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The Natural Rate of Basic Income

Introduction

Any large-scale market-based economy requires that people have a source of money to spend on the economy's product. Basic income, an ongoing unconditional cash flow paid to every person, is a simple, efficient, straightforward money source. Today, we compensate for the absence of basic income by stimulating the financial sector to create jobs. This pushes money to people through wages. The resulting distribution of money is uneven and inconsistent.

Furthermore, by using the financial sector and the job market as money distribution tools, we hinder productive investment and interfere with labor allocation. Investment occurs for a reason other than the development of productive capacity. Jobs exist for a reason other than the product of the labor. Wages are paid for a reason other than the incentive to work. In other words, our economic policy generates indirect make-work. The absence of basic income leaves us little other choice.

Basic income allows us to provide people money without interfering in the allocation of labor and other resources. The *natural* rate of basic income is what I call the level of basic income payout that obviates the need for make-work—indirect or otherwise.

The way we get people their money is broken. We can fix it by setting the basic income to its natural rate. Our challenge, then, is to discover the natural rate by feeling out the parameters of our economy. We must calibrate the basic income payout such that people are neither over- nor under-incentivized to sell their labor, and financial investment is neither overstimulated nor depressed.

Money and the Economy

An economy is any social system organized for the management and allocation of resources toward the production of goods and services. A government may allocate some resources directly, but money remains useful so long as some resources are left for the market to allocate through voluntary trade.

Markets use prices to balance supply against demand. People need a way to pay those prices to buy goods and services. Money is whatever the market uses as its pricing and payments standard (Howlett, 2021a). People spend money to claim the economy's output.

Intuitively, we might assume that consumers come naturally endowed with useful labor they can trade for money. But in a highly specialized large-scale economy, it is not generally true that jobs will naturally distribute money to consumers in a way that allows them to access the economy's full potential output. Absent a natural demand for labor that efficiently distributes money to consumers, we have conventionally used economic policy to generate artificial labor demand.

Basic income is "a regular cash income paid to all, on an individual basis without means test or work requirement" (Van Parijs and Vanderborght, 2017, p. 1). Basic income comes with no strings attached. A person need not do anything to earn or to deserve it. As a direct source of money that bypasses the market, basic income allows consumers to spend money without selling labor. It thereby relieves the government from having to distort the labor market through artificial demand.

Wages as Incentive to Work

Much of people's work is not paid—for example, child care, taking out the trash, eating, etc. Jobs exist for the remaining work that people will refuse to do without payment. Wages are the payments that provide an incentive for people to spend their time differently.

Because there will always be paid work, there will always be some amount of wages paid to consumers. It is therefore impossible for basic income to be the only source of money for all consumers.



Figure 1: Proportion of Income from Labor

In **Figure 1**, Q is the quantity of output (goods and services) the economy produces in a period of time. Q^* is the current output level and \bar{Q} is the economy's productive capacity—the maximum possible level of output. R is the level of consumer spending in the economy. R^* is the current consumer spending level and \bar{R} is the maximum level of consumer spending the economy can sustain. Each level of consumer spending maps onto a certain level of economic output. Maximum consumer spending (\bar{R}) maps onto full economic output (\bar{Q}).

We can partition R^* into the portion that comes from wages and the portion that comes from basic income. Conceptually, we can think of any money paid by the market—including income from capital ownership—as a kind of a wage. The lower the basic income, the greater the incentive for people to sell labor for money.

At the natural rate of basic income, people are neither under-incentivized nor over-incentivized to sell labor.

Labor Versus Leisure

We typically use the term "leisure" to describe how people spend their time when not working. But it can be semantically tricky to draw a clear distinction between labor and leisure activities. Can we decide based on the level of enjoyment? How much exertion is required? How much, or whether, the activity pays?

This paper will use "leisure" as a label for people's unpaid time, regardless of how relaxing or enjoyable it is. Labor, then, means paying people to do something different. By this definition, people prefer to spend their time in leisure activities rather than labor activities. Otherwise, they would need no compensation. But leisure time need not be unproductive. Shifting people into paid work will not always boost economic output or make society better off.

A basic income higher than the natural rate leaves insufficient incentive for people to perform paid work. A basic income lower than the natural rate pulls people away from more useful unpaid work into less useful paid work.

In **Figure 2**, the horizontal axis is a continuum between 100% labor and 100% leisure. The vertical axis is the quantity of output (Q).

At either extreme, the economy produces nothing. Overwork depresses productivity. The labor-leisure balance that achieves maximum output \bar{Q} corresponds to the natural rate of basic income.

The labor market is a market for people's time and effort. It can be difficult to classify that time and effort neatly into the binary categories of labor and leisure. Instead, we can think of everybody as having 24 hours in a day. That time is a resource. Those hours are allocated to various effortful activities that fall somewhere on a labor-leisure continuum.



Figure 2: Labor and Leisure

Productive Investment

Finance—that is, borrowing and lending—exists to support useful business activity and investment in future productive capacity. Finance contributes to present or future supply of economic output. An efficient financial sector never expands for the purpose of boosting demand.

Just as pushing money to consumers through jobs distorts the labor market, enabling extra private-sector borrowing as an incentive to create those jobs distorts the financial sector.

Today's central banks do exactly that. They prop up consumer demand using expansionary monetary policy to boost employment and wages. This arrangement causes an unstable expansion of private credit that leaves the economy susceptible to financial collapse (Howlett, 2021b).

Basic income provides money directly—bypassing the financial sector and the labor market. The natural rate of basic income prevents both unstable credit conditions and overemployment.

Meanwhile, basic income facilitates productive investment by ensuring that consumers have the money to activate new productive capacity.

Real Purchasing Power

The natural rate of basic income represents an amount of *real* purchasing power. It derives from the quantity of actual goods and services that the market has the resources to produce for people.

Changes in the price level (P) will not allow us to escape this resource constraint. In terms of the number of dollars people receive, a higher P may allow a higher natural rate of basic income, but this nominal increase in money will not translate into an increase in the quantity of goods and services that people can actually buy.

A nominal basic income above the natural rate causes a period of inflation until the inflation brings the real purchasing power of the basic income back down to its natural rate.

A commitment to set the *real* rate of basic income above the natural rate will ultimately fail. Such a commitment represents a promise that consumers will be able to buy more output (goods and services) than the economy can produce. An attempt to meet this commitment will cause us to revise the nominal basic income payout forever upward. The result is hyperinflation.

A nominal basic income *below* the natural rate causes deflation unless we compensate with other sources of consumer income. In today's world, we have a basic income of zero. We can know that zero is below the natural rate of basic income because we currently compensate for insufficient basic income by propping up consumers with other income sources, such as wages and private-sector debt. The natural rate of basic income works the same at any price level, or under inflation and deflation. For our present purposes, we can simplify our analysis by assuming that monetary policy holds P fixed at some level \bar{P} . With a fixed general level of consumer prices (\bar{P}), the same quantity of money buys the same quantity of output. The level of consumer spending (R) is economic output (Q) multiplied by \bar{P} (Mehrling, 1997, p. 100).

$$R = \bar{P}Q$$
$$\bar{R} = \bar{P}\bar{Q}$$

In these equations, \bar{P} is the fixed price level that maps every R onto a corresponding Q. \bar{R} maps onto \bar{Q} .

The Consumer Slice

Consumers—that is, the people—derive the most benefit from the economy when their spending allows them both to activate the economy's full productive capacity and to claim the economy's full output. I call the cross-section of the economy that exists between consumers and producers the "consumer slice" of the economy. Within this slice, money flows from consumers to producers to claim a flow of goods and services moving in the opposite direction.

We can judge the performance of the economy based on how well it serves consumers. The consumer slice is where this happens. More consumer spending power—that is, access to money—allows more goods and services to flow to the people.

The actual production process occurs outside the consumer slice. The labor market and the financial sector exist outside the consumer slice. Basic income originates from outside the consumer slice. But what happens outside the consumer slice affects what happens within the consumer slice.

We can imagine the consumer slice as a pair of pipes carrying the equal and opposite flows of money and economic output between consumers and producers. The economy produces at full output (\bar{Q}) when the pipes are full and the basic income is at its natural rate.

Equilibrium Output

Figure 3 is an aggregate market diagram of the macroeconomy. The vertical axis is the price level (P) and the horizontal axis is economic output (Q). It shows why the level of economic output can settle below the economy's productive capacity and how basic income can fix the problem.

 \overline{I} is the input price level: the general price level of inputs to the economy's production. \overline{P} is the consumer price level: the general price level of the *output*



Figure 3: Equilibrium Output

of consumer goods and services produced by the economy. Producers pay \bar{I} and receive \bar{P} . \bar{P} must be above \bar{I} for producers to gain a profit.

 \overline{Q} represents full economic output. It is possible for output (Q) to reach equilibrium at a level that falls short of (\overline{Q}) .

It is impossible for the *real* price level—that is the price level adjusted for inflation—to change. By definition, the real price level is fixed. Because the real price level cannot adjust to clear markets, output quantity must adjust instead. The two aggregate demand (AD) curves each imply a different equilibrium level of economic output. The demand distribution represented by the shallower demand curve causes the economy to produce at full output.

Individually, producers seek the combination of prices and quantities that earn them the most profit. In aggregate, they find equilibrium at the most profitable level of economic output (Q). To simplify exposition, the diagram assumes monopoly pricing, but the story is much the same if we add in competition.

For each demand curve, I have shaded the region bounded by the input price level (\bar{I}) , the output price level (\bar{P}) , and the quantity of output (Q). This area represents profit. Producers want to maximize this area. Each demand curve contains exactly one point that maximizes the area of the shaded rectangle. For the steeper demand curve, the most profitable point is at Q^* .

Notice that the most profitable (P, Q) point along *each* demand curve occurs where the curve crosses the price level. This is no accident. We could draw a

demand curve whose most profitable point fell at a different price level, but that would imply that the macroeconomy is not in equilibrium at the real price level. If some force keeps the demand curves fixed in real terms, the result is runaway inflation or deflation. The aggregate demand curves must adjust to re-establish equilibrium.

Because all price levels are equivalent, we gain nothing by pushing aggregate demand out of equilibrium with the price level. When demand settles back into equilibrium, the price level will again cross the aggregate demand curve at the most profitable (P, Q) point. Depending on the distribution of demand, any level of economic output up to \bar{Q} is achievable at any nominal price level.

The shape of the aggregate demand (AD) curve ultimately determines the level of economic output (Q^*) . If AD is steeper, demand is less sensitive to changes in price (less elastic), and a lower Q^* is profitable. If AD is shallower, demand is more elastic, and a higher Q^* is profitable.

The absence of deflation or the presence of inflation imply neither that the economy is employing all of its resources nor that it is producing its output of goods and services up to its full potential. The economy achieves full output (\bar{Q}) only if the most profitable point along the aggregate demand curve falls at the intersection of \bar{P} and \bar{Q} .

The flatter the distribution of consumer income, the flatter the aggregate demand curve. Basic income, on its own, represents a flat distribution of consumer income.

Monetary Policy

Central banks use monetary policy to manage instability in the financial sector, manage aggregate demand, and stabilize the price level (P). But policymakers are generally not thinking about changing the slope of the aggregate demand (AD) curve. Instead, they believe that propping up the price level also helps keep the economy close to full output (\bar{Q}) or "full employment." But, as we have seen, even at a fixed price level (\bar{P}) , any level of equilibrium output (Q^*) is possible up to (\bar{Q}) .

Expansionary monetary policy works by allowing more credit expansion in the private financial sector. The distribution of consumer purchasing power generated by this credit expansion is unevenly skewed. The central bank cannot control this. When monetary policy props up the price level (P), it steepens the AD curve. This pushes the equilibrium Q^* below \bar{Q} .

Financial instability and price-level instability are not the same thing. Financial instability occurs when easy credit causes an excessive expansion of private debt that becomes more prone to default. The price level moves with any shift in the balance between the flow of consumer spending and the flow of goods and services they purchase with that money.

As a mechanism for distributing money to consumers, basic income is an alterna-

tive to easy credit. A higher basic income implies a monetary policy of tighter credit. Basic income at its natural rate flattens out the AD curve and allows the economy to activate its full productive potential (\bar{Q}) without requiring an excessive expansion of private credit and its concomitant financial instability.

Full Employment, Output, or Access

There exist finite resources (e.g. materials and labor) available to produce the goods and services that people want and need. The economy provides the maximum possible benefit to the people when the only thing holding it back from doing more is the limited availability of resources.

While it is true that economic output is ultimately constrained by resource availability, it is *not true* that using up (fully employing) all of our available resources implies maximum economic output (Hazlitt, 1946, pp. 55–57). Unless we can promise that all resources are always employed to maximum efficiency, economic input does not automatically translate into economic output.

Labor is a resource. As with other resources, we can employ people's time more or less productively. On its own, employing more labor does not imply higher economic output. Specifically, to the extent that we employ workers for the purpose of providing them with money, those workers are not employed for the product of their labor. They are being employed unproductively.

"It would be far better, if that were the choice—which it isn't—to have maximum production with part of the population supported in idleness by undisguised relief than to provide "full employment" by so many forms of disguised make-work that production is disorganized. The progress of civilization has meant the reduction of employment, not its increase." (Hazlitt, 1946, 56)

By tying consumers' income to wages, we tie their access to goods and services to their employment. Economic output then becomes constrained by wage levels and employment levels. Even unproductive employment can lead to more output if it gives consumers more money to spend.

Basic income as a source of consumer purchasing power allows us to unbundle people's access to economic output from their employment as economic inputs. Basic income allows policymakers to pursue the simultaneous goals of maximum output, *minimum employment*, and maximum consumer access to the market.

Money as a Flow

It is tempting to adopt the assumption that there exists a certain quantity of money (money stock) in the economy that continues to circulate forever. Following this misguided assumption, the consumer slice becomes one segment in a perpetual money-flow circuit. The money stock then determines the level of spending (R) within the consumer slice. We can bring R up to \bar{R} and Q^* up to \bar{Q} (See Figure 1) simply by ensuring that the money stock is the right size. Without some combination of economic growth and a tax to remove "excess" money from the economy, an ongoing basic income would cause sustained inflation.

This is not the real world. For the "money circulates" assumption to accurately describe the real world, it must be the case that nobody in the private sector accumulates money. Instead, money must always find its way back to the consumers who spent it so that they may spend it again (Menšík, 2014).

In the real world, money does not circulate perfectly. There are areas of the economy where money flows out faster than it flows in and vice versa. Importantly, these asymmetric and non-cyclical flows do not necessarily indicate any kind of defect in the economy nor do they indicate a self-correcting disequilibrium state.

We can try to force the real world to follow a "money circulates" model by providing people jobs or actively redistributing existing money back to consumers. But we will never be fully successful. To plug the gap, we wind up forcing the financial sector to "print" our money through private credit expansion.

Rather than analyzing and managing some notion of a money stock, we can focus on directly optimizing the economy's money flow along with its equal and opposite flow of goods and services. The money that flows to consumers need not originate from producers. Just as goods and services have a source and a destination, so too can money. Basic income can be a source of money for the economy as a whole. (Howlett, 2020a)

The Market Versus the Government

Some resources are more efficiently allocated by the government, some by the market. It is beyond the scope of this paper to determine where best to draw the line. It can even make sense for the government to participate in resource allocation by trading in the market. The economy operates as a hybrid between private and public resource allocation.

The more resources that the government allocates directly, the fewer resources available to the market and the lower the natural rate of basic income. The government can increase the natural rate of basic income by using up fewer resources directly, and possibly by taxing or regulating activity that wastes resources, or by otherwise making more resources available.

If the government chooses to allocate all of the economy's resources—including labor—directly, then the economy has no need for money and there can be no basic income at any rate, natural or otherwise. Basic income becomes relevant only when the government leaves resources for the market to allocate. The market then requires that consumers have a source of purchasing power. Basic income can be that source up to the point where further money must be withheld to provide an incentive for people to sell their labor.

Resource Conservation

As we have seen, setting the basic income below its natural rate distorts the labor market and the financial sector away from efficiency. It also causes the economy to underproduce while we simultaneously overuse resources including labor. A low basic income forces us to employ our resources unproductively. It causes waste.

Nevertheless, even with basic income at its natural rate, though we may be using our resources efficiently in the short run, we may yet be using up resources at a rate that is unsustainable in the long run. It is possible for the natural rate of basic income to be incompatible with the level of resource conservation we desire.

Rather than set the basic income below its natural rate, which only causes problems, we can adjust our fiscal policy to conserve resources. This has the effect of pushing down the natural rate of basic income.

Whether it be carbon, materials, or people's time, we can tax the excessive use of any resources we wish to conserve. If we wish to reduce overall economic activity, we can tax all sales of goods and services to consumers. These taxes make resource use more costly in general, and thereby reduce overall resource use. They also result in a lower productive capacity (\bar{Q}) and a lower natural rate of basic income.

By conserving resources through taxation and allowing the natural rate of basic income to fall, we avoid the negative effects of setting the basic income below its natural rate.

Local Versus National Basic Income

For local governments that operate below the level of the central bank, it is often not feasible to implement a basic income without other changes to fiscal policy. At the local level, the constraint on government spending is not resource availability so much as it is cash flow. A city perhaps has resources it can sell for cash, and debt it can issue in exchange for cash, but it ultimately still needs the cash, which is issued by the central bank.

The natural rate of basic income is the optimal level of basic income given no other changes to fiscal policy. This implies that the natural rate of basic income for a local government with a balanced budget is always whatever the *current* level of basic income happens to be. For a city without a basic income, the natural rate of basic income is zero.

As with a national basic income, it can nevertheless be useful to make fiscal adjustments—tax increases, reduced spending in other areas, etc.—that change the natural rate of basic income. At the local level, however, the macroeconomic effects of policy changes are insignificant enough that it is appropriate to think

of tax revenue as funding government spending. Using taxes to fund a local basic income is really just a special case of using fiscal policy to move the natural rate.

Pushing around the natural rate of basic income solves fundamentally different problems than bringing basic income to its natural rate in the first place. At the level of the larger macroeconomy, bringing basic income to its natural rate prevents the central bank's monetary policy from leaning on the financial sector and the labor market to provide consumers their money. At the local level, this problem is mostly non-existent.

The low-hanging fruit for basic income is macroeconomic. Local governments are not doing monetary policy. Any government-supported job creation happens through the local government buying labor more or less directly, rather than through stimulating the financial sector. Basic income can still be worthwhile, but there are complicated trade-offs and the choice is not always as clear as the macroeconomic policy choice between basic income and obviously broken monetary policy.

At the local level, it can be particularly hard to see the costs of basic income's absence. We can choose to make those costs explicit by instituting a basic income alongside a perfectly offsetting head tax. Alone, this leaves income distribution unchanged, but it reframes the absence of basic income as a tax on the poor, thereby bringing it into people's consciousness.

Fiscal trade-offs such as tax increases and spending cuts are useful to consider. The problem is that, even when thinking about basic income at the national level, people often *start* by asking about fiscal trade-offs associated with basic income without understanding that the way we get people their money is fundamentally broken to begin with. We can fix this problem by bringing basic income to its natural rate. In doing so, the only trade-off is between broken and fixed.

International Implications

The introduction of basic income by one country necessarily induces a shift in that country's monetary policy. But no country exists in an economic vacuum. We live in an interconnected global economy. Higher interest rates in one country will necessarily put pressure on the monetary policy of other countries and the exchange rates between currencies. The size of these effects will depend on many factors, including the size and global interconnectedness of the country introducing the basic income.

For example, the United States dollar is the international funding currency. When the United States raised interest rates in the early 1980s to stem domestic inflation, it caused a sovereign debt crisis in Mexico and Latin American countries who could no longer afford to roll over their debt at the higher rates. (Ocampo, 2014)

If the United States were to unilaterally implement a domestic basic income, tighter international credit conditions will induce other countries to respond in some way, possibly following suit with basic incomes of their own to counter the effects of higher dollar interest rates.

Alternatively, the United States could simply decide to pay out a global basic income to every person in the world. This would further entrench the dollar's position as the international currency and the Federal Reserve's position as the central bank for the global monetary system.

There are many possible routes to a global basic income. Just as a national economy needs a source of money for consumers, so too does the global economy. The global economy has a certain productive capacity and also therefore a real level of consumer spending that it can sustain. Theoretically, there is a natural rate of basic income for the global economy.

Long-Run Equilibrium

There are private-sector actors who are accumulating money—or, more precisely, financial assets. Some portion of the money that consumers spend does not circulate back to them. This alone forces us to provide consumers with a source of money beyond what the market supplies on its own. We are always replacing the money that has been "accumulated away" from consumers. The most straightforward way to accomplish this is by issuing new money into the economy as a basic income.

The far less straightforward status quo is that consumers receive new money issued by the private financial sector and paid out through wages. The money then flows from consumers to producers as consumers buy goods and services. It accumulates in the pockets of the rich, making them richer and richer.

Because everyone's asset is someone else's liability, money issued by the private sector requires a corresponding growth in private-sector debt. The interlocking web of private debt obligations becomes increasingly brittle and unstable over time, making the economy more susceptible to financial collapse (Mehrling, 2011).

By originating consumers' money as a government-issued basic income, we solve some, but not all, of the problems with this status quo. Basic income can replace the growth of unstable private debt with growth of more stable public debt (national debt). But the rich still get richer in a basic income world.

This ongoing private-sector accumulation of money does not represent a stable long-run equilibrium. Eventually, a small number of rich people will have accumulated enough money that they have outsized power to cause significant problems in the economy, intentionally or not.

The solution to private-sector money accumulation is not obvious and could benefit from further research. Taxes are a popular suggestion, but taxes also cause incentive effects that may not align with our desired economic outcomes. Luxury taxes, in particular, can drain money from the economy while reducing resource waste Another possibility would be for the government to enter the market as a producer selling goods and services to the people—especially rich people—as a way of draining their cash.

Basic income only solves the problem of where our money comes from. It does not address the problem of where our money goes.

Calibrating to the Natural Rate

The only way to discover our economy's natural rate of basic income is to gradually feel for it. We can start the basic income small and gradually increase the amount while we watch how the economy responds. As the basic income approaches its natural rate, the central bank will automatically tighten monetary policy. We should expect to see some businesses fail as tighter credit conditions prevent them from rolling over their funding (Mehrling, 2011). We should also expect to see changes in wage and employment structures as consumers receive a higher share of their income from outside the labor market.

When further increases in the basic income fail to provide any additional benefit, we will have reached the natural rate. Further increases would cause underemployment, under-investment, and inflation.

Once we have reached the natural rate, we can imagine that policy administrators make adjustments to keep the basic income payout in line with the changing natural rate. Typically, this will involve increasing the payout as the natural rate grows to reflect productivity growth. I call this a policy of "calibrated basic income" (Howlett, 2020a).

As we calibrate the basic income, we can watch indicators such as interest rates, exchange rates, labor-market conditions, and economic output. Which economic indicators to use, and how best to use them remains an open research question. The technical aspects of calibrating basic income to its natural level are beyond the scope of this paper.

Absent a real shock to the economy's resource availability, we should expect the natural rate not only to grow, but to grow faster when policy administrators commit to matching the natural rate. Calibrating the basic income to its natural rate creates an incentive for productive investment. Productive capacity grows faster when investors know that consumers will have the money to activate new capacity.

For the purpose of resource conservation, we may instead choose to translate productivity increases into reduced resource usage. We can eschew output growth in favor of input shrinkage. The input shrinkage approach retains the incentive for productive investment. Regardless of the economy's size or rate of growth, producers compete for higher shares of the economy's total product.

Conclusion

Basic income is a simple solution to a simple problem: how to get people their money. For a given economy and a given fiscal position, there exists a single natural rate of basic income. The only way to boost the basic income beyond its current natural rate is to find a way to make resources more available to the market. This boosts the natural rate itself.

Only with an efficient money distribution mechanism can the market allocate resources for the maximum benefit of the people. But even before we discover the natural rate of basic income, we must accept that such a thing exists. The very concept helps us fix in our minds an idea of how to distribute money to consumers efficiently—an ideal to strive toward.

Hypothetically, we can have a world in which credit conditions are tight enough to prevent financial instability and wages merely provide an incentive for useful work. Such a world is a world with basic income at its natural rate. This world has no business cycles caused by the growth and collapse of asset bubbles. The elimination of "monetary make-work" affords people more freedom to spend their time in more fulfilling and productive ways.

There are problems that basic income does not solve. But fixing our broken money distribution system can help with a surprising number of problems that may, on the surface, seem unrelated to basic income. Basic income at its natural rate removes a source of economic dysfunction that obscures our approach to addressing pressing problems such as immigration, financial crises, over-employment, poverty, crime, hate, war, and climate change.

There remain questions about how to discover the natural rate of basic income, how to calibrate basic income to its natural rate, and how to prevent the rich from becoming dangerously rich. But a fruitful exploration of these questions requires that we first accept the premise of a natural rate of basic income.

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