

REAL ECONOMIC VARIABLES

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When I was a child my parents sent my brother and me each year to my grandparents for a few weeks—there were five children all together and my mother was looking to ease her workload. My grandfather was a country parson and had retired to a cottage across the road from the farmhouse where my grandmother had grown up. For them it was a return to where they had met and courted some thirty years previously. The farm and the cottage were situated in the small hamlet of Karsdale in Nova Scotia, which is a province on the east coast of Canada. My grandmother's family has lived in Karsdale continuously for over 200 years, and still does to this day. They arrived from what is now the United States as refugees from the American War of Independence, turned forest into farmland and built a successful life as 'mixed farmers,' although the term does not quite capture the whole story. Certainly there was mixed farming involved: they had fruit orchards, dairy cows, and gardens. But for others in the hamlet, getting by meant logging in the winter and fishing in the summer.

My purpose here is not to tell the epic saga of a family of war refugees, although that might make a good story, and, if I were to explore Lonergan's notion of the pure economic cycle, it might be a particularly apt slice of history.¹ My assignment is to provide a simple introduction to real economic variables and I am in need of some good examples. My thoughts turned to Karsdale because, for me as a young boy, going to Karsdale moved me for a few weeks to a 'simpler' way of life, and this was formative in my own development. In Karsdale, there was time to think slowly and thinking slowly, ruminating as it were, is the appropriate pace. The issue of pace is important here. My goal is not to impart information. If you are looking for information I can save

¹For Lonergan's account of the pure cycle, see *CWL* 21:242-245 and 275-281. I introduce the pure cycle in popular fashion in "The Two Fundamental Notions of Economic Science and the Economic Crisis," *The Lonergan Review* 2 (2010).

you some time. For Lonergan, production is primary, money is secondary. There are five real variables or functions in macrodynamic economics. Four of these are operative exchanges: basic and surplus income (I' , I''), basic and surplus expenditures (E' , E''), and the fifth is redistributive exchanges (R). These exchanges can be organized in Figure 1 as follows:

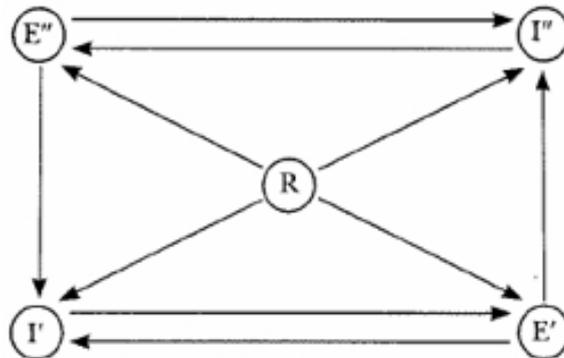


Figure 1 Diagram of Real Variables

However, if you want to make some sense of the circles and lines, if you want to understand what they stand for and how they might be implemented in real economies, then you have to slow down and ponder them.² The good example helps.

1. To Fish the Bay of Fundy You Have to Know the Tides

The hamlet of Karsdale lies at the foot of the North Mountain on the shore of the Annapolis Basin. The North Mountain is really a steep hill. The Annapolis Basin is an arm of the Bay of Fundy and it has the world's highest tides. It is the tides that come

² Both Brown and McShane already commented in their essays on Figure 1. In this volume our attention is on the horizontal lines and on the fact that there are two of them in this basic diagram. The central redistribution relates to banking and the second-hand trade (and also to exports and imports when one is dealing with a single economy). Take note, at your leisure, that it is not part of the production flow, and then you might muse over the odd fact that the second-hand trading that is the goings-on of stockmarkets is taken as a measure of economic health.

spontaneously to my mind as an apt example for communicating Lonergan's account of real economic variables. The difference between high and low tide on the Bay of Fundy can be as much as fifty feet. The change is hard to miss. When the tide is low, the mudflats stretch for about a mile from the shoreline. These mudflats are entirely underwater at high tide.

Anyone wanting to fish in the Annapolis Basin needs to take into account the tides by paying close attention to the natural rhythms of tidal flow. Successful fishers pay attention to these underlying natural patterns and exploit them. Anyone who lives near tidal waters and pays attention will start to notice changes in water levels and currents. Every day the tides go back and forth twice. High and low tides occur twice a day. Every day the high tides and low tides occur about forty-five minutes later than the day before.³ When we were children we paid close attention to this because we could only swim for about an hour before and after high tide, and we liked to swim. Over the course of a month, tides are especially high and low twice a month; these occur every two weeks. A patient observer will notice that these high tides correspond to the phases of the moon: the highest tides are at new and full moons, known as spring tides, and the lowest tides are at the first and third quarter moons, known as neap tides. Paying attention to tides has obvious practical advantages besides optimizing swimming time because the fish move with the currents that tides create. The flow of the tides is a scheme of recurrence⁴ that conditions how the fish move and feed. Schools of herring and mackerel come into the basin with the incoming tide and move out of the basin with the outgoing tide. Other

³ There are regional variations in the length of tide cycles and, so, there are tables that predict the tides for particular locations.

⁴ Schemes of Recurrence are of serious significance in Lonergan's analysis of the concrete application of scientific understanding: see the index to *Insight, CWL 3*. They will be of increasing importance in the full science of economics described by McShane in the final essay here. But immediately you can ponder on the importance of turnover period and turnover magnitude even in the simple illustration of this article, weir-fishing, and then go on to reflect the odd neglect of this reality in current establishment analysis.

large species, such as striped bass, follow the schools of herring and mackerel to feed on them. To take advantage of the tides and their currents, the Mi'kmaq, the aboriginal peoples of the Annapolis Basin, and later European fishers used a particular kind of fish trap known as a *weir*.⁵ The weirs my own ancestors used were designed to direct the fish into a trap that could be reached from shore. A barrier was built from the shore to the trap that forced fish moving out of the basin as the tide feeds into the trap. As the tide lowered, we went out to the trap on an oxen-driven flat sled and caught the fish with nets, putting them in barrels resting on the sled. See Figure 2.



Figure 2 Annapolis Basin Weir.

Weirs are an excellent instance of human ingenuity that, when implemented, improved the prospects for survival in the community and improved the standard of living. The time devoted to fishing and the quantity of fish caught increases considerably when you shift from catching fish on a line from shore to using the weir. This creates time for other activities not directly related to economic activity.⁶

⁵ The strange name *weir* goes back to the Old English for a dam, and is related to the German *wehr*, a defence structure.

⁶ Bill Zanardi draws attention to Lonergan's view of leisure in note 6 of his article below, "Raising Expectations: Making Sense, Not Money."

2. The Economics of Fundy Fishing

Human activity also has its rhythms. Lonergan writes: “All human activity occurs rhythmically in a series of impulses, and the aggregate rhythm is a compound of many minor rhythms of varying magnitudes and frequencies.”⁷ Counted among human rhythms are the rhythms of an economy. Economic rhythms are those circuits of work by which we intelligently organize bodily cycles and psychic rhythms to the practical task of survival. Insofar as it is an organized circuit of work in community, the work is economic in the most basic sense for it contributes to a standard of living. Thus, underlying the superstructure of culture “there stands as foundation the purely economic field concerned with nourishment, and shelter, clothing, utilities, services, and amusement.”⁸ Any successful science of economics will have to provide a core structure, a set of terms and relations, to help us understand these rhythms. For example, a basic explanation of tidal movement can be had if you have a notion of the relation of the movements of the earth, moon and sun in the context of the theory of gravity.⁹ What is the comparable set of factors for understanding an economy? Any structure for explaining tides must include all relevant elements. In a theory of tides you cannot ignore the phases of the moon. You can record meticulously all tidal movements over a long period of time and use this data to predict future tides, however, you have not explained what tides are. The same criterion holds for economics. It is one thing to collect economic data, it is another to know what an economy is. Lonergan realized this. His goal¹⁰ was to understand what an economy is and he arrived at his goal

⁷ *CWL* 21:42-43.

⁸ *CWL* 21:12.

⁹ To explain why the tidal changes are so great in the Bay of Fundy requires further considerations of the water flow in light of the shape of the shoreline and the bottom in the bay.

¹⁰ In the final essay of the volume, McShane draws attention to this goal-orientation and points to it as the natural orientation recognized as the scientific spirit. McShane is quite vigorous in his view that this scientific spirit, the dedicated reach for the best possible understanding, is quite absent from current economic thinking.

by specifying a set of core variables, the real variables of our title, for understanding economic rhythms. The natural rhythms of tides and their corresponding phases of the moon are well known to us and a practical knowledge of them is significant for survival in a subsistence economy. If Lonergan is correct, then, just as there are natural rhythms there are economic rhythms and just as we can explain the movement of the tides as a function of the phases of moon, so too there ought to exist an explanation for the economic rhythms that we might observe.

For Lonergan, the goal of an economy is to provide the goods and services for a standard of living. Ultimately, ‘a standard of living’ is more than economic, but it is impossible without an economy. At first an economy is an extension of efforts to survive. Because of the creative capacities of human beings, technologies emerge that improve our ability to meet the needs of our standard of living together. A weir is one such invention; money is another, more complex example.

Lonergan noticed that economic rhythms include both the processes of production, which provide goods and services, and the circulation of money. He realized that, because an economy provides for the material basis for a standard of living, production rhythms are the primary function of an economy. The role of money is to facilitate the production of goods and services. So, for Lonergan, in a well-run economy the circulation of money adjusts to the rhythms of production, that is, money circulation is ‘concomitant’ with the steps of the production process. It is this topic that Pat Brown takes up in the next article. The task here is more elementary. While our contemporary global economy cannot operate without money, it is possible to have an economy without it. Imagining production without the complication of money, allows us to get a handle on real economic variables. We may then grasp more clearly the rhythms of production without the often-obfuscating complication of money transactions. If we have a grasp of the core variables of production we are better positioned to understand the ‘what’ to which money has to adjust because the underlying process is more clearly in our view, much as tidal movements are quite obvious in the Annapolis Basin.

3. Weir Fishing and the Real Variables of Production

As mentioned, weirs were created to take advantage of the movement of fish in response to tides to improve the efficiency of the daily catch. With a weir the fish come to you and in an hour or two you can catch an amount that would have otherwise taken days. In a community of mixed farmers, this is important. It allows some families to add fishing into the mix of productive activities and the whole community benefits from the increased diversity of food. Fish can be traded for other produce, such as fruits, vegetables, milk, or cured meat. My ancestors concentrated on fishing and gardening and left the production of meat to others. In this way a division of labour developed in the community, each family finding a niche that both supported themselves and added to the standard of living of the community as a whole. In a small community this division of labour is not an invitation to maximize individual return. It is a reciprocal exchange of time and effort. The weir cannot be built without the help of neighbours. As in barn-raising, the community comes together to help one family with the expectation¹¹ that the family will help with their own project at some later time. Building a weir for my grandmother's family, the Bohakers, or a barn for

¹¹ Expectation is a key topic in the Zanardi article, and indeed change of expectation and the possibility of delight in it. (See note 2 there). Expectations, as therapists know, is very much a neuro-molecular dynamic that fosters or festers culture. Central to Lonergan's project is the shift, in common sense, from fester to foster in the dynamics of human neuro-structures. See *Insight* chapters 6 and 17. McShane sees the present commonsense general bias against serious understanding as an operation of what he calls an axial [think of us as the centre of an axial period in history of 10,000 years] superego [a neuromolecular complex rather than some vague 'complex' bred by modernity. A useful read here is the editor's conclusion to McShane, *Pastkeynes Pastmodern Economics*: "The Hodics of Rational Expectations" (see note 14 below). In that essay McShane deals with a graduate text on the mathematics of expectations that resonates with Lonergan's claim, "making up for lost ground by going into the more particular fields of statistics" (*CWL* 21:7): the lost ground is the proper meaning of expectations and the correct basic variables.

the Porters who lived down the road, was good for the whole community. It meant fish and milk for all, and all were willing to take part in the promising prospects for the weir. Everyone pitched in to build the church. In Karsdale the Bohakers help the Porters and the Porters helped the Bohakers. Once we were old enough, we were also expected to help with the fishing and the haying, not only for our own family, but also for others.

Production involves two distinct circuits of activity or schemes that have a different relationship to the production of goods that enter into the communities' standard of living. There is a basic circuit of work whose function is to produce the goods and services that enter into the standard of living. This is what we loosely mean by consumer goods. Further, there is a surplus¹² circuit of work that supplies the goods and services used to produce the basic circuit of work. This is what we can loosely call producer goods. In weir fishing, then, the basic circuit is comprised of a series of activities related to catching and preparing the fish for consumption or barter. This series of activities repeats itself according to a recurrent pattern. Fish must be collected from the weir trap as the tide is going out twice a day. They are then filleted, smoked and stored for later consumption or trade. This series of activities has a direct relationship to the eventual consumption of fish. So many fish are caught and at a more or less one-to-one ratio the fish are eventually consumed. More or less, because there is sometimes some wastage. However, there is more to weir fishing than catching and preparing the fish. The weir itself and the various tools of weir fishing must be maintained, repaired and eventually replaced. Weirs are made of wood branches and rope that degraded over time due to the exposure to moving salt water. Weir maintenance is a constant job. Nets and barrels must be repaired. Oxen must be fed and cared for. Eventually oxen die and they must be replaced and trained. While fishing results in fish for consumption or trade, maintaining the equipment and animals used for fishing, while essential to the overall success of the operation, does not itself result in fish for consumption. The

¹² Brown's essay has already given an elementary meaning to the word *surplus*.

relation of this activity to the eventual consumption of fish is indirect. However, using the weir, the nets, and so forth increases the efficiency of fishing and, as long they hold up, they are available for an indeterminate round of fishing in the future. So, when the weir, the oxen and the nets are in use they are part of the basic circuit of work. When they wear out, replacing them by making new baskets counts as a surplus circuit of work. Differentiating these tasks gives us the two parallel circuits of Figure 1 above.¹³ The basic circuit is below and the surplus circuit, as its name suggests, is above.

What is the precise relationship between these two circuits of work? As we are not yet considering money exchanges, we cannot speak of income and expenditures. However, we can notice that there is a circuit of work that produces goods for consumption or trade that enter into the community standard of living and there is another circuit of work that, while it ultimately has a vital contribution to make to the standard of living, does not do so immediately. Success in weir fishing requires both the ordinary fishing routine and the routines of maintenance repair and replacement. A proportionately small effort for maintenance repair and replacement, say 5% of total time and effort, pays off handsomely for it ensures the smooth and continuous operation of successful daily fishing.¹⁴ We can get a sense of the significance of this relatively small percentage of time and effort for the overall standard of living, if we were to take away that effort. If my great-grandfather failed to take time to maintain his animals, equipment and weir, the operation

¹³ In this long paragraph there are further differentiations that I must gloss over, differentiations relating to the degrading or accidental destruction of surplus goods—a new tractor slides off an icy bridge into a river. All these come under an analysis of indeterminacy: see *CWL 21*, the index, under *Indeterminacy*. Contemporary economic analysis tends to block out such analyses in its bent towards model-building, a topic introduced by Brown in his first article. See further, on indeterminacy, note 14 in the following essay by Patrick Brown.

¹⁴ On the rationale for 5% of total as an approximation of effort spent in the surplus circuit in a stationary phase economy, see Philip McShane, *Pastkeynes Pastmodern Economics: A Fresh Pragmatism* (Halifax: Axial Publishing, 2000) 11, note 1.

would become less efficient and would eventually cease all together. He would have to fish from the shore with a line and his catch would decrease accordingly. By comparing these two outcomes, we can slowly come to grasp that the surplus circuit of work accelerates production in the basic circuit. Fishing a weir results in a far larger catch in a much shorter time than fishing with a line from the shore. In a weir-fishing economy, fishing from shore with a line becomes a leisure activity. It is easy to see how everyone had a stake in keeping the weir in good repair and my great-grandfather could count on help from neighbours when he needed it, just as they could count on him to help with the haying or the training of oxen.

We now have two circuits and they are related to each other. In *For a New Political Economy* Lonergan symbolically designates the total economic flow as DA, a basic flow as DA' and the surplus flow as DA'', where 'A' means economic activity, 'D' means some series of acts or flow occurring at some rate. The relationship can be expressed as $DA = DA' + DA''$. We are not yet concerned with specific amounts; we are simply identifying a flow of activity that can be loosely divided into two parts. As simple as this formula is, it is nonetheless at the heart of Lonergan's understanding of what an economy is. While there is much more that can be said about how these two circuits relate to each other and about the ratio of DA' to DA'', it is the functional differentiation of the two distinct circuits of work that places his theory on a unique footing. Many economists make a nominal distinction between consumer goods and production goods but it is not crucial to their theoretical underpinnings. Both GDP and GDI, which are standard measures of economic activity, lump together consumer and producer goods. Lonergan's claim is that there is a real, functional distinction between the basic and surplus circuits that is fundamental for economic analysis. **Without the distinction, there is no economic science.** If we operated on the assumption that planets travelled around the sun in a circle instead of an ellipse, then we could not accurately predict a solar or lunar eclipse. So too, operating on the assumption that all economic activity is in the same circuit misses the mark. You have to know to which circuit

of work a set of actions belongs.¹⁵ All the developments of human intelligence that contribute to the development of the contemporary global economy, including money, markets and developments of human intelligence are beholden to and conditioned by the underlying reality of the two distinct circuits of productive work. Having a handle on the simple relationship expressed in the formula $DA = DA' + DA''$ does not yet get us to the diagram in Figure 1. For that we have to add money. Nonetheless, a grasp of this simple formula corrects a fundamental error of mainstream macroeconomics. Where you start and the direction in which you head has a lot to do with where you end up. If Lonergan is right, then we are—and thee, Andy, if you stay with us—heading in the right direction. But this you must find for yourself: then go, tell it to “the monster.”¹⁶

4. Looking Forward to Talk of Money

Making a distinction between the basic and the surplus circuit does not quite get us to the full diagram in Figure 1. That diagram is in fact related to the circulation of money and, so far, we have avoided any talk of money. The Karsdale community can survive without money. Nonetheless, there are exchanges and these exchanges prefigure the two circuit operative income and expenditures and redistributive exchanges of a money economy. The assistance that members of the community give and expect is a network of promises. Time and effort spent maintaining the weir is a surplus exchange. The barter of fish for milk and other products are basic exchanges. While there are no banks to provide credit for expansion, if the Porters give thought to expanding their fields in the spring, the Bohakers may credit it as a good idea and provide labour and animals to help get the job done in exchange for a promise to help with logging in the winter. In this way a subsistence community is a network of

¹⁵ This is by no means an easy task. See *CWL 21*, the index, under *Classes of payments*.

¹⁶ McShane recalls the related comment of Lonergan in the conclusion of his first essay above: “Such is the monster that has stood forth in our day.” (*Method in Theology* 40)

promises and credit which work themselves out because there is a recognition of the interdependence of each on the other, ordered by a notion of fair play that provided for each according to their needs. Because the community is small, the accounting is personal. Each knows the other and all know their obligations, a condition reinforced by a common communal celebration each Sunday. Certainly, the Karsdale of my youth was not paradise, but the complexities of our modern economic disorientations had yet to arrive, and just as the rising and falling of the tides in the Basin was clear to see, so too the mutual obligations and benefits of working together to provide for the material basis for the communities' living were plainly evident and solidly reinforced.

You might, at this stage, muse over the emergence of money in an elementary barter-economy of fisher-folk. Perhaps two fisher-folk on a sea-side bench, working out their promises of sharing fish and milk and meat and work, lift the expectations of one of them to the inspiration, "we'll have to **make a note** of this." So might have been born an activity called *Benching*: or, if the sea was in the Gaelic Cape Breton area of Nova Scotia where the bench is called *binse* [pronounced bean-sh-eh], the same activity with a stranger name.

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ABSTRACT

This essay seeks to give a homely start to the search for the relevant variables in economic science. It carries forward, through simple illustrations, the pointers of the first two essays. The invitation to you is to identify two cycles of activity and exchange that are necessary for the progress of the simplest barter economy. The invitation leads gently to the plausibility of the need for the invention of money as an enrichment of the promise of economic progress, so making way for the analysis of the activity of promising that is the topic of the essay to follow.