How Capital Makes Jobs by Turning Over Faster[*]

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When we seek to stimulate job production, we must recognize that investments differ in their valence for labor. The range of difference is very great. We especially must distinguish investments that freeze capital from those that free it. The former destroy jobs; the latter create them.

Policymakers err to subsidize investing, e.g. by lending out capital at low interest rates, when the declared objective is to make jobs. What low interest rates do is foster substituting capital for labor. The result is a low ratio of Marginal to Average Product (MP/AP) for labor. The cash flow that hard capital yields mostly goes to pay interest on the initial cost, rather than pay the labor that constructed it. This happens because the capital is frozen a long time before the owner gets it back, and interest must be paid every year it is frozen up and unavailable for re-use.

We can distinguish two kinds of investment in IT (information technology) terms; hardware investments and software investments. Hardware investments are high cost, long-lived, and slow to pay out. Software investments, on the other hand, are low cost, short-lived, and fast to pay out. Adam Smith[1] and John Stuart Mill,[2] leading classical political economists, support this distinction. (They used the terms "fixed" and "circulating" capital.) Much of classical economics took this distinction very seriously. Contemporary economists, by and large, turn a blind eye to it.

Knut Wicksell, a smart Swedish economist, wrote. "Only the part of labor annually set free can pay labor."[3] Software investing frees capital; expenditures on hardware freeze it up. In IT, expenditures on software are much lower than those on hardware systems but need to be made more often as products go out of date or are used up (their use-value is completely exhausted) while expenditures on computer systems last much longer as the systems themselves have a much longer use-life than the software they run. So too in economics. Expenditures on labor and short-lived assets are made often, though they are not so high as the costs needed for lasting monuments that are used up slowly. Monument expenditures freeze capital within the product to be used at a future time or, in some cases, perhaps not at all. To freeze capital is to lock it up beyond any immediate practical use.

Wicksell describes a nation's capital as a Great Revolving Fund. Its RPM (Revolutions per Month) is variable. The higher the RPM, the more labor it sets in motion. The secret then to fuller employment is higher capital rpm. Of course, not all expenditure can be on quick return investments since these projects need some stable system to work on or in, just like software requires hardware systems. As long as they are kept in balance, the fund revolves at an appropriate rate. Problems arise when the scale tips too far to one side, which usually seems to be the hardware side.

The following are some examples of substituting capital for labor or, in our present IT metaphor, spending more on hardware than software.

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[*] Formerly "Hard and Soft Capital" and "Toward Full Employment with Limited Land and Capital" WP27

[1] *Wealth of Nations*, 1776, Reprint 1937. 5th edition, New York: Modern Library, pp 338, 341, 349.

[2] *Principles of Political Economy*, 1848, Working Man's Edition, pp 41-63

[3] *Lectures on Political Economy; Volume One: General Theory. New York: Augustus M. Kelley, 1971*, pp. 194-96

A. Putting thicker tread on tires. It makes them cost more, last longer, and consume more energy to rotate

B. Building thicker nap into rugs. They cost more, and last longer.

C. Building road with thicker layers of asphalt. They cost more, use more energy, require fewer repairs, and last longer.

D. Buying a new car to replace an old clunker. The old one requires lots of labor; the new one represents lots of value.

E. Replacing an old building with a new one. The old building requires so much labor for maintenance, retrofitting, and repairs, it has little value. The new one (if you are lucky) provides worry-free service for a long time.

People who live in old houses are, in effect, supplied with shelter more by labor (and of course land) than by capital. An old city like Boston manages to survive, and have great charm and vigor, in spite of its old buildings, because those buildings are continually maintained. (This is also true of the antiquated Boston subway, which you may experience first-hand!)

F. This is a metaphor. Imagine you are building and tending a fireplace fire. Heavier logs represent hard capital. They have a high ratio of volume to surface. Burning occurs at the surface, the “action edge” of the capital. A big log, therefore, lasts a long time: not because it is big, but because it has a high ratio of volume to surface. Small logs burn faster, so they make more work, and steadier work, for the tender, replacing them as they burn. They represent soft capital. They have a low ratio of volume to surface. Their “action edge” is high relative to their volume.

You can carry this metaphor further, and gain a lot of insight into economics. You need small logs as kindling, to start the fire. Large logs are ponderous: slow to start, and also slow to stop. They are unwieldy to handle: they require more labor at first, and much less later.

G. This is another metaphor. Toilet paper comes in large rolls, and small. The service is provided by the thin layer of squares at the outer edge of each roll. With small rolls you can serve more bathrooms with a given capital. You can release the value quicker. At the same time, you need more labor to replace the rolls, which disappear quicker. Thus, large rolls represent the substitution of capital for labor.

H. A Rolls-Royce costs as much as 15 or 20 Yugos. It may last 20 times longer, and yield classier service. Thus, the Rolls-Royce represents a substitution of capital for labor. Still, with a fleet of 20 Yugos you can keep 20 salesmen on the road with the same investment as required to equip one with a Rolls-Royce. The labor requirements of driving and servicing and replacing the Yugos are much higher. In addition, each Rolls-Royce outfits just one salesman, at the cost of outfitting 20 with Yugos. Clearly, the capital in the Rolls-Royce does not complement as many workers as the same capital in 20 Yugos, either in parallel or in series.

I. You can build with bamboo and have construction that lasts 3 years while with cement you construct something that that lasts 30. The cement might cost 6 times as much, but it lasts 10 times as long. Thus, cement represents a substitution of capital for labor.

J. You can have an operation to correct a problem and the resulting correction will last for the rest of your life—say, 20 years more. Or, you can have acupuncture, to be repeated regularly once

a year for 20 years. The operation is capital-using; the acupuncture is labor-using. It is understandable that acupuncture was developed in China, where labor has historically been cheap and capital scarce.

You can see from these examples how the investment in capital relates to our IT metaphor. To increase expenditure and revolving usage in IT, we should spend less on hardware (buy cheaper computers that need to be replaced more often) and more on software solutions that need to be continually updated and changed. Think of that monument of American ingenuity, the Hoover Dam, for example. How many smaller such projects could have been created for the same expenditure that would employ more labor in construction and maintenance and service a much larger population both because of convenient multiple locations and increased output. To create the smaller dams would have been analogous to buying cheaper computers and more software with the same resulting increase in usage and labor.

Some "Revolving Funds" fail to revolve. These are permanent capital "sinks." The example can be given of the U.S. Bureau of Reclamation (USBR), which builds dams in the arid west. In 1902, Congress endowed it with a Revolving Fund. It was to build dams etc. to serve certain lands with irrigation water, recoup the money each ten years, and use it then to build new dams elsewhere. The problem is, it never completed the first Revolution. As a result, the Revolving Fund is frozen. Congress has kept the USBR going by appropriating new funds, taken from other uses.

The USBR probably could have recovered most of the capital it expended, if it had been authorized to recoup its benefits by levying taxes on the lands it up-valued. It lacked this power, however, so the benefits it created were regarded as current income by the owners of the benefited lands. In the normal course of events, they consumed added amounts equal to this "income." Thus, the capital was dissipated.

Investing is the outlay that creates incomes for labor. A closed economy cannot invest in excess of its Capital Consumption Allowances or CCA's,[4] plus saving. It must deliver the goods, or cut the payroll. The pie in the sky attitude of extreme long-term investing in "hardware" projects won't cut it. If we want to create more, or full, employment, we need to increase the economic rpm cycle identified by Wicksell by investing less in economic hardware and more in software.

[4] CCA's or depreciation allowances represent the recovery of fixed capital. For example, part of the net income stream from a building is interest on the investment, and part is recovery of the investment itself.