at the aggregate. Eg., Life saving drugs – If it is patented – creates a monopoly and becomes v expensive. Creates profit only for one party i.e, the one that patented it. Law and economics looks at the society as a whole by estimating the net positive value from this innovation. When such a monopoly is created it results in a dead weight loss – not distributed between all aspects of society and accessibility is limited.

²⁶ The Economic Analysis of Law. 2001. Stanford Encyclopedia of Philosophy. <https://plato.stanford.edu/entries/legal-econanalysis/>

²⁷ Thorsten Beck, Ross Levine. 2005. Legal Institutions and Financial Development. C. Menard and M. Shirley (eds.), Handbook of New Institutional Economics, ' 251–278.

http://faculty.haas.berkeley.edu/ross_levine/Papers/Forth_Book_Menard_LegalFinDvlpmt.pdf

What Motivates People To Acknowledge Private Property?

Incentives exist for recognising private property. People start recognizing the value of private property. How they determine the value is by associating the private property to its brand and quality. Brand & Quality recognized by both producer and consumer. Private property laws will be efficient and rational only if it incentivizes both the stakeholders. First of all, a customer wants to be sure that the product has the expected and desired properties that come with the brand name. Moreover, redressal costs, research costs etc get reduced for the consumer. For the producer – the brand name brings in economic incentives and therefore he wants to recognize it as his private property.

Liability rule as an incentive in tort law

However, if seller is not naturally incentivised to offer good performance (for example, due to high cost of redressal and no expectation of long-term consumer base), liabilities have to be imposed to create incentives for good behaviour. These liabilities are imposed to prevent a breakdown of parties and promote efficient exchanges. It must be borne in mind that liabilities imposed must be efficient. Both under/over liability erode surplus. Liabilities must be tested to collect eroded surplus efficiently. If liability is inefficient then surplus is eroded because Compliance does not happen and Cost of enforcement is high

Ex-Ante Incentives and Ex-Post incentives

Ex-ante incentives make you take precautions by creating a ‘signalling effect’. So ex ante surplus is created by the law as it prevents violations²⁸. Ex-post incentives work for those individuals with bounded rationality after violations take place and liability comes in. Bounded rationality means human rationality is often limited by external factors.

Economics: A Scientific Theory to Predict Effects of Legal Sanctions on Behaviour

Economics provided a scientific theory to predict the effects of legal sanctions on behavior²⁹. For example, how safe will manufacturer make his product when he knows it will injure consumers? Costs of safety are of two types: Actual cost of safety and Implicit Price of Accidents (imposed through legal liability)³⁰. The level of precaution is taken after taking into consideration the scientific probability of legal action (This is why actuarial science is today such a profitable field). Manufacture will spend enough so that marginal cost of increased safety equals the extra marginal revenue. To maximize profits, the producer will adjust safety until the actual cost of additional safety equals the implicit price of additional accidents³¹.

²⁸ Yongmin Chen and Xinyu Hua. 2012. Ex Ante Investment, Ex Post Remedies, And Product Liability. International Economic Review, Vol. 53, No. 3, pp. 845-866

²⁹ An Introduction to Law and Economics. <https://www.law.berkeley.edu/php-programs/courses/fileDL.php?fid=4554>

³⁰ Robert Cooter. 1995. Law and Unified Social Theory, 22 J.L. & Soc'y 50.

³¹ ibid

The following, very popular examples demonstrate applications of the microeconomic concepts to analysis of law.

Example 1: A commission has been appointed to consider some reforms of the criminal law³². The commission has identified certain white-collar crimes (such as embezzling money from one's employer) that are committed after rational computation of the potential gain and the risk of getting caught and punished³³. Currently, those convicted of committing these crimes are sentenced to a term in prison. After taking extensive testimony, much of it from economists, the commission decides that a monetary fine, rather than incarceration, is the appropriate punishment for these offenses. The commission ranks each offense by seriousness and determines that the fine should increase with the seriousness of the offense, but by how much?

The economists who testified before the commission persuaded the members that certain white-collar crimes occur only if the expected gain to the criminal exceeds the expected cost. The expected cost depends upon two factors: the probability of being caught and convicted and the magnitude of the punishment³⁴. We can define the expected cost of crime to the criminal as the product of the probability and the magnitude of the punishment.

Surplus would be deterrence. Instead of of incarceration, fines lead to Pareto improvement. This principle can be applied to many contemporary examples like the Nirav Mody case etc.

Theory of Probability v. Severity: If probability of punishment decreases by 5% and magnitude increases by 5%. What happens³⁵?

No change for the criminal because the incentive of deterrent behavior is still the same. Huge costs will be involved for the state. If costs get reduced however, this leads to efficiency.

What is pareto efficiency? No further reallocation of rights can take place without causing any worse off position to someone. Most real world problems work on pareto sub optimal level. **Least Cost:** Visualise the short run cost curve function. The probability of being caught and convicted depends in large part on the resources devoted to apprehending and prosecuting white-collar criminals. These resources are costly. By contrast, administering fines is relatively cheap. (Professor Gary Becker derived this result in a famous paper cited by the Nobel Prize Committee in its award to him.)

³² Albert J. Harno, Some Significant Developments in Criminal law and Procedure in the Last Century, 42 J. Crim. L. Criminology & Police Sci. 427 (1951-1952)

³³ An introduction to law and economics. one class. <https://oneclass.com/textbook-notes/ca/utsc/mge/mgec-71h3/1604431-mgec71h3-chapter-1.en.html>

³⁴ ibid

³⁵ An introduction to law and economics. One class. <https://oneclass.com/textbook-notes/ca/utsc/mge/mgec-71h3/1604431-mgec71h3-chapter-1.en.html>

Example 2: Contracts- An oil company signs a contract to deliver oil by a certain date from the Middle East to a European manufacturer. Before the oil is delivered, war breaks out in the exporting country, so that the oil company cannot perform the contract as promised. The lack of oil causes the European manufacturer to reduce production and lose profits. The manufacturer brings an action (*i.e.*, files a lawsuit) against the oil company for breach of contract and asks the court to award it a sum of money, called "damages," that is equal to the amount of profits the manufacturer would have realized if the oil had been delivered as promised³⁶. Unfortunately, the contract is silent about the risk of nonperformance in the event of war, so that the court cannot simply read the contract and resolve the dispute on the contract's own terms. In resolving the suit, the court must decide whether to excuse the oil company from performance on the ground that the war made the performance "impossible" or to find the oil company in breach of contract and to require the oil company to compensate the manufacturer for lost profits³⁷.

Allocation of Risk: Although typically a lawyer would choose "impossibility" of performance, an economist will consider different micro economic tools such as least cost avoider, signaling effect, and apportionment of risk. Because the contract is silent about the allocation of this risk, the court must allocate it, and, depending on how the court decides the case, one party or the other will have to bear the costs of that risk.

Signalling Effect: Excusing the exporting company will have a huge signalling effect with respect to the future contractual behavior and commercial sector. Signalling must be clear and unambiguous. It has to prevent uncertainty of outcomes and minimize ambiguity in contracts

Apportionment of losses: If the court excuses the oil company from responsibility for performing the contract, then the manufacturer is going to bear the losses that arise from the non delivery of oil. On the other hand, if the court holds the oil company responsible for compensating the European manufacturer for the profits lost because of the failure to deliver the oil, then the oil company bears the losses that arise from non delivery of the oil. Therefore, the way the court decides the case accomplishes an apportionment of losses between the two parties.

Since the Middle East is a war-prone zone, the least cost avoider is going to be the oil company, not the manufacturer. The company doing business in the Middle East is probably in a better position than a European manufacturer to assess the risk of war in that region and to take precaution against it. For example, the oil company could have arranged for alternative shipping routes that might not have been blocked by a Middle Eastern war. The oil company also could have arranged to purchase oil elsewhere in the event of war in the Middle East. Because the oil company is better able to bear the risk of war,

³⁶ Breach of Contract. Legal Dictionary The Law Dictionary for Everyone. <https://legaldictionary.net/breach-of-contract/>

³⁷ Y. Gotanda, John. (2006). Damages in Lieu of Performance Because of Breach of Contract.

https://www.researchgate.net/publication/228194678_Damages_in_Lieu_of_Performance_Because_of_Breach_of_Contract.

economic efficiency requires the court to hold the oil company liable for breach of contract and, therefore, make it responsible for paying for the European manufacturer's lost profits due to nonperformance. This conclusion is consistent with the outcome of some actual cases that arose as a consequence of the 1967 war in the Middle East. Notice that these beneficial effects of the court's general rule extend beyond the market for oil to include all contracts where performance might be impossible.

Example 3: Eddie's Electric Company emits smoke, which dirties the wash hanging at nearby Lucille's Laundry. Eddie's can abate the pollution by installing scrubbers on its stacks, and Lucille's can reduce the damage by installing filters on its ventilation system. The installation of scrubbers by Eddie's or filters by Lucille's completely eliminates pollution or the damage from it. Installing filters is cheaper than installing scrubbers. No one else is affected by pollution because Eddie's and Lucille's are near to each other and far from anyone else. Lucille's initiates court proceedings to have Eddie's declared to be a "nuisance." If the action succeeds, the court will order Eddie's to abate its pollution³⁸.

Non Cooperative Outcome: Applying game theory, assume that *Eddie's* and *Lucille's* cannot bargain together or cooperate. If *Lucille's* wins the action and the court orders *Eddie's* to abate the pollution, *Eddie's* will have to install scrubbers, thus reducing its profits³⁹. However, if *Lucille's* loses the action, then *Lucille's* will have to install filters, thus reducing its profits. We assume that installing filters is the cheaper of the two ways to eliminate the damage from pollution. Consequently, it is efficient for *Lucille's* to lose the action

Cooperative outcome: Now, consider how the analysis changes if *Eddie's* and *Lucille's* can bargain together and cooperate. Their joint profits (the sum of the profits of *Eddie's* and *Lucille's* will be higher if they choose the cheaper means of eliminating the harm from pollution⁴⁰. When their joint profits are higher, they can divide the gain between them in order to make both of them better off. The cheaper means is also the efficient means. As a result, efficiency is achieved in this example when *Lucille's* and *Eddie's* bargain together and cooperate, regardless of the rule of law. Ronald Coase derived this result in a famous paper cited by the Nobel Prize Committee when he received the award.)

The micro economic tools that may be applied here are theory of bargaining, theory of bargaining in the shadow of law, application of game theory, cooperative surplus, etc for efficient liability in tort.

³⁸ Breno Oliveira. Cooter e Ulen, Law and Economics. <https://www.passeidireto.com/arquivo/16878115/cooter-e-ulen-law-and-economics/5>

³⁹ *ibid*

⁴⁰ *ibid*