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Two-flow Economics

FAQs

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1. How are basic and surplus goods different from consumer and capital goods?

The distinction between capital goods and consumer goods is valid and well known. However, two-flow economics not only includes goods, but also *how* goods are produced. In addition to talking about *basic* and *surplus* goods, it also talks about *basic* production and *surplus* production.

There is a connection between the two sets of terms, but the connection is not immediate. In brief, it is the difference between merely *describing* what is produced and *explaining* the entire production process.

But before saying more about economics, to get a sense of the challenge, it helps to pause with an analogy from the history of medicine. Prior to the 17th century, there were strange notions about what blood is, and what it does, in the human anatomy. This led to all sorts of exotic notions about blood, that it contains a sort of spirituous substance called *pneuma*, as well as devising medical treatments such as bloodletting.

In the early 17th century, William Harvey, and others, began to break free from speculative medicine. Their breakthrough was both in *method* and in what they *observed*. Harvey's work is considered by many to be the beginning of modern physiology. Why?

Harvey discovered that there are two types of circulation. Pulmonary arteries enter the heart from the lungs and carry oxygen-rich blood away from the heart to the body. Pulmonary veins enter the heart from the body and carry oxygen-poor blood out to the lungs.

A similar type of discovery was made in economics. In the early 20th century, Joseph Schumpeter and Michael Kalecki independently initiated a break from speculative economics. By observing actual patterns of production, they both noticed that there are two types of production, and that the second type, what we call *surplus*, has flexible layers. Unfortunately, unlike Harvey and his contemporaries in medicine, there was no serious follow-up effort by economists to *understand* the dynamics of *how the economy works* in a modern exchange economy.

The distinction between consumer and capital goods remains a valid distinction in standard economics. Difficulties arise because, in the main, it only loosely *describes* productive output, rather than provides a basis for *explaining* the dynamic process that produces consumer and capital goods.

How do we solve this problem? Again, where Harvey and his colleagues observed actual organisms, likewise, progress in understanding an economy requires observing actual production chains and monetary flows. So far, this has been a major obstacle for economics in teaching and practice because its procedure is based on speculative modeling. Speculative modeling would need to be replaced by observing and verifying layers of both capital and consumer

goods, upward through successive production chains and flows of finance, at all levels and stages of production and monetary function.

To sum up, focusing on actual production chains and payment flows not only acknowledges the distinction between consumer and capital, but goes much further to explain the inner workings of production itself. This *shift in approach* not only warrants replacing the *descriptive* names, consumer, and capital goods, but also establishes the fact that there is an *explanation* of the production process that in some cases produces consumer goods, and in other cases produces capital goods.

Briefly, then, the terms *basic* and *surplus* transpose the descriptive names 'consumer' and 'capital' into an explanatory context of the entire productive process. And the shift in *method* breaks free of merely speculative economics.

2. In what way does a wood mill contribute to production?

Those in charge of a mill might not know the ultimate *usage* of the wood being prepared and sold. For example, as is often the case, some of it might eventually go into the construction of homes. But some might eventually go into the construction of office buildings. So, that sawmill would be contributing both to basic production and surplus production.

This also highlights the fact that the distinction between basic and surplus is neither about ownership, nor is it about sectors as typically described (e.g., wood, steel, energy, government, etc.). The distinction, rather, is found in *usage* of the final goods to be consumed. And the fact is that some goods enter our daily lives as consumer goods, while some goods are used to produce goods, that are used to produce goods, and so on, that enter our daily lives as consumer goods.

In practice, one would need to examine where particular shipments of wood go in production chains. And of course, there are trends from year to year.

For economists, there would be the need to adjust accounting protocols that track production and payments right through to final production, sale, and usage. That sort of two-flow accounting is not yet done. But with today's tracking technologies, it would not be difficult to introduce.

3. Do communities really need to pay attention to basic and surplus production?

Yes, and no.

In some respects, no, because surplus and basic activity has been a spontaneous occurrence in human living long before there was reflection on

economic process with its own terminology. However, people do notice when a problem inevitably arises.

For today's economists, the answer is an emphatic yes. To find a practical solution, they *need to understand* these problems scientifically. How? It is essential they *understand*, concretely, the differences and mutual dependencies of basic and surplus production. For example, when dealing with an economy in recession, when basic goods become difficult to obtain. Or when the economy is in a boom, and surplus production is not synchronized with the needs of basic production. Or when there is over-production and sale of commodities that are not needed. Or as is all too common, when production in a nation's domestic economy is high in, say, exported raw material, thus showing high production rates and growth in GDP, and coincidentally, extreme poverty. If understanding is absent, then economists are rendered ineffective, inadvertently trapped in a zone of description. And so, measurement of economic performance by sectors merely lumps everything together, thus leading to a blind regard for GDP. Knowledge of an undifferentiated amount of final production in an economy (GDP) reveals little about the inner functioning of a particular economy, and whether needs are being met locally, or regionally. This also reveals why, for example, year after year, some countries report positive GDP growth rates but concurrently suffer from extensive poverty and ecological crises.

4. What is the problem with GDP from the a two-flow economics perspective?

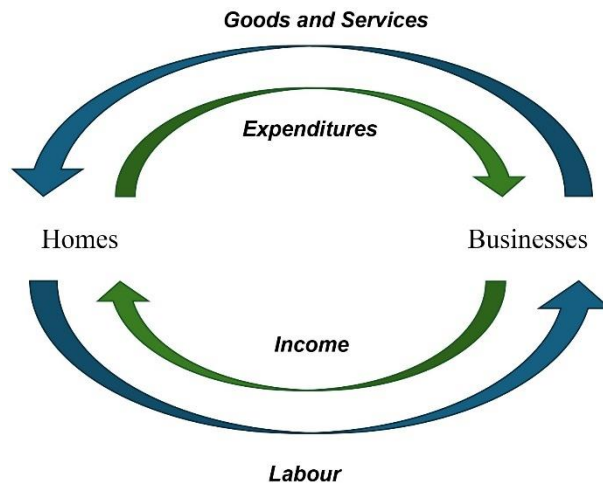
A fundamental problem with GDP is that economists rely on it as a measure for determining how well an economy is performing, while ignoring the reality of the two-flow economic process. (See also [1, pp. 58–61].) The GDP metric was invented by the American economist Michael Kuznets in the 1930s. When the USA was beginning to climb out of the Great Depression, he was tasked by the US Congress to provide a summary on the state of its national economy. While he did an exhaustive study, his results were in terms of total volume. He was unaware of the two-flow production process. Still, Kuznets was shrewd enough to state that GDP alone was an insufficient measure of economic health, and in his report to Congress, issued a cautionary note to that effect. Unfortunately, most economists seem to have dismissed Kuznets' advice.

Because any economy has two types of production, statistical analyses of the basic and surplus parts of the economy will be central. In practice, to understand trends and viability of patterns of production, provision and finance, there will be statistical results, and time series for basic and surplus production locally, regionally, and more broadly. These will be as nuanced as necessary, determined by circumstances, include data from production chains and turnover periods, and be layered. Such results will indicate what is actually happening in the economy. GDP does not account for nuanced

layerings of time series that reflect actual economic activity. Nor does input-output analysis that is based on a subdivision of the economy in terms of described sectors. (See also Qs 6, 11, 14, and 25.)

For example, economists in Owen Sound will study basic and surplus production for Owen Sound over the last ten years. Concurrently, there will be economists in other cities, for example, Orangeville, who likewise will study basic and surplus production over time, and so on. These results will vary from locality to locality. And of course, within the larger economy of the province of Ontario, there are mutual dependencies and statistical correlations. For instance, on the receiving side, both Owen Sound and Orangeville obtain wine from Ontario's Niagara region.

5. **High schools and universities typically teach that there is a “circular flow” in the economy. What is the difference between the circular flow diagram and the two-flow diagram?**



This or a similar rendering of the circular flow diagram is standard in all economic textbooks. See, for example, [1, p. 24].

The circular flow diagram is based on the descriptive distinction between homes and businesses, and that in a modern economy, money eventually reaches both. The circular flow diagram is a truism. It is based on a notion that is no more explanatory of the so-called flows in the production process than the observation that water flows downhill is explanatory of water flow.

Merely observing that water flows downhill does not satisfy the question: how does water flow? Discovering the answer to that question involves an intellectual *shift*. In fluid dynamics, it is essential to observe water flow, as well as to *understand* and *verify* the various partial differential equations that explain how it works. Historically, those differential equations have been

developed in mathematical physics and continue to be used in, for example, the design and construction of water systems for cities.

While fluid dynamics is distinct from two-flow production dynamics, nonetheless, one must begin with the same type of *question*: How does the process work? Economies have been going concerns for millennia. *Understanding* their dynamics obliges economists to observe real economic activity and provide a valid explanation, *verifiable in instances*, in *this* business, in *that* town, in *that* firm, etc. There is no overlap between a merely speculative model that clearly does not bear out in actual economic process and a *theory* of a two-flow production process that is concretely verifiable in actual economies, from individual events to large aggregates.

When one looks at what happens in any business or firm that contributes to the economy, it should be clear to the observer that monetary flows are not circular. What happens in the production process typically recurs. One needs to look at what happens *in intervals of production* or *turnover periods*, such as months, years, and so on, as appropriate.

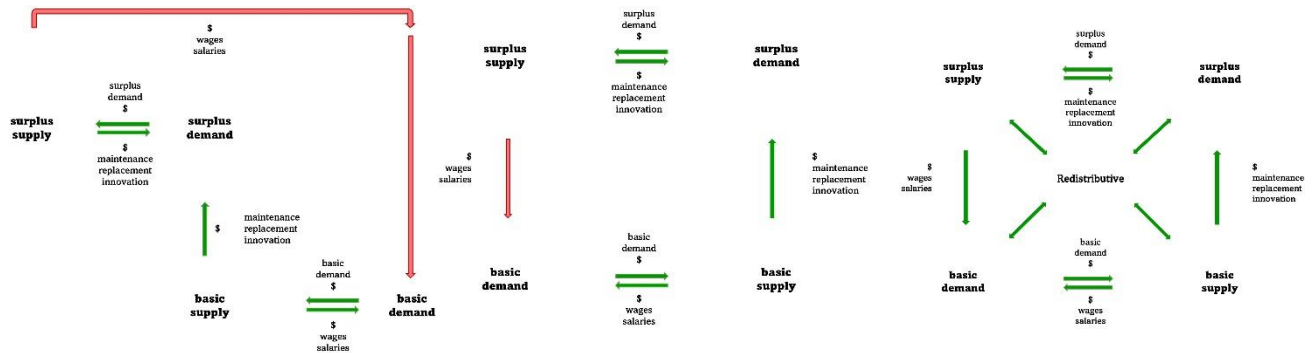
One counterexample is sufficient to show that, in general, monetary flows are not circular. Consider a farmer who sets some money aside for a rainy day: a percentage pays for maintenance and replacement, a percentage pays for personal incomes seasonally, and a percentage is exchanged with banks and other financial institutions to purchase say, a second-hand tractor. And so on.

Or consider the part of a farmer's annual outlay directed to maintenance and replacement. Given that this money supports ongoing production, clearly it does not go directly to homes. It goes directly to other firms involved in, and contributing to, the production process. Similarly for firms contributing to higher levels of production. For example, a tractor factory pays for maintenance and replacement of its factory and tools, etc. That money does not go directly to homes, but to firms working in surplus production. And when a tractor manufacturer buys a new robot, such payments do not go directly to homes. Of course, eventually, money gets to homes. But the challenge is to understand *how* it gets there. The point, then, is not that some money from firms does not eventually get to homes, say, through wages, but that merely observing that money gets to homes tells us nothing about the complex dynamics of the entire process.

Notice also that wages constitute only one class of payments. There are other classes of payment. If one looks at increments and intervals in the production process, it is evident that there are various functionally distinct monetary flows. Accounting methods can reveal trends in fractions of outlay. Even though payment classes are not yet identified functionally, accountants know that there are trends in various payment classes from interval to interval and year to year.

The circular flow model does not explain any set of transactions. No accountant would appeal to the circular flow model in discharging their responsibilities.

When attention shifts to actual economic process, elements in the circular flow diagram are present, but in an explanatory context. This is illustrated by a three-step sequence of diagrams.



6. How would economists familiar with the two-flow structuring account for a local building supply store in terms of basic and surplus production?

Economists need to track the sale of goods, where they go, and into what final goods, and what those final goods are *used* for. For example, surplus, such as tools or buildings used for businesses, or basic, such as a dock, or a cottage or a house that contributes to the standard of living.

Notice, again, that neither ownership nor sectors are factors in the explanatory distinction between basic and surplus. And, looking at other enterprises in the economy, it is easy to see that quite often a single enterprise may contribute to both basic and surplus production.

7. How does two-flow economics account for profit?

The standard definition of profit is revenue *minus* cost. Its computation is a simple fact. To account for profit properly, however, is an advanced problem. If one looks closely at the two-flow process in any single business, one finds distinct kinds of profit.

Observe, for instance, the complex business of farming. To be sure, over the long term, revenue needs to exceed production costs. These could include, for example, wages, expenses for grain, fuel, fertilizer, and other operating costs in production, mortgages, and loans, maintenance, and replacement, unexpected expenses, and opportunities, such as a new type of tractor, or a new type of irrigation system. These costs are of different types. And only when all long-term business expenditures have been accounted for, does excess revenue become disposable at the owner's discretion.

8. How would “two-flow accounting” be different from the standard “input-output accounting” within and between sectors?

See the reply in the last paragraph of Question 2.

9. Can the two-flow process be demonstrated with financial data?

Eventually. Statistical data is currently unavailable. See the last paragraph of Question 2.

10. Can two-flow economics be a basis for making reliable predictions about the economy?

Here it helps to pause with an analogy from meteorology. The answer is a part of understanding how weather works as it relates to outcomes. If the outcome is a forecast for rain, then one needs to ask: What is the likelihood that rain will occur?

Actual weather patterns can be in rapid flux. The science of meteorology relies on statistical data. Specifically, data showing patterns of what has already happened. Data is not used to make predictions as such, but to identify the possibility (as in 'reasonable betting') based on prior events and trends.

When weather does not turn out exactly as forecasted, it comes as no surprise for the simple reason that a weather forecast is based on previous events and trends. The occurrence of an event the next day or week is only known *once it has happened*, thus the use of *statistical method*.

The same method applies to economics.

For example, manufacturers do not make predictions as such. They forecast needs. The economy is complex and in flux. Based on previous years' outcomes and results, they do their best to forecast needed production rates within margins of error, and plan accordingly.

With an understanding of two-flow production, and with sufficient data, future economists will be able to discern combinations of prior trends in basic and surplus production, locally and more broadly. As a result, locally informed economists will be able to assist producers in estimating needs and feasible combinations of rates of production, and monetary flow, not to mention the possible addition of money into the economy.

11. Two-flow economics distinguishes *five main functional zones*. But according to economists, there are sectors in the economy that include steel, energy, technology, etc. How does two-flow economics account for sectors?

Two-flow economics does not replace or eliminate descriptive categories such as sectors. It cuts across sectors and thus identifies their explanatory function. As the example of the sawmill shows, the wood sector contributes to both basic and surplus production. Similarly, a particular model of vehicle might be purchased and used in a business. At other times, that vehicle might be used as a family car.

12. How does two-flow economics account for “booms and busts” in the economy?

The answer to this question is nuanced and requires a more advanced context than can be handled in a short FAQ. But, at this point, it should be plausible that two-flow economics can efficiently account for the various cycles in the economy, including the cycle of doubtful necessity that economists call the business cycle. For since there are two circuits in any economy, to keep the engine running smoothly, the two circuits and all the associated monetary flows need to be intelligently coordinated. And advising on that coordination will be the responsibility of future economists focused on current patterns of production, as well as emergent patterns of production. (See also Q. 17.)

13. Does two-flow economic structure account for all economies throughout history?

For any human group, ancient or modern, there is basic production and there is surplus production. And, as needed, there are countless ways in which what is produced is shifted in function or usage. In other words, there is a redistributive function. Early human groups made spears, nets, and baskets and used them to acquire food. They fashioned tools to make clothes. Later civilizations used more sophisticated tools to provide clothes, food, and to erect buildings. Along the way, money was invented. It was used to facilitate trade. Today, there are global production chains, numerous currencies, international banking, the stock market, and more. Details aside, there are things produced that go into our day-to-day living, and things that are made to produce things that go into our day-to-day living. Basic and surplus production is a sub-structuring of all human living. And there is no limit to the possible development of innovative technologies and mechanisms that can be implemented for tracking production, trade, and ownership, let alone forms of money, since physical currency is already moving toward obsolescence.

14. It is suggested that current economic practice has fundamental flaws. What are they?

This is a complex issue. However, we can briefly point to three overarching flaws.

The first is in *method*. Contemporary economists do not attempt to understand what is going on in actual businesses, production, and trade. This is not to suggest that they are not looking at what is going on. Plenty of statistics are compiled and made available. But the statistics obtained are based on speculative models (such as the circular flow model) and descriptive detail based on sectors and GDP. There is no effort yet to understand the production process, concretely. (See also Q. 5.)

This oversight extends to legitimate areas of inquiry associated with economics such as political economy, social economics, ecological economics, and heterodox economics. Like economics, none of these areas have yet shown any interest in understanding how the economy works. Ironically, their labour is undermined by oversight of the very process that would fundamentally address their diverse areas of concern.

As a result, the second flaw is that establishment models do not incorporate the fact that there are two types of production and two types of monetary flow, and a redistributive function.

The third flaw, a consequence of the second, is the practice of *financialism*. Money is a medium of exchange and promise, a way of facilitating economic activity that provides goods and services. Financialism, however, treats money, the medium of the process, as a commodity to be bought and sold. In terms of economic process, good intentions notwithstanding, it is a grave error. In financialism, “financial markets exist primarily to serve themselves” and not the productive process. “In this system capital is raised for the purpose of creating, selling, and trading securities and derivative securities that do not finance industry, but rather trade within markets that exist as an economy unto themselves. At the same time, those markets have profound and adverse effects on the real economy” [2, pp. 21–23].

15. Recently, there have been various attempts by central banks to reduce inflation. One of their strategies has been to raise interest rates to slow down the economy. How would two-flow economics account for this?

There is no doubt that in current economic practice raising interest rates can have the effect of slowing down economic activity. Conversely, lowering interest rates can have the effect of increasing economic activity.

However, the effect of this practice of lowering and raising interest rates can be compared to what would happen if a car’s engine overheated. Stopping the engine will temporarily let it cool down. But if one restarts it and lets it run

continuously, the problem will reassert itself and the engine will once again overheat. The standard practice of lowering and raising interest rates in an economy has a similar effect.

In terms of how the production process works, the strategy of imposing a blanket interest rate for an entire economy is neither based on, nor does it regard, concrete economic circumstances in any community. Therefore, in terms of the two-flow structure, this strategy lacks any basis whatsoever.

What, then, is the purpose of interest rates? In fact, interest rates, when properly applied, cover costs in the redistributive function and provide normal profits for redistributive services. Such costs and profits can vary depending on circumstances and timing in communities.

16. There are different and, in some cases, radically opposed views about income taxes. How would two-flow economics account for income taxes?

Recall that the two-flow structure is verifiable from the smallest businesses to the largest global aggregates. Methods of taxation, or their absence, depend on circumstances. In that sense, then, two-flow economics says nothing about whether income taxes make sense in one economy or not, or one community or not.

In the future, taxation for business and industry will be sorted out and implemented by individual communities in collaboration with local economists and redistributed accordingly down the line. As such, it is reasonable to anticipate that, eventually, chronic problems of disproportionate taxation mechanisms, income tax evasion, the so-called “balanced budget” issue, further complicated by fuss over national debt, as well as deficit spending, can be avoided.

In fact, the two-flow approach reveals that the purpose of income tax is structural. Revenue received by governments can be spent in four main ways, *T1*, *T2*, *T3* and *T4*.

For *T1*, think of money used to pay for, for example, parks, social services, waste management, museum and library services, the justice system, law enforcement agencies, public health and environmental services, food banks, support for the disadvantaged, sewage and water treatment, artistic communities*, and so on. In other words, governments direct money to pay for the production and provision of *basic goods and services*.

* Artistic products in the broadest sense, the fine arts: visual, literary, performing, etc. and the folk arts: decorative or utilitarian.

For *T2*, think of money used to pay for, for example, trucks used to maintain parks, infrastructure used by social services, the justice system, museum and library and law enforcement agencies, public health and environmental

services, facilities and materials used by artistic communities, the purchase of infrastructure or other technology in the energy sector, and so on. In other words, governments direct money to pay for the production and provision of *surplus goods and services*.

For *T3*, the government pays for services in the *redistributive zone*. This includes, for example, a government tax office, the organization and management of local, national, and international bonds, mortgages and investments for infrastructure, loans, debts, and so on.

For *T4*, there can be money remaining, that is, *excess profit*. It is money that is neither immediately needed nor directly linked to current patterns of production and provision of basic and surplus goods and services. It could be directed toward sustaining cultural implements in communities, such as advances in education, or the fine arts. This revenue, in part, could also be returned to taxpayers, or held in reserve to meet unexpected needs in the economy.

At the extreme end of this scale, one might inquire about the going concern that produces implements used to destroy life and property: various weapons of mass destruction, implements of crime, etc. How are they accounted for by two-flow economics? While these products are neither surplus goods nor basic goods used to raise the standard of living in communities, they are still products of the two-flow economy. It is evident that this going concern is supported by excess taxes, or by creditor/debtor revenue, both of which are obtained through the redistributive function.

17. How does two-flow economics account for prices and quantities?

This question touches on advanced issues, the answer to which cannot be satisfied by summary. However, it is at least plausible to anticipate that, once locally informed economists are aware of, and tracking, the two-flow productive process and the various classes of concomitant payment, then guiding the sustainability of the process will be possible. On a statistical basis, this will include being able to avoid both excess and insufficient production of basic and surplus goods, internal inconsistencies such as inflation and deflation, not to mention the negative consequences of booms and slumps, including the business cycle.

18. Innovation seems to be a regular occurrence in human groups and economies. How does innovation work in two-flow economics?

In modern contexts, economists need to be aware of various mutually dependent aspects of economic process including need, cost, types of profit, wages, credit, quantities, and prices.

These issues will need collaboration and theoretical development beyond what can be discussed here. However, with a narrative about a realistic situation, we can describe a few aspects of a simple case.

The point here is not to, as Schumpeter and others did, invent a speculative model of innovation. Nor to invent models of human psychology, that for instance, hypothesize full employment or ideal mathematical limit states such as in the tradition established by Walras.

Rather, our reflections refer to events that are already familiar but are described in functional terms. For now, we suppose that innovation is carried forward unhindered. We observe the mechanical aspects of innovation. More specifically, we look at shifts in patterns of production and provision and monetary circulation that are consequent to an innovation that eventually touches much of the economy.

19. What are some of the essential features of innovation that eventually impact much of the economy?

Imagine a sizable economy in which money of some type (physical currency, e-money, or whatever) is in use.

Imagine a situation where a group has an idea for a new way of generating energy. The thing is to have a realistic example that impacts much of the economy over the long term.

The group could be a group of one. Or it could be a team, or various loosely organized teams on a national or international scale. Or anything in between.

1. The two-flow steady state

To understand the effects of innovation one needs to observe conditions that exist in a previously established economy. While actual economic and social contexts are complex and can include ongoing innovation at all levels, in all sectors and at various stages of development, imagine an economy that has been operating in a more or less two-flow steady state, and that there is no expansion. In other words, suppose that basic production for the most part has been meeting the needs of the population, surplus production has been meeting the needs of basic production and the redistributive function is doing its part. Suppose also that total money in the economy is approximately constant and is concomitant with established patterns of production, provision, and redistribution.

In that situation, on average, loan payments, mortgage payments and other money that moves in and out of the redistributive function in direct support of production nets zero over time. Moreover, what we have elsewhere called the two sets of “cross-over payments” [2, p. 42] are, on average, equal. If they are not, and this can happen in any number of ways, it need not be a problem if not sustained for too long. If, however, maintenance and

replacement of surplus goods used in basic production is consistently greater than wages for those contributing to surplus production, or vice versa, problems will arise.

To see that, let us consider each case in turn. Suppose that maintenance and replacement costs are consistently greater than wages for those contributing to surplus production. Those wages are the source of money used to buy basic goods. Imagine a baker in an industrial town whose oven too frequently needs expensive repairs and eventually frequent replacement. Suppose that, simultaneously, revenue received from the sale of baked goods sold to people working in that town is not sufficient to cover those expenses. This is a problem for the bakery. Now extend this pattern across the entire economy. In other words, suppose that, on average, the fractions of outlay of the basic economy directed toward maintenance and replacement consistently exceed the financial resources provided by wages received by those contributing to surplus production. This might be sustainable for a time through, for instance, loans and debt management. But in this situation, the basic economy is being drained of its financial resources. If this continues for too long, a downward shift in basic production is approaching and it will not be smooth. We suppose that the economy was in a two-flow steady state providing basic goods and purchased on a regular basis. Major problems will thus ensue, economically and socially, details of which will be determined in actual circumstances.

On the other hand, suppose that wages for those contributing to surplus production are, on average, significantly higher than payments for maintenance and replacement of surplus goods used in basic production. In this case, even if maintenance and replacement costs (for basic production) are being met, the financial basis of the surplus economy is being drained. Before long, surplus production starts getting hit with problems caused by being under-funded.

Notice that neither of these problematic situations are because there is no one who wants to contribute to basic or surplus production. It is, rather, a mechanical problem. The fact is that there are two main monetary flows, one for basic production and one for surplus production. And the two circuits are linked through cross-over payments. If, on average, one circuit is steadily being funded at the expense of the other, eventually production, provision and payment patterns in both are bound to become unsustainable.

These last few paragraphs were about the possibility of something approximating a two-flow steady state where, over time, cross-over payments are approximately equal. For simplicity, we supposed that there was no expansion. If we allow for expansion, the economy grows in volume. In that case, on average, cross-over payments still need to be approximately equal. That will require strategies for increments in growth that, over time, maintain approximate equality of the two cross-over payments. Notice, however, that mere growth is not innovation as such. So, let us get back,

now, to continue the narrative about innovation consisting of the development of a new technology for energy.

2. An example of innovation for a new way of generating energy

The activity of research and development (R&D) is familiar.

In this imagined but realistic scenario, the new energy technology does not yet exist and so is not in use. R&D, then, is neither contributing to the production process, nor is it securing revenue from sales. But a significant amount of money is needed to support R&D. In the five-function economy, the source of money for R&D is the redistributive function.

As we go along with our example, remember that we are looking at the process in types of economic activity. The question is not who provides the money or how often it changes hands, let alone proprietary matters. There could be a billionaire philanthropist, a government agency, various consortia of investors such as venture capitalists who support the project, and so on.

How does innovation work, in fact? Those who finance R&D take the view that “We’ve got to give this group credit for their promising idea.” That giving of credit translates into providing money, also called credit, to support R&D.

Notice that this is not revolving credit, or any other type of credit used to support ongoing patterns of production. It is, rather, for something new that might or might not eventually contribute to production.

If R&D fails, credit provided will have flowed into the economy. This is because R&D uses equipment, facilities, requires wages, and more. But if the development fails and the monetary flow supporting R&D is turned off, then, other things being equal, previous draws on, and effects in the economy eventually dissipate.

But consider, now, the scenario where R&D is successful.

Funding continues. Prototypes are developed. Eventually surplus infrastructure for initial stages of production is established. All of this needs an ongoing influx of money which continues to be provided by the redistributive function.

Now, imagine production of innovative technology taking off. In early stages, money is still provided by loans, grants, and other input from the redistributive function. And as often happens, numerous supporting technologies and industries also are developed or at least expanded.

These additions to the economy also will need money up front to get started contributing to the new production chains. Why? Again, by virtue of being in addition to the pre-existing steady state, like for the innovation, additional technologies and/or products and/or production chains needed are not yet funded through the normal circulation of money in the two-flow economy.

Gradually, though, as production, sales and usage of the innovative technology climbs, money from those sales begins to flow into production chains for the innovative technology. There are beginnings of a surge within the surplus economy.

At each stage, in each enterprise, monetary flows go into three broad classes of payment. One class of payments goes upward into the prior stages of production chains. Another class covers factors of production in each enterprise. These can include, for example, rent for premises, mortgage payments, wages, energy, and so on. Eventually, it will be possible to start paying off credit previously advanced for the R&D and initial stages of production, each contributing enterprise according to its own financial arrangements. A third class of payments moves into higher levels of the surplus economy. For it goes toward the purchase, maintenance and replacement of surplus goods used in the new production. Eventually, production and sale of the innovative technology moves toward being self-supporting. Excess profits become available.

As new energy technology is produced, sold and used, previous technologies are phased out. Transitioning has the potential to be problematic. But imagine doing so creatively, strategically, and collaboratively with the goal of avoiding shocks to the economy and society, locally, and more broadly. Economists will be needed to advise on, for example, feasible timings of complex combinations of shifts in patterns of basic and surplus production and financial strategies that meet the needs of communities. They will also provide guidance regarding manageable increments in downsizing and, in some cases, eventually eliminating production chains for the old energy technology while at the same time phasing in the innovative technology.

We have described an emerging surge in surplus production. In time, which could be years, similar financial support will be needed in both basic and surplus production. Why *both*? The technology is new. It will, therefore, need to be through loans and other mechanisms so that enterprises contributing to both basic production and surplus production will be able to buy and use innovative technology.

Eventually, then, first in surplus and, after a time, in both basic and surplus production, not only production but also usage of the innovative technology accelerates throughout the economy. Carrying capacities are approached. The need for financial support eventually recedes. Schedules are established for repaying debts incurred at the beginning of the transition to innovative technology. Rates in production of the innovative technology settle down to rates sufficient for maintenance and replacement. The effects of innovative technology are vast. New possibilities are nascent. A dynamic state emerges that might well be a two-flow steady state.

We have talked about two-flow steady states. There are examples in economic history. But the modern economy is highly dynamic. And there

may also be consequences of using innovative technology in our day-to-day living that support, for instance, increases in population. If we abstract from other dynamics, the two-surge pattern is valid. But in typical time intervals, there are countless other patterns of production in play, some of which approximate steady sub-states of the economy, not to mention other innovations that are at their own stages of emergence and influence in the surplus stage, the basic stage, and our day-to-day living.

How can we handle all of that? Today, engineering designs provides for, and advises on the management of modern water systems. In the future, when two-flow economics is the standard model, the scientific community will include practical economists with expertise in handling and advising locally and more broadly on what, in many cases, will be massively complex problems of two-flow economic dynamics. We should also point out that the advisories provided will not be in the manner of predictions but in the manner of counsel regarding feasible and promising courses of action. Ongoing locally informed adaptation will always be needed.

3. Quantities, Prices, and Wages

The economy is meant to serve **people**, not the other way around.

An initial focus, then, will be on what is needed and what can be produced. And then, how much of it is needed, and how much can be produced in ways that can be meshed with and move on from current patterns of production and provision.

What is needed, and which quantities will be needed, will be determined by communities working together with locally informed economists who are in communication with economists who are familiar with production more broadly.

As money is provided from the redistributive function to support surges (in either surplus or basic production or both) there will be fluctuations in wages and prices. This may or may not impact nominal take-home pay. Thinking of this functionally, there will at least be new wages for whomever is involved in the new production chains.

Fluctuations in wages will need to be determined by economists “on the spot.” Different economies and different communities will have their own histories and circumstances, economic and otherwise. It does not matter what the wages and prices are nominally. It will be a matter of lining up quantities, wages, and prices, in ways that the economy is able to function and support communities taking advantage of the output of basic production. Mechanically feasible combinations of quantities, prices and wages will be many. Locally and globally, this will always be a multi-variable dynamics problem of considerable sophistication. Also notice that, as mentioned elsewhere (see, for instance, Qs 2, 5 and 27), understanding and guiding economies will require new accounting methods that track

functions, types, and classes of monetary payment along supply chains, over numerous turnovers and periods of time. (See also [1, pp. 40–43, 44–47].)

Innovation might lead to further new demand and supply, new payment patterns, as well as increases in population, or whatever. Or it may turn out that pre-existing total money in circulation is no longer sufficient to sustain a new dynamic state consequent to widespread usage of innovative technology. In such cases, reserves will need to be drawn down from the redistributive function, or new money will need to be introduced into the economy, or both.

20. What light does two-flow economics shed on the law of supply and demand?

Consider the case where, in a region, \$150,000 covers all costs in production chains needed to produce loaves of bread. Suppose that each loaf of bread is sold for, say, \$5 and that 30,000 loaves of bread are produced daily. We skip past numerous complexities regarding ongoing turnover periods and production chains. Notice that in each turnover, in each firm contributing to production chains for bread, the basic supply function is being met by the monetary demand function.

Now suppose that, without introducing innovative technologies, an adjustment is made in production methods. For instance, there might be a more efficient way to manage crops. Suppose that this increases production to 45,000 loaves of bread per turnover. If total costs stay the same, if the money in circulation stays the same, and if all the 45,000 loaves of bread are purchased and consumed, then the selling price drops to \$3 per loaf. On the other hand, if the costs of production change so that bread needs to sell at \$6 per loaf to cover costs, and the money in circulation for bread production stays the same, then only 25,000 loaves of bread can be produced and sold.

For another example, suppose that in one given year, weather conditions reduce crop yields. Fewer loaves of bread are produced. If total costs stay the same and total money in circulation also stays the same, then, without some kind of compensation strategy, prices go up. In that case, it is \$150,000 in circulation to produce a smaller number of loaves of bread.

Similar examples can be provided for surplus production.

We can see, then, that there is a law of supply and demand that follows from the fact that, in production, the supply function is met by the demand function. For a given amount of money in circulation, the law is a principle of limitation. If we assume that the total money in circulation to produce some economic good does not change, if production quantities increase, and what is produced is sold, then prices drop. And vice versa.

Unfortunately, in current business practice, its meaning can be radically different, universally accepted, and frequently applied. Among other makeshift measures undertaken in the name of “free market competition,” and to sustain maximum profit, vendors, small or large, individually or collectively (by “colluding”), might resort to

- compromising standards for a good or service (reducing “quality control”), and/or,
- inflating the cost of a good or service (“price gouging”), and/or,
- undercutting the cost of a good or service (“eliminating the competition”), and/or,
- obstructing or hoarding the availability of a good or service (“cornering the market”), and/or,
- relocating business out of indifference to local needs (“outsourcing”), and/or,
- either initiating or procuring various measures to seduce consumers (“fabricating needs” and “engineering desires”).

Examples are many in basic and surplus production, but not surprisingly, basic goods such as food, housing, transportation, recreation, and entertainment are routinely exploited in this way. “[T]he reason why ... is not the reason on which simple-minded moralists insist. They blame greed. But the prime cause is ignorance ... When people do not understand what is happening and why, they cannot be expected to act intelligently. When intelligence is a blank, the first law of nature takes over: self-preservation. It is not primarily greed but frantic efforts at self-preservation” [3, p. 82] that can pervert the law of supply and demand.

21. What is the two-flow perspective on booms and slumps?

This is an advanced topic. But we can point to a few aspects for the basic idea.

In a boom, there is a sustained maximization of production that disregards the two-flow production process. There can be a buildup of relatively random stresses and strains on the two-flow economy. Eventually the boom becomes unsustainable. There is the inevitable slump that follows. However, after a time that can include liquidations, bankruptcy and countless other difficulties, relatively random production, sales, and usage can begin to increase again.

The boom and slump phenomena are not inevitable but rather the consequence of not attending to the dynamics of the two-flow economy.

22. What does two-flow economics say about international trade?

Trade between economies is a matter of linking distinct two-flow economies. No matter how long an international production chain, neither export nor import, per se, are part of domestic production. That means that the hookup between economies is through the redistributive function. In international trade as a whole, five-function, two-flow economies extend globally and are mutually linked through their respective redistributive functions. However, identifying details in the process takes some work. For an introductory presentation see, for instance, [1, pp. 110–115].

23. What does two-flow economics say about increasing money supply in an economy?

Practical economists working with the two-flow process will be tuned to circumstances. Circumstances include the circulation of money, locally and more broadly. If, for example, an economy is expanding due to innovation, perhaps only locally, then additional money may only be needed locally. Why? If an economy grows beyond some initial state, then more money will need to be provided for additional transactions.

In current practice, there are various methods that central and commercial banks use to increase money supply in an economy. For instance, central banks issue reserve deposits, while commercial banks issue bank loans. Details aside, at this stage, aspects of the problem should be evident. Like the problem of controlling interest rates across the board, contemporary methods for controlling money in the economy is not directed to meet local needs and ignores the fact that there are two sub-economies—basic and surplus—and cross-over payments, not to mention a redistributive function. To discuss these issues adequately would require considerable technical discussion beyond this FAQ. On the other hand, it is not a fundamental flaw but a problem that will self-correct. For current methods to control the amounts of money in an economy are merely part of the larger cluster of flaws currently called establishment economics. These will all be identified and resolved by two-flow economics.

24. How does two-flow economics account for the stock market?

As observed by several economists, the stock market is not “the real economy.” But clearly it is part of the economy.

There are two types of production, basic and surplus, and five main monetary functions, namely, basic and surplus supply and demand, and the redistributive function. Evidently, not all transactions are directly for basic or surplus production. As already described, there is a vast remainder class of economic activity which includes, for example, managing change of ownership

and managing the distribution of money available for production and provision of goods and services. The remainder class is specified in applications. Its strategies have developed historically and as needed in circumstances. This now shows where the stock market fits in an economy. Observe that buying and selling securities does not contribute to production of either type. It merely changes ownership. Much of the stock market, then, can be seen to be second-hand trade and thus operates within the redistributive function. (For more details see, for instance, [2, pp. 21–23, 33].)

25. What are sectors according to two-flow economics?

In practice, the name ‘sector’ is descriptive and ambiguous.

For instance, there is the energy sector. Yes, this is identifiable. We can easily point to businesses that provide sources of energy. But energy can be used in two types of production, in the redistributive zone, and in our homes. Similar distinctions are needed if one looks to other sectors such as wood, technology, public (government) and private.

From a general point of view, sectors such as energy, and so on, are grouped. In that way, in some contexts, it is said that there are five main sectors in an economy, each of which includes industries, production and services. The primary sector obtains raw materials, the secondary sector is manufacturing, the tertiary sector provides services, the quaternary sector provides information services, and the quinary sector provides human services.

Functionally, we can see that the secondary sector depends on the primary. For the secondary is merely a name for the last stages of production chains. It is also evident, then, that the tertiary, quaternary and quinary depend on the primary and secondary. But besides these obvious descriptions, notice that raw materials go into both basic and surplus production, that services are for two types of production, for the redistributive zone, and contribute to our day-to-day lives which includes, for instance, education.

Some economists also speak of the “innovation sector.” This is where R&D occurs. As described in Q. 18, the innovation sector draws on but does not contribute to the productive process. Innovation is supported by credit and, whether the results turn out to be minor or major, the work of innovation, as such, only represents a potential contribution at some level or levels of production, or redistributive services. Similar ambiguities are present when goods are distinguished by whether they are durable, or non-durable, tangible or non-tangible, etc. All these distinctions are valid as initial descriptions. In that respect, there is no prescribed limit on the possible number of sectors. Similarly, being merely descriptive, and in general terms, they provide no direct foothold for explaining instances and dynamics evident in the operations of actual firms contributing to production, provision, and redistribution, let alone aggregates of instances and dynamics in any two-flow economy.

26. How can we initiate dialogue about two-flow economics with contemporary economists who hold standard views?

In some respects, there can be no dialogue, at least not in the usual sense of debate. Modern physiologists do not debate with proponents of Galen about *pneuma* in the blood. Modern chemists do not debate with proponents of alchemy about *phlogiston*. Modern astronomers do not debate with proponents of The Flat Earth Society. Unfortunately, the case is likewise with respect to serious dialogue with current economists. Their devotion to economic models that are imaginary and speculative renders the possibility of serious dialogue extremely remote. (See also Qs 14 and 27.)

27. How might two-flow economics be applied?

On the one hand, two-flow economics is not something that can be applied. Its existence is a fact: the two flows are operative in any economy.

On the other hand, standard economic teaching and practice is deeply entrenched, impractical, and harmful.

Historically, the problem is deeply ingrained. (See, for instance, [4, pp. 103–112].) Complex economic problems need practical solutions. The clue to a solution is identified in Question 3. Making the shift is a scientific issue. It is essential for economists to *understand*, concretely, the *mechanical structure* of economies. Thus, the transition from current teaching and practice to implementing locally informed economic strategies and policies for basic and surplus production, will require a *foundational shift in mentality*. As with any scientific advance, it will depend on first, a major shift in education, and secondly, effective lines of communication. (See also [4, pp. 103–112, 133–43, 145–153].)

This is especially crucial in the case of two-flow economics because, eventually, its application will become part of our everyday common sense. It has always been in everyone's best interest to monitor and maintain health of any kind. To maintain physical and mental health, one consults a doctor or nurse for diagnosis and treatment. To maintain physical fitness, one seeks the advice of a qualified trainer or coach. This is no less true for locally informed economics. The economic health of business and government, and the welfare of communities, will benefit from two-flow economics when implemented by qualified practical economists. Much as the economist J. M. Keynes opined, locally informed economists will be as familiar a professional figure as doctors, lawyers, and engineers. In addition, local economists will collaborate with colleagues at all levels (local, regional, national), including those who will track, for instance, complex combinations of international production chains.

Realistically, though, under the current culture of teaching and practice, the shift we are pointing to is extremely remote in the short term.

However, there are at least four reasons to hold out hope for the long term:

- The ineptitude of current economic teaching and practice has slowly come under the scrutiny of legitimate areas of inquiry associated with economics such as, political economy, social economics, ecological economics, heterodox economics. Unfortunately, like the field of economics itself, they have yet to show serious interest in making the shift to *understanding* how the economy works. (See also [1, pp. 3–5, 20–26].)
- The initial insights into two-flow economics presented here are accessible to secondary school students. (See also [5, pp. xvii–xviii].) Might not a few bright young economists—early in their career—likewise be afforded the opportunity to shift attention away from imaginary models, based on speculation, to observe facts and data in the operation of an actual business?
- The required changes in accounting protocols are already possible with today’s tracking technologies.
- Upon its maturity, two-flow economics will be as sophisticated as any modern applied science.

28. Does the two-flow heuristic account for both individual firms and the economy as a whole?

Yes, for both. It is worth looking at this in some detail. The heuristic is first discovered by observing and explaining individual transactions in individual firms. One also needs to keep an eye on final usage of what is eventually produced.

We can begin by revisiting the example of a local bakery. Revenue is obtained from the sale of baked goods. That transaction is an instance of basic supply meeting basic demand.

But the bakery spends money too, and in many ways.

Consider a typical production and pay period of weeks, say, or a month.

For now, let’s focus on outlay that is specifically tied to the ongoing production of baked goods, and represent that total by O' . There are, for example, racks of bread, pies, and so on. The ' points to the fact that the bakery contributes to basic production. **This total outlay for production, then, is not equivalent to total outlay of the bakery, as such. Increments of total outlay that are specifically tied to production are, generally, less than total outlay.** This will become clear in the discussion below.

For this example, let’s suppose that during a time period of, say, months or years, the bakery business is relatively steady, and revenue obtained from

basic demand (people buying baked goods) is meeting the costs of running the bakery business.

In any increment of production and corresponding pay period, some fraction of O' , G' say, $0 \leq G' \leq 1$, is for maintenance and replacement. In other words, maintenance and replacement is $G'O'$. Clearly, the function of such money is surplus demand.

But each increment of production involves wages which, therefore, are given by $(1 - G')O'$. For example, if $G' = 0.2$, then $(1 - G') = 0.8$.

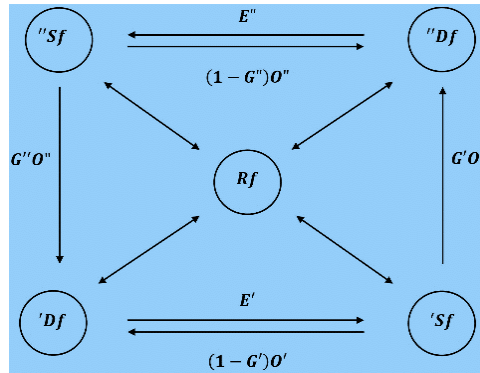
Typically, however, there can be many other payments that a bakery makes from month to month all of which are covered by revenue.

Keep in mind that O' is outlay specifically tied to increments of production and that that amount, generally, is less than total revenue. The bakery needs to buy flour that is provided by, for instance, a wholesale flour distributor. And so part of revenue becomes basic demand to be met by basic supply. Why basic demand and basic supply? It is because that money is directed upward into a prior stage in the production chain that provides flour that eventually goes into baked goods which are basic goods. But a bakery might purchase a new and better type of oven. The function of such money is surplus demand. A bakery might also put money aside for some not yet determined purpose. The function of such money is redistributive. Other money might be for paying rent or paying off a long-term mortgage. Rent is paid to owners of a property, and paying off a mortgage is a way to gradually pay for the transfer of ownership. Those payments also are redistributive. A bakery might be making regular use of revolving credit, which is redistributive. Although if, as assumed and as is normal, revenues are meeting costs, with the exception of possible late fees, those payments can, over a sequence of pay periods, average out to being nearly zero.

And so on.

In other words, if we look at an individual bakery and consider an increment of production and pay period, there is, in fact, outlay O' that is specifically for the production of baked goods. That total is a sum of costs for maintenance and replacement, and wages. That is, $O' = G'O' + (1 - G')O'$. But another part of revenue is directed upward into prior stages of basic production. And, normally, there can be various payments to and from the redistributive function.

All of the payment types just described occur and are indicated in the general heuristic of five monetary functions below.



The example just discussed is of a bakery which produces the final goods. If we follow money upward into supply chains for the bakery, and keep our eyes on monetary functions, we find the same patterns of five monetary functions operative in all contributing firms and at all stages of production.

If we look to the whole economy and consider all firms contributing to all stages of basic production, from natural resources through to the sale of finished basic goods, we again get the same pattern of monetary functions. In that case, however, we are thinking of all instances taken together. Total outlay O' will refer to the sum across all stages of production of all outlay in the economy that is directly tied to the production of basic goods. The quantity G' will be the fraction of that total outlay that is directed to maintenance and replacement across the entire economy.

Similar descriptions apply to production chains for tractors, and to all surplus goods in the economy. The $''$ is for surplus production. And so total outlay O'' that is specifically tied to the production of surplus goods also is a sum. In this case, the fraction of money directed toward wages is $G''O''$, the fraction for maintenance and replacement is $(1 - G'')O''$, and total outlay specifically tied to surplus production is $O'' = G''O'' + (1 - G'')O''$. Just as for basic production, revenue also contributes to surplus expenditures directed upward into surplus production chains, and the redistributive function.

The fractions $G'O'$ and $G''O''$ are called “crossover payments.” This is because $G'O'$ is the part of outlay for basic production that is directed to surplus production and thus enters the surplus economy, while $G''O''$ is the part of outlay for surplus production that is directed to wages and thus enters the basic economy.

Notice that the general heuristic is first discovered by explaining individual transactions in individual firms. If we then take all transactions and firms together, the heuristic is also explanatory of an entire economy.

In the future, accountants for individual firms will track payments in ways that will be helpful for economists working with the two-flow heuristics. That way,

for an entire economy, practical economists will be able to gather results of two-flow accounting from individual firms, locally and more broadly, as needed. To understand trends, numerical results will be statistical.

29. It is pretty clear that current notions of a healthy economy in terms of ongoing positive growth rates of GDP are highly problematic. What alternative does two-flow economics offer?

The question is touching on advanced issues with all the complexity of implementing two-flow economics. But with respect to production rates, some first impressions can be obtained by thinking about tractors and bread.

Certainly, these two production rates are quite different. One does not get a new tractor for every crop. A tractor is used many times, over many seasons, to contribute to many turnovers in the production of wheat. Over many years, wheat ultimately goes into many loaves of bread.

Now look at any farming community that uses tractors to grow wheat. There are rates of maintenance and replacement for maintaining current patterns of production. But suppose that production rates of tractors begin to exceed current maintenance and replacement. Suppose also that this is not resulting in a buildup of unused inventory of tractors. In other words, suppose that the new tractors being produced are being purchased and used. Since that production and usage go beyond current maintenance and replacement and usage, there is some kind of expansion going on in agriculture.

For as long as the rates of production, sale and usage of new tractors continue to exceed prior maintenance and replacement and usage, there is an emerging surge in agricultural production. In one year, say, beyond maintenance and replacement, new tractors are produced, sold and used. But previous tractors are still in use. So, this pushes up production from one year to the next. If this happens the next year, as well, then production and usage rates increase again. And so on. In other words, when, from year to year, production, sale and usage rates of tractors are beyond prior needs of maintenance and replacement, there is a pattern of accelerating basic production.

Obviously, farmers do not buy more tractors than they can use. From season to season there are typical crop yields that, to some extent, depend on how many tractors are in use. Just as farmers know what is needed for the successful functioning of their farm, economists working in two-flow economics will, as much as possible, know what is needed locally, and more broadly. For instance, it might be that surplus production is falling short of current maintenance and replacement needs, or the opposite. Informed partly by two-flow accounting, and generally being both locally and globally informed, economists will be able to help guide initiatives for production.

By contrast, current economics claims that the way to a healthy economy is to produce as much as possible, and increasingly so, from year to year,

irrespective of need, let alone whether or not what is being produced is meeting the needs of the surplus economy or the basic economy or communities making use of what the basic economy produces. It should not be surprising, then, that imposing a massively naïve notion of growth that is merely in terms of total production volumes, irrespective of basic and surplus needs, let alone concrete circumstances, has been steadily causing major economic problems globally. (See also Q. 12.)

30. There are fields of study that are attempting to reform establishment economics in response to escalating ecological and social conditions. How do their efforts relate to two-flow economics?

Unfortunately, however sincere in their attempt, the approach taken by these fields to address the world's troubling ecological and social conditions is inevitably self-defeating.

As previously pointed out (see, for instance, Qs 14 and 27), various fields in the academy have been attempting to reform economic teaching and practice (ecological economics, heterodox economics, etc.) by following the same methodological tradition as establishment economics, without being aware of its fundamental limitations. (See also [1, p. 4].) Most of the work being done under the rubric of ecological economics, including commonsense appeals for social reform, has simply led to more speculative models, philosophical, mathematical, and otherwise, diverting attention away from much-needed focus on how the economy works. There is no appetite yet for undertaking the shift to scientific *understanding* of actual economic process.

Common sense solutions can be appropriate in isolated instances. For example, inhabitants of a small property, or village, can be mindful of freshwater usage by limiting the number of wells that are drilled within close proximity of one another.

But, if large-scale operation and management of water supply for an entire city and beyond is to be managed *intelligently*, then the required shift calls for collaboration with engineers who understand the dynamics of water flow. That understanding is not commonsense but emerges from centuries of progress in applied mathematical physics.

By equal measure, what will be possible for long-term local and global economic stability and sustainability calls for collaboration with locally-focused economists observing actual economic activity and providing valid explanations, *verifiable in instances*, in *this* business, in *that* town, in *that* firm, etc. There is no overlap between merely speculative models that do not bear out in actual economic process, and the theory of two-flow production process that is *concretely verifiable* in actual economies, from individual events to large aggregates.

With the implementation of two-flow economics, academic appeals to “take care of one another and the ecology” will simply have become a matter of common sense and common purpose.

“For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children's future. And we are all mortal.”*

*John F. Kennedy, Commencement Address at American University in Washington, D.C. (232), June 10, 1963, Public Papers of the Presidents.

31. Economics is a major field of study that goes back centuries. How do its contributions measure up against two-flow economics in the historical development of the field?

Progress in understanding the historical development of the field will be its own major (multi-functionally specialized) study. In particular, (functional) research will provisionally identify positive aspects of the tradition that potentially merit revisiting. (See also [1, pp. 116–119].)

Here, we can only provide a few broad observations.

To be sure, two-flow economics did not emerge in a vacuum. In his entry into the field in the 1930's, Lonergan did extensive historical studies in the field. And in some respects, the distinction between basic and surplus goods and services, and other elements of the two-flow economics are not completely unfamiliar to current establishment economics. (See, for instance, Q 1.)

As previously stated, it is the fundamental differences in the tradition so far that do not measure up. (See also Qs 14, 18, 23, 27, 30 and 36.) The tradition consists of combinations of philosophical and political speculation, mathematical models of economies and their possible states (e.g., equilibrium), notions of human psychology and, in more recent decades, mathematical models of stock market activity. (There is, for instance, the tradition that includes the famous Black and Scholes (and Merton) equations for pricing financial instruments.) Notice, however, that whether philosophical, social, or mathematical, these various models are remote to concrete circumstances. (Anticipating a possible objection here, there is no doubt that the Black and Scholes type random walk equations applied to stock market activity are to some extent verifiable in actual events. But as in any statistical theory, the equations do not define the events. Rather, they provide benchmark distributions about which occurrences of actual events diverge randomly.)

Despite all the philosophical speculation, social models, modeling for counting and measuring aggregates of economic events, models such as produced by Walras, Keynes, and others, or more recent models of international trade, and stock market activity, good will, ill will, and all other considerations, the question remains: **What is it that happens in any instance of production,**

sale, trade, or finance? Not to put too fine a point on it, none of these approaches have focused on attempting to understand “how the thing works” [6, n. 24, p. xxix].

32. What would be the implications for the housing sector if two-flow economics were known 40 years ago?

To understand how economists might have dealt with the housing sector, one would need to consider it in the context of the entire two-flow economy.

Four of the key elements would be prices, quantities in production chains, wages, and total money in circulation at a given time, both domestically and internationally.

- (1) Prices, wages, and money in circulation would be correlated with quantities in basic and surplus production, respectively.
- (2) Because they are mutually dependent, tinkering with any one of these would impact the others. In two-flow economics, the relatedness of these quantities would be made **precise** because of (1).
- (3) Economists would be provided with relevant data on time series of wages, prices, quantities, frequencies, turnover magnitudes, and money in circulation, in basic production, and layerings of surplus production, respectively, as well as in redistributive activity. They would be able to anticipate and provide timely counsel to avoid bottlenecks in production chains, as well as unnecessary crises in demand.

And so, with respect to the housing sector, in broad terms, one can identify five implications. Economists would,

- (1) anticipate and/or estimate emergent demand, short-term and long-term (for there is no use in producing without selling);
- (2) have knowledge of available technology in existing global production chains;
- (3) estimate feasible combinations of frequencies to meet turnover demand in enterprises in current or foreseeable production chains. Feasibility would depend, in part, on entrepreneurial units in a production chain being able to keep in step.

To illustrate how frequency and turnover magnitude relate, imagine the case where a builder produces and sells 100 houses every 6 months. This turnover magnitude could be doubled, for example, in two ways. One way is to decrease the frequency. In other words, through some kind of innovation (in methods, or technology) the builder might develop a more

efficient way to produce houses, say, 100 every 3 months, instead of every 6 months. That way, in 6 months, the turnover magnitude would be increased to 200 every 6 months. Alternatively, the turnover magnitude could be doubled by simply doubling the number of houses being built in a given time period. This would require additional labour and management, expanded infrastructure, and additional surplus goods such as tools, trucks, and so on;

- (4) identify feasible turnover magnitudes. Turnover magnitudes depend on (1), (2) and (3);
- (5) in times of emergent innovation on a large scale, advise on feasible combinations of production rates, turnover magnitudes, quantities, wages, and total money needed in the basic, surplus, and redistributive functions of the economy. Among other things, such counsel would be needed to avoid negative consequences of the business cycle. This is a complex issue and will be treated in our forthcoming book, *Practical Economics*.

33. What are the implications of Lonergan's discovery with respect to the responsibility of politicians in economic process?

There is a key implication of Lonergan's discovery for future politicians, one that supersedes diverse political viewpoints. In the measure that economists evolve to become stewards of local and global economies, one can also anticipate that politicians, too, will evolve to become facilitators of wise economic counsel. In other words, future politicians will be free of the burden of assuming direct responsibility for securing and maintaining economic well-being. And so, it is plausible that the establishment of a properly functioning economy will contribute to the dissolution of counter-intuitive divisiveness that has routinely hampered the effectiveness of our political institutions.

34. Who is Bernard Lonergan?

Bernard Lonergan (1904–84) was a native of Buckingham, Quebec and a 20th century scholar who taught in Europe, the United States and Canada. During his academic career, he received nineteen honorary doctorates and several other honors, including being invested as Companion of the Order of Canada in 1971 and being named Corresponding Fellow of the British Academy in 1975.

35. Why has Lonergan received so little attention in both the academy and business world?

Despite these honors (see Q. 32), the substance of Lonergan's discoveries has been virtually marginalized by the academic and economic establishment right

up to the present day. This oversight is rooted in a fundamental disorientation in our educational institutions, the effect of which has adversely impacted intellectual labour in general, as well as profoundly influenced politicians, economists, and business leaders. As a result, economic models taught today in our schools, colleges and universities are merely speculative and have little or nothing to do with understanding the concrete circumstances that shape our complex economies and diverse rhythms of daily life. Consequently, many obvious instances of chronic human suffering can be observed in both our local communities and around the world.

36. What is unique about Lonergan's approach?

In brief, to make advances in his various areas of interest, Lonergan eventually cut to the root of the fundamental disorientation in intellectual labour by introducing three distinct leading ideas in both the foundations of methodology and the theory of economics. While each of these ideas are interwoven, we focus on his scientific discovery of the “mechanical structure” of economic process and its practical application, briefly introduced in [1].

In contrast to academic and economic convention, Lonergan's approach (two-flow economics), or what we call “the new standard model,” is concerned with what, in fact, takes place, not only in our hometown economies, but also in our regional, national, and international economies. In particular, the new standard model sheds light on the vital role of banks and other normal sources of credit, as well as on the crucial need for local input and guidance to economic process. Just as in any established science, verifiable understanding is needed to make progress and, among other things, effectively overcome some of the obvious problems with current establishment economics such as : the insidious, but inevitable, spread of global poverty, the brutal enforcement of interest rate manipulation, the fallacy that GDP is a valid metric of economic performance, the fallacy of introducing further merely speculative metrics, the reckless exposure of the economy to the whims of stock market speculation. In contrast, Lonergan's approach in two-flow economics

- will be concerned with eventually eliminating endemic poverty.
- will understand and adjust interest rates to meet the requirements of economic process for both types of firm, in instances, locally, regionally, and more broadly,
- will identify GDP to be what it is, not a measure of economic health but rather a clear indication that current economics has no grasp of the process,

- will replace GDP with ranges of metrics, which will be developed for and informed by progress in understanding how the local and global two-flow economy actually works.

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