Land as a Factor of Production and Scarce Resource

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Abstract
    Aim and Objective: The aim and objective of this study is to explore the real value of land and the unfavourable factors that affects the demand and supply of land. The study aims to prove my theory about land. This theory suggests that all natural resource gains its logic of 'buying and selling' by employing all other resources to limit the demand of land in production activities.
Method: Two Surveys was designed from two stage stratified random sampling. The primary sampling units were selected from the main sample frame (1328, 1704 regions from 2600, 36196 regions, respectively). The final sampling units were selected randomly from the primary sampling units (12,12 families from every 1328,1704 regions, respectively) using a systematic random sample.
Findings: For a chosen city, the price growth rate of land is 93.77 % yearly for residential areas and 118.98% yearly for commercial areas. However, this has exceeded the cost and the price growth rate of construction materials and has resulted to the inflation of other materials. This explains clearly why around 83.15% planned areas and 198.23% unplanned areas are raw land. Here, much less than 29.47% of the population owns a house without loan.
Conclusion: Conclusively, for a market in equilibrium at a certain price, the limitation of the demand of land in production activity will make the free supply curve more elastic. It was proven that if we deactivate the non-production (re-sale) demand of land for a market in equilibrium at a certain price, the supply of land will be greater than the demand of land. In addition, there will be no significant output unless we consider the real value of land as a part of a house or a project.

Keywords: Land, housing, real estate, scarce resource, demand, supply

Introduction
    Economic resources are scarce while human needs and desires are infinite. However, there is only a limited amount of fertile and inhabitable

land, water, oil, and food on this planet. To leverage these resources, there needs to be an allocation of capital to create various kinds of the implementation of other resources, especially human resource.

Economy is a system which attempts to solve this basic problem of the allocation of resources. Thus, it rewards labor and fosters the implementation of economic development initiatives. Basically, economists distinguish among three types of resources available for use in the production process. They call these resources the factors of production. When they are combined, they create goods and services for consumption (Alain Anderton, 1991).

Many ignore the true meaning of economic scarcity as a production factor which is bound to be a positive factor. Otherwise, it will be an unfavorable factor.

In this context, what is the role of the land in solving housing problems, and how is that related to the production cost? How can we change the equation of land demand and supply to make it more positive? Before suggesting solutions to these problems, we have to understand what production means? What is real output of any human activity? If we are aware of the presence of other human needs, how can we make production to satisfy those needs?

The scope of our research will disregard the impact of seasons changing and food chain dynamics. At the end, there is a production. Thus, material is a part of its components. Whatever the change is, it disregard various changes in the laws of physics and ethics that deals with the environment.

The real output is the survival in the plurality by highlighting the individual production characteristics to others. Also, the farmers does not produce for the farmers. Carpenters does not produce for carpenters. However, the idea is to diversify economic production to complement one trade with another. This helps in improving sufficiency and efficiency.

Therefore, we can change the equation of land demand-supply as a scarce natural resource by determining the unfavorable factor in the land demand-supply equation. There are many reasons for land demand; housing, shopping, inventory, agriculture, mining, or manufacture purposes. All those purposes are associated with the production processes. While there is a production process behind the demand for land, there is also a real growth rate. In contrast, if there is no production process behind the demand for land, there will be a problem. However, the production of goods or services is a process which cannot run separately.

In order to solve the main production problems related to cost and mutuality between production factors, it is important for us to understand the real cost of land. Where do the cost of production factors comes from? What

is the impact of the production of a particular good or service on the production of other goods?

Consequently, the cost of any project or production process represents the production factors. To convert positive factors from unfavorable factors, it is important to know how the production process works.

Actually, unfavorable factors of land demand-supply equation coming from the land demand for a non-producing purposes (that activity aims to buy land for resale goal), occurs when large wealth is accumulated without serving any other considerable economic activities. This factor is called the land speculative which differs from other speculative forms. In this paper, we will use the term "non-production" to express land speculation to give its real meaning.

Summary

- There are two types of land demands:
- Demand for production purposes.
- Demand for non-production purposes.

The common factors in all production processes are the land and the human resource. Land is a finite natural resource. However, humans have infinite wants. Therefore, we can see the impact of non-production land demands through the following main sections of an economy;

- Production.
- The circular flow of income.
- Inflation.
- Savings & Investment and Consumption.

- **Production**

Production is the process that involves the making of goods and services. Every production process has a cost. This cost is the cost of the components which are interring with the production process as inputs, beside the cost related to management, services, and other fixed cost. This cost determines the appropriated allocated capital needed for project and production. Every effort has its cost which is expressed through money as a hire or capital for humans or machines. More demand means that there is need for more production. Less demand means that there is need for less production. In addition, more production means more supply, while less production means less supply.

o   **The Factors of Production**

Factors of production are the inputs of the production process: land, labor, and capital which are used in the production of goods and services. A production function shows the relationship between the output and different levels and combinations of factor inputs through all the stages of raw materials production or any other production of goods and services, which is a real run of resources. Total product is the quantity of output produced by a given number of inputs over a period of time. It is expressed in physical terms and not money terms. If no workers is employed, the total output will be zero.

While production factors such as labor is needed for training or educational processes and other services related to the human resource, capital as a material stock is needed to be made available before the production processes commences. Also, land does not need as much labor or material to produce.

Discussion

How to state the production factors of land?

Let us agree with this argument;

•   The value of land as oil, gas, metals or water and agriculture resources will be the value of oil, gas, water, or metals ***minus*** the cost of extracting.

Thus, which of the following arguments should we agree with?

A.   The value of land as a plot for housing or commercial use will be the value of the geographic location characteristics ***minus*** the cost of planning, infrastructure, and services.

If we agree with this argument, then the production factors of the land will be the production factors of planning, infrastructure, and services. Therefore, it is subject as shown below:

Planning, infrastructure, and services are the last phase of land production to start a building for housing or commercial purpose, and not for resale purpose which will be out of supply. If the product is out of supply, then there is no production effect on supply-demand equation.

Or

B.   The value of land as a plot for housing or commercial purpose will be the value of geographic location characteristics ***plus*** the value of planning, infrastructure, and services.

If we agree with this argument, then the production factors of the land will not be the production factors of planning, infrastructure, and services.

Then the factors of land production will include capital of purchasing which will be an amount of money. This explains why we still find an area

of land without infrastructure, services, and even there is no permit to build and handle billions of capital.

Or

C.   The value of land as a plot for housing or commercial purpose will be the value of geographic location characteristics **plus** the value of planning, infrastructure, and services **minus** tax.

If we agree with this argument, then the production factors of the land will be the production factors of tax which are the production factors of planning, infrastructure, and services.

Conclusion

•   The real value of the land lies in what it contains, whether raw materials, crops, buildings, and through the region where the land is located.

•   Land demand for production purpose as a project establishment:

-       Gives the value of land after the establishment of the project, and not before.

-       Paves way for the buying of the land as a part of any project, and not as a commodity or bond to keep them and resell.

-       Thus, it determines the aim of purchasing land and the appropriate needs of the buyer. This means no one will try to buy the land to hold it, except if he has a plan to build a project or home according to his immediate need.

•   The production factor of land are the factors which gives value to what the land would be used for. It can be used either for housing or commercial purpose. For factors of production for oil, gas, metal, and water and agriculture, lands plays an important role.

For land without house or commercial building, we will consider the factor, capital of purchasing. This refers to any amount that will be allocated for buying a land. This factor is considered due to the following reasons;

-       There are still an area of land without infrastructure, services, and there is no permit to build which requires billions of capital to handle.

-       Taxes do not exactly depend on the cost of planning, infrastructure, and services. It differs from country to country and from city to city.

-       The determination of tax value is not as land price determination which depends upon demand and supply; tax value is usually considered to be added to the price of the land.

-       If the product is out of supply, then there is no production.

o   Opportunity Cost

Over a period of time, there is only a finite amount that can be produced from scarce resources, and a range of alternative choices based on the allocation of resources. These choices can be graded with the benefits from each alternative. Thus, the benefit lost from the next best alternative is

called the opportunity cost of the choice. Subsequently, there are different combinations of economic goods which an economy is able to produce. This happens if all resources in the economy are fully and efficiently employed (Alain Anderton, 1991). Furthermore, land must be a resource like other scarce resources which are efficiently employed and utilized (Figure 1).

Figure 1

the production possibility frontier.

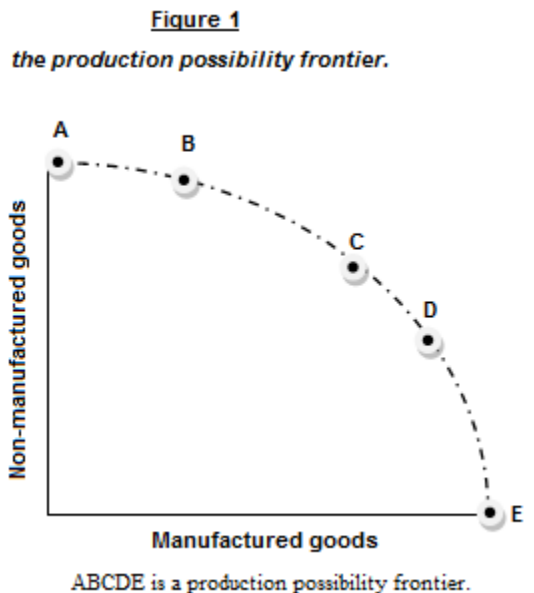ABCDE is a production possibility frontier.

Figure 1. The economy could produce anywhere along the line (AE).

Though if there is unemployment in the economy, production will be under the line (AE). At point (A), the economy is devoting all of its resource to the production of non-manufactured goods. At the point (B), (E) or anywhere else along the line, the production possibility frontier illustrates clearly the principle of opportunity cost.

Assuming that the economy is producing at the point (C) and it desires to move to point (D), this means that the output of manufactured goods will increase from quantity to quantity of units. However, the opportunity cost of that is the lost output of non-manufactures, falling from quantity to quantity of units. Therefore, the economy cannot be outside its existing production possibility frontier which shows the maximum production level of the economy, except if there is an economic growth in the future.

The production possibility frontier for an economy is drawn on the assumption that all resources in the economy are fully and efficiently employed. If there are unemployed workers or idle factories, or if production is inefficiently organized, the economy cannot be producing on its

production possibility frontiers. It will produce within the boundary (Alain Anderton, 1991).

Discussion

Would lands be reserved for non-production activity with non-manufactured or manufactured goods? What is the opportunity cost of capital allocated in land speculative for households and firms? What is the impact of employment in the economy?

The land will not be exactly the same for the non-manufactured goods because of the following reasons:

- There is a capital allocation for speculation.
- There is a change in the land price result from that speculation.

On the other hand, the land will not be exactly the same for the manufactured goods because of the following reasons:

- The land is not used for building, agriculture, mining, or industrial activity.
- There is no considerable employee of labor.
- There is no opportunity cost for switching allocated capital in using the land for non-production activity (speculative) with regards to the manufactured goods.
- Switching allocated capital used in land non-production activity (speculative) with regards to the manufactured goods will result in more employment in the economy.
- Households and firm's opportunity cost is the price resulting from land non-production activity (speculative) over the land.

- **The Circular Flow of Income**
    The circular flow of income is an accepted general model of economic behavior (Alain Anderton, 1991).

    o **Simplest Model**
    In a pure subsistence economy, people consume only the goods and services that they produce. In a more sophisticated market economy, producers and consumers become separated as shown in Figure 2.

    Rent, wage, interest, and profit come from firms that produce goods and services. It explains the relationship between production factors. Income which comes from land non-production activity (speculative) will not appear in this flow, but would only appear as unseen overburden expenditure on goods and services. Land inflation coming from land non-production activity (speculative), in turn, shifts the cost of residential and commercial units.

Figure 2

The circular flow of incme in a simple economy.

Households supply factors of production to firms in return for rent,wages,interest and profit.Households spend their money on goods and services supplied by firms.

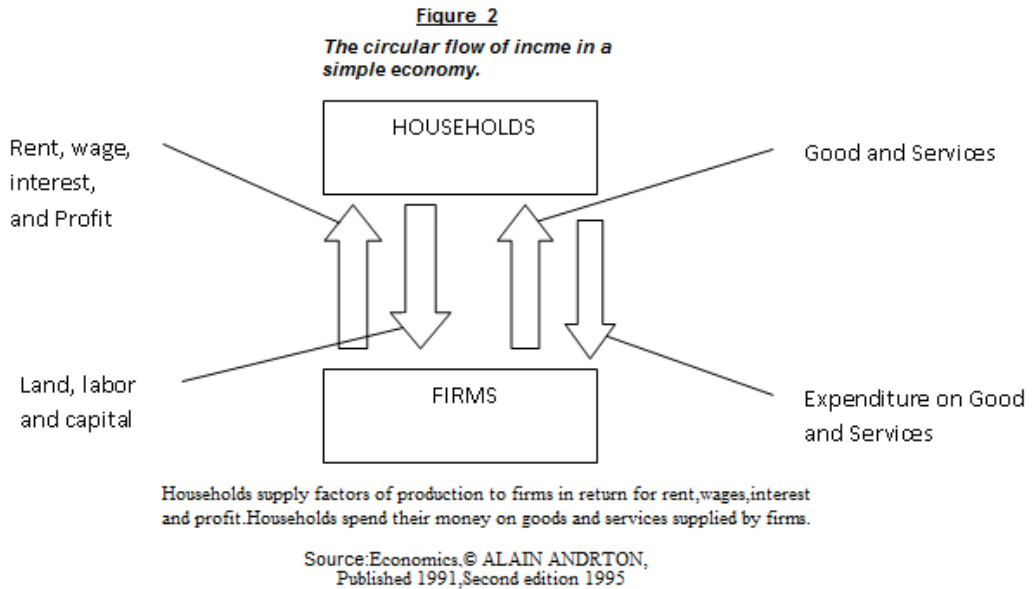Source:Economics.© ALAIN ANDRTON,
Published 1991,Second edition 1995

Figure 2. Households own the wealth of the nation; the land, labor and capital used to produce goods and services. They supply these factors to firms in return for rent, wage, interest, and profits - the rewards to the factors of production. They then use this money to purchase goods and service (consumption). Firms produce goods and services. They employ factors of production from household and use them to produce goods and services for sale back to households.

o **Model with Government Sector**

The amount of money flowing round the system gives value to the level of economic activity that can be measured as the value of:

- National Expenditure (E): Spending by households on the goods and services produced by firms;
- National Output (O): The output of firms (the value of what they produce);
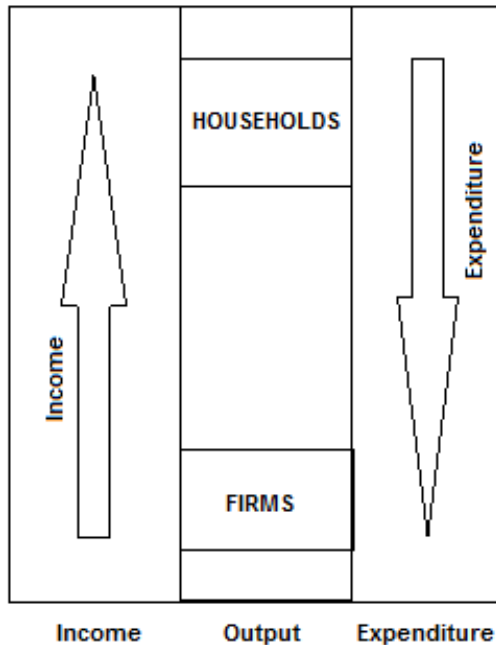- National Income (Y): The income paid by firms to households.

O = E = Y

National income is defined as the income generated from the production of national output, while National expenditure is defined as the expenditure needed to purchase national output. This can be seen in Figure 3.

Figure 3

Income,Exenditure and Output


The value of the flow of money round the system can be measurd
at three different points-as income,output or expenditure. These
three must be identical because they measure the same flow

Source:Economics.© ALAIN ANDRTON,
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Figure 3. This is true for all circular flow models. In practice, not all household income is
spent. Some of it is saved, which means withdrawal from the circular flow of income that
lowers economy activity in the system.

However, this explains how land non-production activity
(speculative) phenomena results in the withdrawing of a huge amount of
money from the circular. Moreover, that money is not saved through banks
but through land. Firms, too, spend money on investment goods that produce
other goods and services. Also, this fixed capital which is negatively affected
by cost resulting from land non-production activity (speculative), is a
circulation capital. These are goods which have been produced by firms and
are not sold to consumers. Investment expenditure is an injection to the
circular flow. Injection increases the level of economy activity in the system.
Money leak from the circular flow, whilst money spent on goods and
services flows round the system (Figure 4).

Figure 4
Investment and saving in the circular flow.
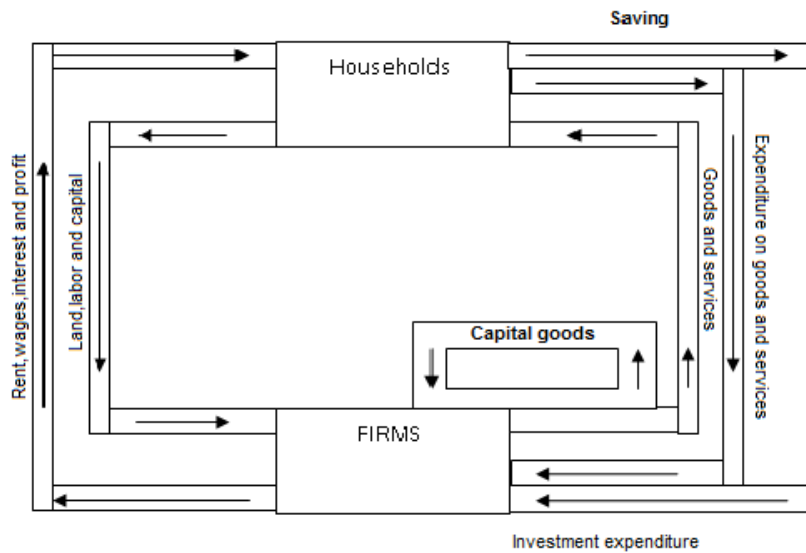
Investment is an injection to the circular flow whilst saving is a leakage.

Source:Economics.© ALAIN ANDRTON,
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Figure 4. Those firms manufacturing investment goods receive payments for those goods. Real goods and services, and the services for real factors of production flows round the system in an opposite direction.

Furthermore, the flow of money round the system will be constant and the economy will be in equilibrium. If investment spending were greater than saving, the amount entering would be greater than the amount leaving. Every time money went round, it would be increased. Thus, this would lead eventually to an infinite amount of money and a corresponding infinite level of production. If, on the other hand, saving were greater than investment, there would be a net drain of money. Eventually, there would be no money left in the system and all the production process would stop.

By definition, national income (Y) must be equal to consumption expenditure (C) plus saving (S): $Y = C + S$
Total expenditure (E) must be equal to consumption expenditure plus investment (I): $E = C + I$
Therefore; $C + S = C + I$ and $S = I$

Governments raises money through taxes taken from households and firms to finance their expenditure on services. Taxes (T) represent a withdrawal of money from the circular flow. Government spending (G), on the other hand, is an injection to the circular flow which puts money back into the flow. Money resulting from land speculative phenomena somewhat

resembles a tax with withdrawal from the circular flow to the pockets of speculators. However, this do not finance expenditure on services and do not circulate back.

In a close economy: $I + G = S + T$

Note: $I = S$ is not be true if there is a government sector.

o **Open Economy**

In an open economy with government sector as seen in Figure 5, there is more injection (export(X)) and more withdrawals (import (M)).

$I + G + X = S + T + M$

Figure 5
The circular flow for an open economy with government.

Savings, taxes and imports are withdrawals whilst investment, government spending and exports are injections.

Source:Economics.© ALAIN ANDRTON,
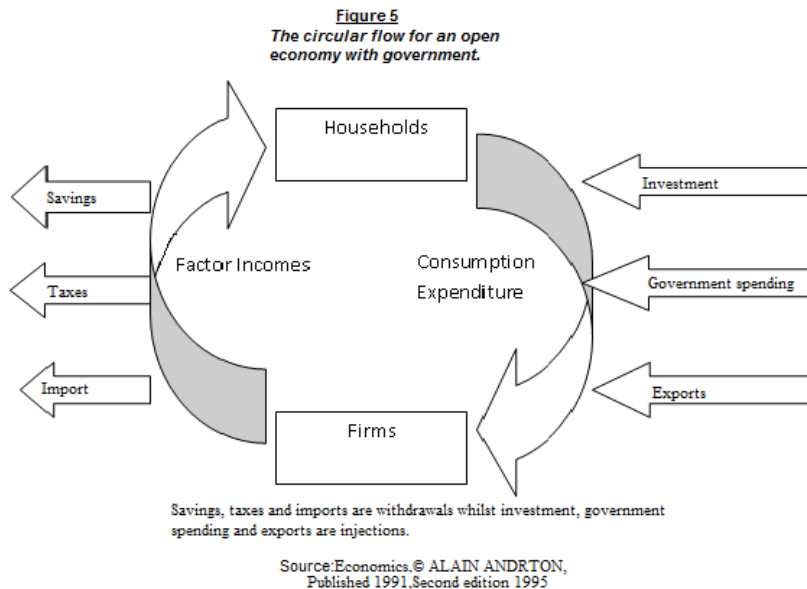Published 1991,Second edition 1995

Figure 5: Nations trade with each other. Consumers spend money on imported goods. This is the money which leaves the domestic circular flow of income to be given to foreigners. Imports are, therefore, a withdrawal from the circular flow. On the other hand, foreigners spend money on goods and services produced domestically. This therefore is represented as an injection into the circular flow.

Conclusion

- Money which is put in non-production land activity (speculative) is withdrawn from the circular.
- Money which is put in land non-production activity (speculative) does not go to the bank, commodity, or stock market; it remains in circulation among speculators.
- The land non-production activity (speculative) in an open economy affect the circular flow of income and the cost of domestic goods compared to the cost of imported goods.

- **Inflation**

The inflation rate is the change in average prices of an economy over a given period of time. The price level is measured in the form of an index. Calculating a price index is a complicated process. Price of a representative range of goods and services (a basket of goods) needs to be recorded on a regular basis.

High rates of inflation are also likely to lead to households and firms holding less cash and more interest bearing deposits. Inflation erodes the value of cash, but since nominal interest rates tend to be higher than with stable prices, the opportunity cost of holding cash tend to be larger. Thus, this makes the rate of inflation to become higher. Households and firms are then forced to spend more time transferring money from one type of account to another or putting cash into an account to maximize the interest paid. Inflation is generally considered to be a problem. Thus, the higher the rate of inflation, the greater the economy cost. How does land non-production demand impact inflation figures?

Inflation increases the cost of production and creates uncertainly. This lowers the profitability of investment and makes businessmen less willing to take the risk associated with any investment project. Lower investment results in less long term employment and long term growth. There is also a balance of payments effect. If the exchange rate does not fully adjust to purchasing power parity levels, exports will become less competitive and imports more competitive. The result will be a loss of jobs in the domestic economy and a lower growth. For instance, if we nominate a consumer products shop, the contribution of each component of the contents of the shop has to employ considerable amount of manpower and a range of products and services. This is except for a single component which is the land (Table 1).

Table 1. Cost of living indicators end of 2014/2015		
	2014/2015	Growth
General index	130.1	2.6%
Food and beverage	145.1	3.27%
Tobacco	153.1	6.01%
Textile, cloth and shoes	104.8	0.67%
Housing,water, electricity and fuel	153.8	3.45%
Appliances and maintenance	122.6	4.57%
Medical care	109	3.30%
Transports	111	-.54%
Communications	93.8	-0.11%
Education and recreations	106.3	7.24%
Education	112.6	2.93%
Hotels and Restaurants	126.8	2.21%
Commodities and other services	117.6	2.13
RIYADH Populations	6,152,180[9]	2.6

[9]ARRIYADH city Population2014/15,population estimates 2010-2025

Riyadh Family average monthly income	2,849 $		-3%[10] (2007-2013)	
Riyadh land average price per Square Meter [11]	**2011**	**2016**	5 Years Growth	**Yearly Growth**
Residential	48.8$	277.6$	**468.85 %**	**93.77 %**
Commercial	37.6	261.3	594.94%	118.98%
Source: Riyadh urbane observatory, investment climate report in ARRIYADH (2015), The General Authority for Statistics, Kingdom of Saudi Arabia.				

Table 1. For a chosen city, the populations' growth, cost of living growth, income growth compared with land price inflation or growth, illustrates how the size of the gap is.

Conclusion

- Inflation has two impacts on consumption:
- Expectations of inflation increase consumption and reduce saving.
- Rising inflation tends to erode the real value of money and wealth, and this reduces the consumption.
- Land price inflation which results from the land non-production demand creates a gap over and above other inflation elements.
- Land price inflation has a direct and indirect effects.

Consumption, Saving and Investment

Saving is what is not spent out of income. Saving might take the form of increasing the stock of cash, increase money at the bank or building society account, and even the increase in the value of stock equity. Investment is the addition to the capital stock of the economy used to produce other goods and services. Investment and saving are often used to mean the same thing. For instance, investing in building the society is also called saving. For an economist, investment only takes place if real products are created. The marginal efficiency of capital theory suggests that investment is inversely related to the price of capital the rate of interest.Consumption in economics is spending on consumer goods and services over a period of time. One way of classifying consumption is to distinguish between spending on goods and spending on services. Another way is to distinguish between spending on durable goods and non-durable goods.

There are a number of factors which determine how much a household consumes. The relationship between consumption and these factors is called the consumption function. Economic theory predicts that the

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[10] Households expenditure and income survey (2007-2013)

[11] As Ministry of justice, kingdom of Saudi Arabia, key performance indicator town, Riyadh 17-08-2016

consumption of the household will rise. How much it will rise can be measured by the marginal propensity to consume (MPC). This is the proportion of a change in income that is spent:

MPC = Change in consumption(C) / change in income (Y)= $^\wedge$ C / $^\wedge$ Y

The average propensity to consume is the proportion of total income that is spent on consumption. APC = C / Y

This is because a rise in real incomes which take out the element of inflation will leave consumers better off.

Conclusion

- Land non-productions activity (Speculative) has a significant impact on consumption and saving by:

- The value of what saving is used to purchase goods that is relative to the land, such as a house.

- The saving period.

- The income ability to the lien system.

Subsequently, this appears based on the household wealth that is made up of:

- Physical wealth such as houses, cars, furniture etc.

- Monetary wealth such as cash, money in the bank and building societies, stocks and shares, assurance policies, and pension rights.

- If the wealth of household increases, consumption will increase. This is known as the wealth effect.

- This will depends on the percentage of households who owns a house as shown in Table 2.

Table 2. Tuner of housing unit					
AL-RIYADH City	Owned	Rented	By Employer	Other	Total
Households	252,845	483423	118196	3496	857960
Percentage of total	29.47%	56.34%	13.77%	.40%	100%
Type of housing unit							

AL-RIYADH City	Traditional house	Vila	A floor in villa	A floor in traditional house	Apartment	Other	Total
Households	57,746	209,643	129,310	1,717	383,398	70,246	85,7960

Source: The General Authority for Statistics, Kingdom of Saudi Arabia, Housing by administrative region (2010), last update 15 / 05 / 2016.

Table 2. For a chosen city where only 29.47% of the population owns a house. This means less than 29.47% of the population who owns their house without loan felt they were able to increase their spending by borrowing money securely against the value of their house.

Discussion

What is to be considered to increase households' Physical wealth if we take the capital size needed for Physical wealth and monetary wealth in consideration? However, there are two important ways in which the wealth of households can change over a short period of time. They are:

- **A Change in the Price of Houses:** If the real price of houses increases over a short period, then households feels that they are able to increase their spending by borrowing money securely against the value of their house. This will be subject to: households who own their houses which can be measured by the number of population who are over 18 years old. For a chosen city where only 29.47% of population owns house, much less than 29.47% of the population who owns their house without loan can be able to increase their spending by borrowing money securely against the value of their house (Table 2).

- **A Change in the Value of Stocks and Shares:** Households react to an increase in the real value of a household's portfolio of security by selling part of the portfolio and spending the proceeds. The variance appears between physical wealth and monetary wealth based on the ability of households to own wealth which will be depends here on the capital needed for them:

- Physical wealth usually needs a big capital.
- Monetary wealth needs any small capital.
- Capital takes place in land speculative which is usually a big capital and will not be an investment because no real products were created.

- **Demand, Supply, and Pricing of Land**

Price is an amount of money in return for a product, and it usually depends on many factors: demand, supply, and cost of production. If the costs of production increase at any given level of output, firms will attempt to pass on these increases in the form of higher prices as can be seen in Figure 6.
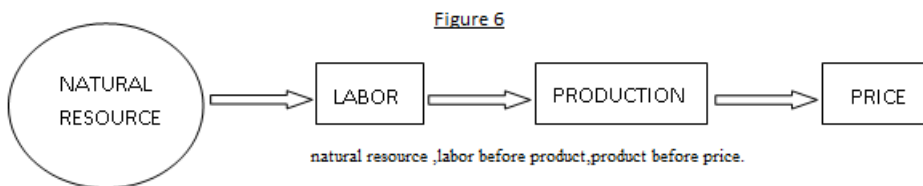

Figure 6. There is no price if there is no product.

Equilibrium is a very powerful concept in economics and it is essential to remember that the equilibrium price is unlikely to be the most desirable price in the market. Thus, the most desirable price depend on how one defines 'desirable'. Is it one that leads to the greatest efficiency, or

which leads to greatest equity? Demand can also equal supply without being at equilibrium. At any time, what is actually bought must equal what is actually sold. Equilibrium occurs at a price where there is no tendency to change. Therefore, it is only in equilibrium that planned demand will be equal to planned supply. Producers in a free market cannot afford to build up stocks forever. Some producers will lower price and the rest will be forced to follow. Production and price will go on falling until equilibrium output and price is reached. The pressures which force the market towards an equilibrium point are often called free market forced. However, critics of the market mechanism argue that free market forces can be led away from the equilibrium point in many cases. If we look at reality, we will clearly noticed the inflated value of the land to the extent that their value exceeds the value of the total cost to build a house. Therefore, the returns of building production process, including labor employment, represent the average income of populations members, which is around $2,849 monthly. Thus, they participated in inputs of this production process directly or indirectly and they are less than the price of that land.In Riyadh city, in addition to Materials and other consumer products including rentals for housing (Table 1 and Table 5), cost and price growth rate of land grows from 183 SAR or $48.8 for residential square meters in 2011 to 1041 SAR or $277.6 for Square meters in 2016. Also, it moves from 141 SAR or $37.6 for commercial square meters in 2011 to 980 SAR or $261.3 for Square meter in 2016 (Average). This shows a growth rate of 468.85% in 5 years (93.77% yearly)[12] for residential land and 594.94% in 5 years (118.98% yearly) for commercial land. Furthermore, it exceeded the cost and price growth rate of constructional goods as shown in Table 4.

Table 3. Constructional Goods Average Price For All Cities (Feb 2011 – Mar 2016)						
Item	CONSTRUCTIONAL GOODS	Unit	Feb-11	Mar-16	Yearly Price Growth(2011-2016)	In Percentage
1	Reinforcing iron, 6mm national	Ton	3917.75	3061	-856.75	-21.87%
2	Reinforcing iron, 8mm national	Ton	3183.73	1918.65	-1265.08	-39.74%
3	Reinforcing iron, 10mm national	Ton	3141.61	1918.32	-1223.29	-38.94%
4	Reinforcing iron, 12mm national	Ton	2956.54	1945.82	-1010.72	-34.19%
5	Reinforcing iron, 14mm national	Ton	2943.55	1934.88	-1008.67	-34.27%
6	Reinforcing iron, 16mm national	Ton	2933.62	1929.1	-1004.52	-34.24%
7	Reinforcing iron, 18mm national	Ton	2933.75	1929.92	-1003.83	-34.22%
8	Iron-binding cables Chinese	10Kg	43.22	34.52	-8.7	-20.13%

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[12] As Ministry of justice, kingdom of Saudi Arabia, key performance indicator town, Riyadh 17-08-2016

9	Cement, black, National	50Kg	14.02	14.24	0.22	1.57%
10	Cement, white, National	50Kg	34.26	40.56	6.3	18.39%
11	Block, black, 15cm	1000Blocks	1520.61	1626.64	106.03	6.97%
12	Block, black, 20cm	1000Blocks	1631.78	1711.51	79.73	4.89%
13	Marble tiles, National	2m	18.77	22.15	3.38	18.01%
14	Wood, Chilian	3m	1096.67	1094.71	-1.96	-0.18%
15	Wood, Romanian	3m	1084.47	1042.95	-41.52	-3.83%
16	Wood, Teak, African	3m	3874.53	4408	533.47	13.77%
17	Wood, Ablakash Indonesian	3m	1886.22	2360.9	474.68	25.17%
18	Electrical wires, 2.5mm national	m	1	0.67	-0.33	-33.00%
19	Electrical wires, 4mm national	m	1.47	1.03	-0.44	-29.93%
20	Electrical wires, 6mm national	m	2.22	1.54	-0.68	-30.63%
21	Electrical cables, 10mm national	m	15.44	11.82	-3.62	-23.45%
22	Electrical cables, 25mm national	m	36.19	25.65	-10.54	-29.12%
23	Electrical cables, 35mm national	m	46.28	33	-13.28	-28.69%
24	Electrical cables, 50mm national	m	63.66	45.75	-17.91	-28.13%
25	Electrical cables,70mm national	m	94.25	65.04	-29.21	-30.99%
26	Electrical cables, 95mm national	m	130.72	88.43	-42.29	-32.35%
27	Electrical cables, 120mm national	m	164.35	109.93	-54.42	-33.11%
28	Electrical cables, 300mm national	m	407.61	273.21	-134.4	-32.97%
29	Sand, soft, white	3m	48.51	61.89	13.38	27.58%
30	Mixed Sand (sand and pebble)	3m	41.87	54.3	12.43	29.69%
31	Red Sand	3m	22.18	27.64	5.46	24.62%
32	Resistant Concrete 350 K	3m	203.05	213.78	10.73	5.28%
33	Resistant Concrete 250 K	3m	181.62	194.42	12.8	7.05%
34	Normal Concrete 350 K	3m	194.33	203.91	9.58	4.93%
35	Normal Concrete 250 K	3m	173.74	184.63	10.89	6.27%
36	National Gypsum	40Kg	11.63	11.25	-0.38	-3.27%
37	Aluminum (Saudi, Arch side)	5.8m	61.96	65.75	3.79	6.12%
TOTAL			35117.18	28667.51	-6449.67	
TOTAL PERCENTAGE GROWTH			-18.37%			
Source: The General Authority for Statistics, Kingdom of Saudi Arabia.						

Table 5. Rentals for housing			
Date	Jan 2011	Jan 2016	5 year growth
Housing, water, electricity, gas and other fuels	166.5	174.7	4.92%
Rentals for housing	181.9	185.5	1.98%
Source: The General Authority for Statistics, Kingdom of Saudi Arabia.			

In order to estimate what we can accept from what we can refuse in all production and business operations output, we do that by dividing the output value with the input value.

In Table 6, around 83.15% land was planned, while 198.23% was unplanned. In these chosen city are raw land still not built for residential or business purpose in a crowded city with more than 6,152,180m persons with a growth rate of 2.6%. Therefore, this makes the rental to impose not only for the household, but also for the firm. This brought us to the conclusion that 281.83% raw land was not in supply, but are rather in a speculative of a scarce natural resource case. Also, it contradicts the main economic principles. Thus, how can we turn the 281.83% raw land of the chosen city from speculative into supply?

| Table 6. Used and planned area			
Land	Area	Percentage of total	Percentage to used land
Used land area hectare Residential, Industrial ,Agriculture , Green, And other	60,419	26.21%	
Planned area hectare	50,242	21.80%	83.15%
Unplanned area hectare	119,771	51.97%	198.23%
Total	230,432	100%	
Source: Riyadh urbane observatory, investment climate report in ARRIYADH (2015)			

Moreover , the price of the land can be expressed in two ways:
- The purchase price of the land.
- The rental value of the land.

To illustrate the pricing of land as a factor, it might seem that land is in fixed supply. Therefore, its supply is infinitely price inelastic. There is only a finite amount of land on this planet. The supply of land can be increased through land reclamation for instance, but the resulting addition to the stock of land can only be very small. It, however, depends on the population growth, space, and other variables from city to city as shown in Figure 7.

Figure 7
The price of land
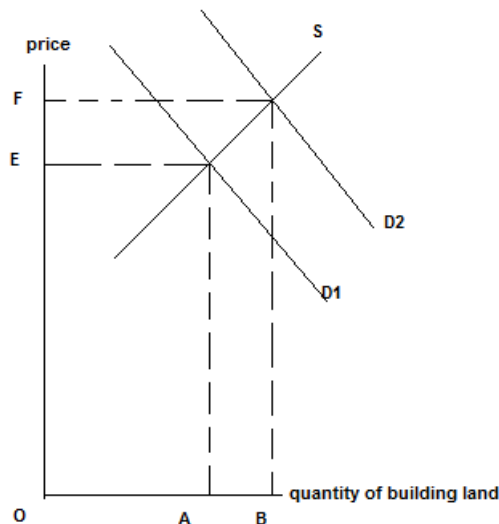
An increase in the demand for building land resulting from
an increase in the population will increase land prices from
OE to OF.

Source:Economics.© ALAIN ANDRTON,
Published 1991,Second edition 1995

Figure 7. Shows the demand and supply curves for land used for housing. An increase in the population will increase the demand for housing land from D1 to D2, and price increase from OE to OF. The result will be a rise in the price of house building land and an increase in quantity supplied (Alain Anderton, 1991).

In the UK, the extra land can be found by taking agricultural land and using it for house building. That will be true for demand and supply without that level of speculative which shift land price by holding to resell as the price rise. This means the holding of land was neither to build nor to rent target, and this holding means less supply. As a natural scarce resource, there will be an economy problem for increasing population.

o   **Using Agricultural Land for Housing Purposes**

The UK government, through green belt policies (Alain Anderton, 1991), has limited the supply of agricultural land for housing. This resulted to making the supply of land for housing far more inelastic than it would or otherwise have been. In addition, it pushed up the price building land as shown in Figure 8.

Figure 8
Green Belt Regulations
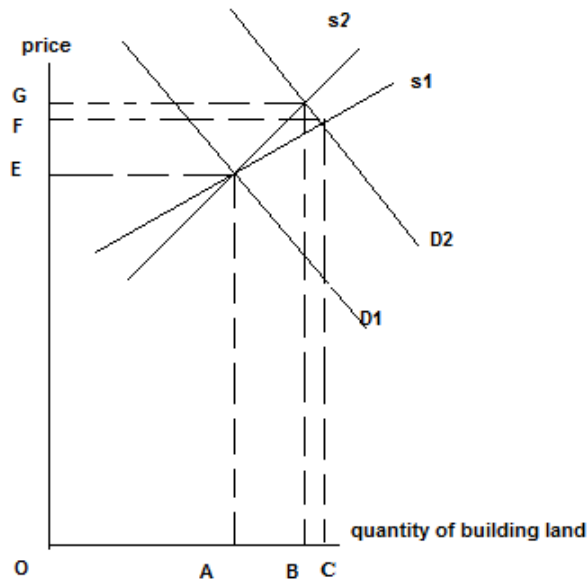
The effect of green belt regulations is to make the free market supply curve
S1 more inelastic. With a Green Belt supply curve for building land,S2,an
increase in the demand for housing will result in a large increase in the price
of land of EG and only a small increase, AB,in the quantity of building land.

Source:Economics.© ALAIN ANDRTON,
Published 1991,Second edition 1995

Figure 8. Initially, the market is in equilibrium with price at OE and the quantity bought and
sold OA. An increase in population, leading to a shift in the demand curve from D1 to D2,
would lead to an increase in the price of land by EF. However, if the government has
imposed limits on the sale of agricultural land for building purpose, the supply curve is not
S1 but S2. The result is that the increase in the price of land is not EF but EG. Moreover,
instead of an extra AC land being released for building purposes, only AB is more sold.

Discussion

What happened in the UK green belt policies to give inverse results?

Consequently, the limitation supply of agricultural land for housing will entail;

- Switching from agriculture activity to housing activity.
- Agricultural land as a factor of agriculture production is switched to housing land as a factor of housing production.
- It was admitted that the demand for housing land is more than the demand for agriculture land, and the price of housing land is more than the price of agricultural land.
- It was admitted to see that an increase in the demand for housing will result in a large increase in the price of land.

- For supply, it is not a surprise under the phenomenon of purchase to resell purposes, and to see only a small increase in the quantity of building land.

- Owning a land for the goal of reselling will not switch to the side of housing, leasing, or other business supply.

o **The Suggested Theory**

The suggested theory will be limiting the demand of land for housing or project (agricultural, mining or commercial etc.). This means it will lead to the deactivating of land non-production demand (speculative). Let us assume that the demand of land for re-sale goal is equal to the demand for building or other project goal, thus the effect of making the supply of land for building far more elastic than it would will otherwise have been an extra land being released for building purposes (Figure 9). Subsequently, this will lead to turning the 281.83% raw land of the chosen city from speculative into the supply of land for building.

Figure 9

The suggested theory
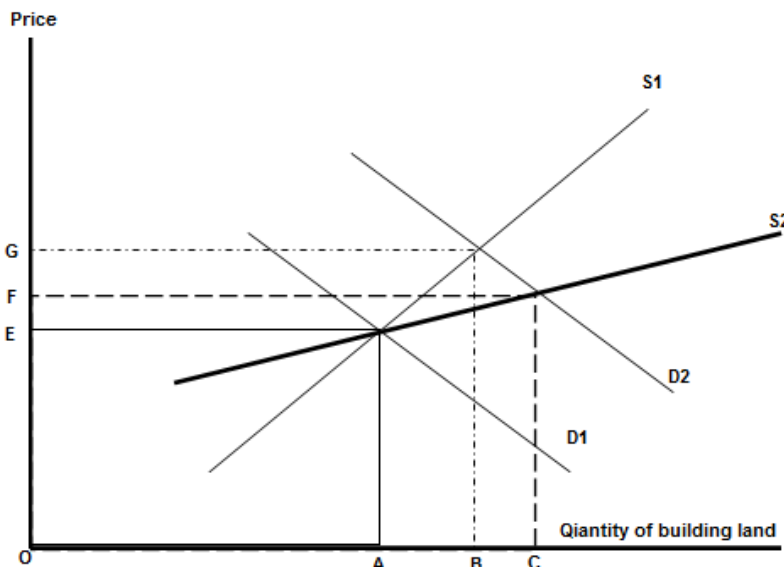
the effect of the suggested theory is to make the free supply curve S2 more elastic.with limitation of land demand in production activity supply curve for building land,S2, a decrease in the demand of land for speculative goal will result in a small increase in the price of land of EF and a larg increase,AC, in the quantity of building land.

Figure 9. Initially, the market is in equilibrium with price at OE and quantity bought and sold OA. An increase in population, leading to a shift in the demand curve from D1 to D2, would lead to an increase in the price of land by EG. However, as theory imposed limits on the sale of land for the non-speculative goal, the supply curve is not S1 but S2. The result is that the price of land is EF. Moreover, an extra (AC) land is being released for building purposes.

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Economists have found that the inverse relationship between price and quantity demanded -that as the price raises the quantity demanded falls- is true of nearly all goods. In some cases, the deactivation will represent a type of defect in an unfavorable phenomena. This is like any defect in any goods or services that result to a fall in the demand and in the price of goods or services.

Discussion

How do the Limitation of land demand in production activity result less in total land demand? Hence, this is because the total land demand will lose the following elements:
- Demand element with a target to re-sell (non-production demand).
- Time needed to re-sell the land and the time spent on other activities in the retrieval of capital.
- Capital allocation element.

Furthermore, loss of these elements will result in the following:
- There will be a decrease in the demand of land.
- There will be an increase in the supply of land.
- Turn land non-production demand capital into other activities.
- It will reduce the price and the cost of other activities.

o **The Logic of Natural Resources Trade**

Natural resources can be divided into two components:
- Renewable natural resources.
- Scarce natural resources.

For all natural resources to be traded, other resource, especially human resource, needs to be employed. Figure 10 explains how natural resource can be sufficien.

Figure 10
Natural resource and land
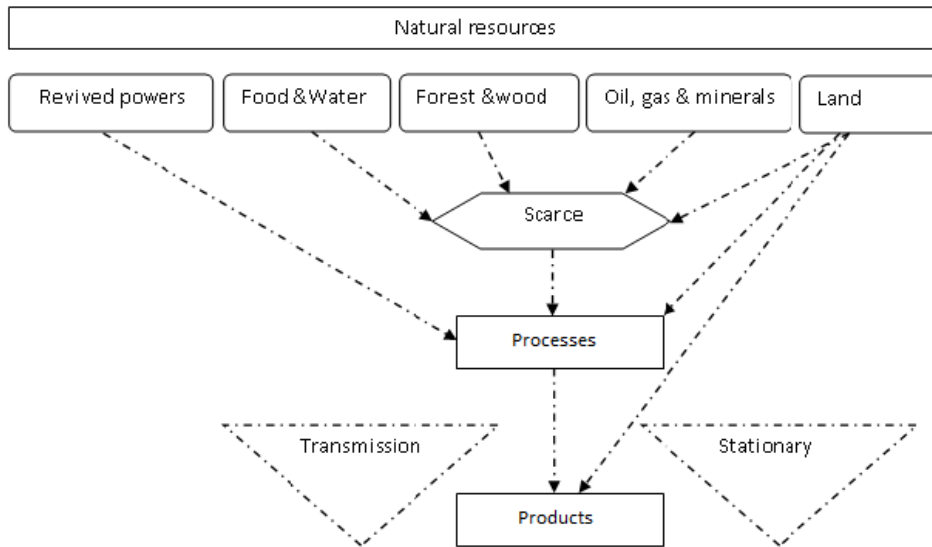
All natural resource inter a production processes and transmission processes except land

Figure 10. Any scarce natural resource gaining its logic of 'buying and selling' through its employment of labor, and the adoption of its production to the production of other resources. There is none that it handles which should directly be applied on land.

It is the optimum way to take advantage of all natural resources; the ones which achieve efficiency and adequacy. Logic recognizes that the natural resources age is longer than first human, and those who will take that advantage in the future. It is the catalyst for creativity and work. For instance, resources like the sun, even if it is a renewable natural resource, cannot be sold. However, it can be converted and sold as a source of energy. Therefore, when the land becomes like any other resource, it will not be sold as a land but as a project such as a house, shop, farm, energy etc.

- **The Theory**

Any natural resource gains its logic of 'buying and selling' through its employment of other resources. This aims to limit demands for land as a factor of production and a scarce resource for production activities. It resulted to increase in land supply and within those activities. This was because the land does not achieve any considerable real output in the economy during the period that lies between purchase and re- sales. Value-added as a result of land non-production activity (speculative), is a burden on the cost of other activities. On the other hand, other activities, during that period, produce a real main employment of the commodity and services.

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o **Mathematical Representation**

The effect of non-production demand on total demand of land is what concerns us. Here, we will use a production function to clarify the relationship between production factors and the difference between argument (A, page 178 and B, page 178,179).

▪ **Demand and Supply**

The quantity demanded of good (Alain Anderton, 1991) *N(Qn)* varies according to the price of good *N (Pn),* income (*y*), the price of all other goods *(p1...pn-1)*, and all other factors *(T).* Mathematically, this is given as:
Qn=f [Pn, y, (P],….., P n-1), T].
The quantity demanded of land *QL*;

QL=f [Pn, y(P],….,Pn-1),T].
However, we will indicate the quantity demanded of land as a given value for the total demand of land. Also, we will define the total demand of land as the demand for non-production (re-sale) goal, plus the demand based on production goals.
Suppose the following variables:
1.   The total demand of land;
Expressed by *TD*
2.   Demand for non-production (re-sale)goal;
Expressed by *DR*
3.   Demand based on production goals;
Expressed by *DB*
4.   Land Supply;
Expressed by *SL*

The total demand will be given as;
TD=DR+DB (*equation number 1)*
Assuming that;
Demand by non-production (re-sale) goal is equal to the demand by production goals.
DR = DB
Therefore, from *equation number 1;*
TD=DR+DB
TD=DB+DB
TD=2DB (equation number 2)
Assume that;
Demand is equal to the Supply. The market in equilibrium at a certain price is given as:
SL= TD
from (*equation number 2)*

SL= TD=2DB
SL=2DB (*equation number 3)*
Suppose that:
We deactivate the land non production (re-sale) goal demand, then:
DR=0
TD=DR+DB
TD=0+DB
TD=DB
from (*equation number 3)*
SL=2DB
Therefore,
2DB > DB
SL > TD
Supply of land will be greater than the demand of land for a market in equilibrium at a certain price.

- **Using Production Function**

A production function shows the relationship between output and different levels and combinations of factor inputs (For instance, producing of car will definitely result to car maintenance and many goods and services).

To produce a quantity (*Q*) of goods or services, we will use a quantity (*Q*) of raw materials (*x1*), a quantity (*Q*) of semi-raw materials (*x2*), a quantity (*Q*) of energy (*x3*), a quantity (*Q*) of services (*x4*), a quantity (*Q*) hours of work (*x5*), and a quantity (*Q*) of land (*x6*).

Subsequently, a production functions for those goods or services will be as:
(QX1) = (QX2) + (QX3) + (QX4) + (QX5) + (QX6).
(QX2) = (QX1) + (QX3) + (QX4) + (QX5) + (QX6).
(QX3) = (QX1) + (QX2) + (QX4)+ (QX5) + (QX6).
(QX4) = (QX1) + (QX2) + (QX3) + (QX5) + (QX6).
(QX5) = (QX1) + (QX2) + (QX3) + (QX4) + (QX6).
If we agree to the argument (A, Page 178);

As the land will be part of an house or project, then we will need to produce various types of materials.
(Q X6)= (QX1) + (QX2) + (QX3) + (QX4) + (QX5)

This is achieved by limiting the demand for land as a factor of production and a scarce resource in production activities.

If we agree to the argument (B, Page 178, 179);
As the land will not be part of house or project, then we donote the need to produce those type of materials.
(Q X6) = (0 x X1) + (0 x X2) + (0 x X3) + (0 x X4) + (0 x X5).

To produce (purchase and re-sale) a quantity (Q) of land, the production and use of services, materials, and working hours is equal to or close to zero.

Also, the value results from land purchase and re-sale. Thus, this is part of the cost of those materials production which will be an opposite and a negative factor.

References:
1. Alain Andrton (1991). Economics. (2nd Ed.).oxford : Units(2,17,56,58,62,63,93),Page(7,96,350,361,385).
2. Ministry of justice, kingdom of Saudi Arabia, key performance indicator town. https://www.moj.gov.sa/ar/bi/kpiRealestate/Dashboards/200_kpiTown/203_Yearly/kpi203_04.aspx
3. Riyadh urbane observatory, investment climate report in ARRIYADH (2015).http://ada.gov.sa/res/ada/ar/Researches/Investment_Climate_in_ArRiyadh_2015/index.html
4. The General Authority for Statistics, Kingdom of Saudi Arabia, Household Expenditure and Income Survey (2013). Publish date: Wednesday, August 3, 2016 - 11:45)http://www.cdsi.gov.sa/en/1456
5. http://www.cdsi.gov.sa/sites/default/files/msH_nfq_wdkhl_lsr_2013 m.pdf
6. The General Authority for Statistics Kingdom of Saudi Arabia, Household Expenditure and Income Survey 2006/2007, (publish date: Monday, December 31, 2007 - 12:15)
7. http://www.cdsi.gov.sa/ar/546
8. http://www.cdsi.gov.sa/sites/default/files/ar-incomesurvey-2706.pdf
9. The General Authority for Statistics, Kingdom of Saudi Arabia, Housing by Administrative region 2010, (last update 15 / 05 / 2016).
10. http://www.cdsi.gov.sa/ar/17
11. http://www.cdsi.gov.sa/sites/default/files/Ar-housingcensus1431-2010.pdf
12. The General Authority for Statistics, Kingdom of Saudi Arabia, average price of goods and services (June 2016). (publish date: July 28 Thursday, 2016-16:00)
13. http://www.cdsi.gov.sa/ar/4243
14. http://www.cdsi.gov.sa/sites/default/files/pr-av-06-2016-ar.pdf
15. The General Authority for Statistics, Kingdom of Saudi Arabia, average price of goods and services June 2016, (publish date:

Sunday, January 16, 2011-01:00). http://www.cdsi.gov.sa/ar/881; http://www.cdsi.gov.sa/sites/default/files/ar-pr-com-serv-avr2011.pdf

16. The General Authority for Statistics, Kingdom of Saudi Arabia, monthly price and index numbers bulletins, (publish date: Thursday, January 24 , 2013-09:00).

17. http://www.cdsi.gov.sa/ar/1022

18. http://www.cdsi.gov.sa/sites/default/files/ar-price-mnth-rep-2011.pdf.

19. The General Authority for Statistics, Kingdom of Saudi Arabia,

20. The record for the cost of living for the month of January 2016, (publish date: Tuesday, July 19, 2013-09:45)

21. http://www.cdsi.gov.sa/ar/1427

22. http://www.cdsi.gov.sa/sites/default/files/ar-pr_index_2016_january_0.pdf