CHAPTER SIX

Growth and Rents in Today's Economy

The wide-spreading social evils that everywhere oppress men amid an advancing civilization spring from a great primary wrong: the appropriation, as the exclusive property of some men, of the land on which and from which all must live. From this fundamental injustice flow all the injustices that distort and endanger modern development, that condemn the producer of wealth to poverty and pamper the nonproducer in luxury, that rear the tenement house with the palace, plant the brothel behind the church, and compel us to build prisons as we open new schools.

— Henry George

At the center of Henry George's picture of the economy is the effect of "progress" on rents: it drives them up. But the economy he studied is one of agriculture and small business. The preceding two chapters have brought us to the modern economy—giant businesses in manufacturing and, most of all, services: finance and health care each make up almost 20 percent of the economy, with very little employment in agriculture. Economic policy is based on macroeconomics and puts government in the center of the stage. It's a different world, and we have largely lost sight of rents, as they are comingled with profits. But they are still right there (including superprofits) and still driven by growth, just as George said. To examine this in more detail, a neo-Ricardian/post-Keynesian growth model can be adapted to explore the relationship between growth and rents. Faster growth leads to higher rents, but increases in rents do not seem to lower or weaken aggregate demand. However, they have an important implication for financial markets.

*

What we have just seen is a transition; the system moves from "replicative" growth, based on the price mechanism and small-scale technology, in which investment simply re-creates the existing form of production units, farms, and firms, to a different kind of growth—"innovative" or "transformational" growth—in which investment creates new productive capacity superior to the old, and in particular moves from craft technology to mass production—a system based on constant costs, which allows for layoffs of workers as output is adjusted rapidly to meet demand. (The pressure for change does not stop with mass production: innovation moves on to create the information economy.) The growth model proposed here is one of transformational growth, in which new capacity is typically superior to the old, and therefore earns superprofits, a form of rents driven by growth, resulting from technological improvements that, over time, lead to new patterns of adjustment.

Investment plans and long-run prices tend to be determined together, along with the choice of technology, including product design. Very broadly, firms will want to expand if they see their markets are expanding; they build new capacity in response to the expectation of growth in demand, which may be stimulated by better products, or by lower costs and prices, or by an expansion of incomes and credit in a large section of the population. The growth of markets, in general, will be greater or faster the lower prices are. This is based on the "accelerator," the idea that if demand for output expands, demand for capital inputs will also have to expand, (because there is a stable, fixed ratio of capital to output), but here it is combined with considerations of price (Nell 1998a).

The general idea: to determine the plans for growth as opposed to current spending on growth at least two equations are needed, because, growth and prices will normally be determined together. As a first approximation, one equation could be defined to show the growth of demand as a function of prices, arguably sigmoid in shape (see Figure 6.1), while the other would show the growth of supply, also dependent on prices, rising perhaps linearly. According to the growth of demand equation, higher prices will mean lower growth of demand; lower prices, higher growth of demand. High prices will make it harder to break into or develop new markets; low prices will make it easier. According to the growth of supply function, higher prices will provide the funds that will finance investment, for a higher rate of growth (see Nell 1998a, chap. 10 and 11). These two equations (or sets of equations) could be solved for planned prices and growth. (Being forward-looking, of course, such equations must be subject to a great deal of uncertainty, and would thus be liable to frequent revisions. More importantly, such a framework is seriously oversimplified, as we shall now see, but the point this example establishes is that *growth and prices* strongly react to each other and must be determined together.)

This has been just a sketch. To fill it out, some other variables will have to be included. Here is how such a model might look.[23]

Growth Today: A First Look

First, let's look at growth, leaving rents to one side, since prices and profits are determined on no-rent lands and locations. This will help us to see how the parts hang together. To do this we combine a relationship between the real wage and the growth of demand with the well-established real wage/rate of profit trade-off (Nell 1998, 477–78). The model has four variables:

1) growth of demand,
2) growth of output,
3) growth of productivity, and
4) the real wage.

The equilibrium condition is that growth of demand is equal to growth of output. Putting the variables together, we can define three important relationships rather than two.

First, there is what Joan Robinson called the "wage-accumulation" curve. This is the wage-profit trade-off adjusted by the saving ratio, so that it shows the growth rate that can be associated with each level of the real wage.[24] This relationship is

[23] See also Nell (1998a), 477–78; Nell (2002), 261–63.

[24] Each point on this curve will be associated with a set of prices. Such prices

inverse, and, following the argument in Nell 1998,[25] it is likely to be linear. It will shift with changes in productivity.

Second, there is the wage rate/growth of demand relationship already discussed, which includes an effect on productivity. This will be an increasing function, with a sigmoid shape. At low levels of the wage there will be some growth in demand but it will be low and increase only slowly; at higher levels it will accelerate and rise steeply, leveling off again at still higher levels.

And third, Henry George argues strongly that growth arises from cooperation, and improvements in the division of labor, along with innovation, so we can adopt some form of the Verdoorn–Kaldor relationship, relating productivity growth positively to growth and real wages. At low rates of growth there will be little pressure on production facilities, thus little incentive to make improvements; at high rates of growth the pressure will be severe, and efforts to speed up throughput and improve processes will be great. If the improvements are easily copied and spread rapidly, so that all firms adopt them at more or less the same time, then costs will fall across the board, and the only effect on rents will be that of growth pressure. But if the improvements are hard to copy, if they affect firms selectively, benefitting some and not others, reducing costs for some without greatly increasing output, then they will have increased differentials, creating

can be established as the result of firms following a markup pricing strategy, as demonstrated in Nell (1998), chap. 10. The aggregate markup equations resulting from this process translate directly into Sraffa-like wage-profit tradeoffs.

[25] See also Shaikh (2012); Schefold (1997).

a new source of rents—but rents that will appear as superprofits! So, by including a Verdoorn–Kaldor equation we are already bringing some rents into the model.

The variables are w/p – the real wage; g –the growth rate; and x - productivity; adding this third equation, we have:

$g = g(w/p, x)$, $g'_w < 0$, $g'_x > 0$, assumed linear

$w/p = w(g, x)$, $w'_g > 0$, $w'_x > 0$, assumed sigmoid in shape

$x = x(g, w/p)$, $x'_g > x'_g < 0$, $x'_w > 0$ up to a point, then $x'_w < 0$

For a given real wage, (nominal wage divided by the price level), w/p, it is assumed, plausibly enough, that there is some level of growth, g, beyond which productivity, x, will no longer increase. It is also assumed that, for a given g, at some level of the real wage x will reach a maximum and begin to decline. These assumptions effectively bound the level of x, and so ensure that the system of equations will have a solution. Given a few reasonable restrictions, it can be shown that these three behavioral equations have a unique, positive solution, which is stable by normal criteria.[26]

[26] An example of a simple, linear version:

$g = G - aw/p + hx$
$g = bw/p + jx$
$x = cg$

where a, b, c, h, j > 0, and G is the maximum growth rate (the standard

This needs some explaining. How can a *level* of the real wage support a *growing* consumer demand, with higher levels supporting higher rates of growth? Higher wage levels can obviously support higher *levels* of spending, but higher rates of growth of spending? This should not be considered so surprising. Note the analogy with businesses, where each level of earnings is associated with a rate of growth of spending on capital goods. Higher earnings mean higher profits, resulting in a higher rate of profits, which gives rise to a higher rate of capital growth and therefore output. Analogous relationships hold here. Higher real wages allow for greater investment in self-improvement—education, skills—and together, these permit greater access to credit, and so to still further investment. The real wage/growth of demand function tells us that for each level of the real wage there will be a corresponding level of investment in self-improvement, leading to a (credit-based) corresponding rate of demand growth by households. (Note that in constructing this function we are holding capital technology constant—only improvements in worker skills are considered—so a higher wage rate will normally imply a higher wage share.) As households invest more and more heavily in self-improvement, they become increasingly eligible for credit and can increase their spending, particularly their spending on self-improvement. The function is economy-wide.

---

ratio). The solution is:

$$w/p = G(1 - jc)/[a(1 - jc) + b(1 - hc)]$$

and it is sufficient for $w/p > 0$, that $c, h, j < 1$.

At higher levels of the real wage there will be higher rates of demand growth, for two reasons: first, demand growth will be higher because each household may be able to sustain a larger investment in self-improvement, and second, because more households can be drawn into the effort to rise in the world.[27]

We must be careful about the interpretation: the solution to these equations is not a long-period equilibrium—far from it. What the model shows is how things would work out, if

[27] George was well aware of the importance of education and the improvement of skills in raising wages and living standards (provided the education was practical). Obviously, if some workers acquired skills and others did not, those with greater skills would do better in the market. But if wages rose and all workers became more educated and skillful, then it would be difficult to force wages down again (George 1913, 303 et passim). "Wherever the material condition of the labouring classes has been improved," he writes, "improvement in their personal qualities has followed.... These qualities once attained (or ... their concomitant—the improvement in the standard of comfort) offer a strong, and in many cases, a sufficient, resistance to the lowering of material condition" (309). So George sees higher wages leading to increases in education and skills and, in general, to a rise in living standards. Our addition to this is that such increases will make households more creditworthy, and thus lead to growth in consumer spending. George, however, argues that increases in wages normally cannot be sustained—indeed, will seldom occur—because improvements in productivity will be captured by rises in rents. But, as noted earlier, his analysis is defective, and the facts don't support the claim. (But that does not mean chap. 1 of book 6 should be rejected. The six "proposed remedies" for low wages and poverty are indeed "insufficient," severally and together, to eliminate poverty, and for the reasons he advances. It's just that they are not wholly insufficient: wages can and have advanced with productivity, living standards have risen, and poverty has been reduced. But it is still the case that progress—growth—reproduces poverty and drives rising inequality.)

everyone acted according to the prescribed formulas—and carried out their actions successfully. It shows how the variables interact. The reason that demand is growing is that families are trying to improve themselves and rise in the world. Innovation is taking place. On the other hand, it is not short-run; it covers a long-enough stretch for training and education to result in higher levels of productivity. The time period might perhaps be a full business cycle.

If new innovations have been introduced simply because they reduce costs, we would expect them sometimes to be labor saving, sometimes to save on equipment and capital goods. Overall, there would seem to be no reason to expect any particular bias. In fact, there has been a very pronounced bias: technical development has been overwhelmingly labor saving but capital using. That is, machinery and equipment have been substituted for labor. The model can be used to suggest why, and also why labor has received little or no benefit from it. (George [1883, chap. 14] argued that labor failed to benefit because of the monopoly on land, which certainly could be a factor. But here it will be argued that the effect of innovation on wages depends principally on the wage-growth trade-off—a relationship that George overlooked.)

Start with a stripped-down version, leaving productivity growth to one side. Then consider Figure 6.1, with the wage rate/growth of demand curve rising from the origin. As household investment takes place and wages go up, lifestyles will develop and the basic wage and expected standard of living will rise. The wage rate/growth of demand curve will shift out to the right. The wage will rise but the effect will be to lower the growth rate. That is, when the wage rate increases, consumption increases at the same rate, and this leaves less profit available for investment. From the point of view of the individual firm, the rise in wages means lower profits. But this can be offset by replacing workers with machinery, if the technology is available or can be developed. If machinery is substituted for labor, not only will the rise in the wage lead to a lower decline in the growth rate but it will also permit an even higher rise in the wage rate.

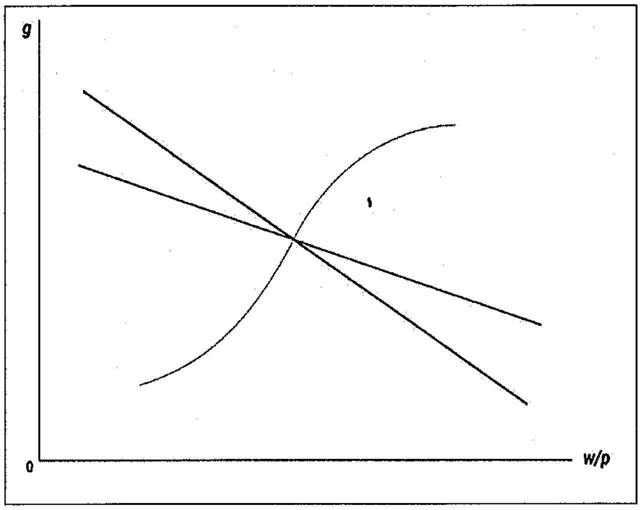

Figure 6.1. Growth and Wages

Alternatively, the shift to mechanization can be said to permit a larger increase in the real wage for a given decline in the growth rate. Household investment, leading to enhanced lifestyles, sets up continuing incentives for business to invest in mechanization, which in turn permits a higher rate of demand growth than would have been possible under the old techniques. Productivity increases will then continually shift the wage-accumulation lines up and out. Whether a given productivity shift has its principal impact on growth or on wages depends on where the wage-profit trade-off cuts the wage rate – growth of demand curve. If the intersection is in either the lower or the higher sections—both relatively flat—it will chiefly impact wages, but if it cuts the steep central section the main effect will be on the growth rate.

Household investment interacts with business capacity construction in more complex ways than this indicates, however. When household income expands and households undertake self-improvement, new markets for consumer goods are likely to emerge, especially when there have been innovations in consumer goods (for example, time-saving household products). But when there are new consumer goods to be supplied, there will have to be investment in the capital goods sector. An expansion of capital goods investment will require, first, investment in the capital goods sector itself, to build up the capacity it needs to supply the increased demand for capital goods from the consumer goods sector.[28] New cost-cutting inventions in the capital goods sector will lead to a flurry of new investment, but it will be a once-for-all expansion. Much of this investment can

[28] See Lowe (1955, 1976); Nell (1976); Hagemann in Halevi, Laibman and Nell, (1992).

be expected to create new differentials, and therefore to increase superprofit rents.

Bringing in Rents

Now let's introduce traditional land rents and their effects, incorporating them into the equations. The variables: g, the growth rate; w/p, the real wage; x, productivity growth; L, land/location, is fixed and will be multiplied by R, rents, giving, for example, rents per acre.

We now have five equations, the first three being the same as those above, but with a rent term added; and then we have two more equations: One for rents; and one to close the model.

A1: $g_Y = g(w/p, x, LR)$, $g'(w/p) < 0$; $g'(x) > 0$; $g'(LR) < 0$

This is based on the inverse relation between profits and wages, and its dual, investment and consumption, combined to make a Joan Robinson–like wage-accumulation curve. This, in turn, will be higher and further out with higher productivity, and lower and inward when rents are higher.[29] Higher rents lead to lower growth because the real estate sector does not generally invest in productivity enhancing projects, preferring to put its profits into financial instruments.

[29] This equation is derived from the price-profit, growth-quantity equations (Sraffa 1960; Pasinetti 1975; Nell 1998a) and explains how firms with market power, following the growth of demand, will set prices to provide the profits that will support the investment needed to meet that growth of demand, thus giving rise to price-profit equations that can be formed into a wage-accumulation curve.

A2:$g_D = w(w/p, x, LR)$, $w'(w/p) > 0$; $w'(x) > 0$; $w'(LR) < 0$

This is an upward-rising sigmoid curve, showing how increases in the real wage raise the growth of demand (bringing in new classes of customers), shifting upward with productivity and downward with increases in rents.

A3: $x = x(g_Y, w/p, LR)$, $x'(g) > 0$, $x''(g) < 0$; $x'(w/p) > 0$ up to a point, then < 0; $x'(LR) < 0$

Productivity growth rises with output growth at a diminishing rate, and rises (up to a point) with real wages, then flattens; it diminishes with a rise in rents.

A4: $R_n = R_n - I + ag(Y_n - Y_{n-1})$

From the argument in chapters 2 and 3:

A5: $g_Y = g_D$

Notice that each of the first three equations connects the wage-price profit side of the economy with the growth-consumption–size side. The first equation is the wage-accumulation curve, which, on the basis of the available evidence (Leontief (1987); Shaikh, (2010); Nell (1998a)), can be assumed to be linear or approximately linear. It will be negatively sloped and will shift with changes in productivity. The second is the wage rate/growth of demand relationship, which is assumed to be sigmoid in shape. A rise in the level of the real wage will increase the rate of demand growth, because higher incomes will raise new households into the middle class and set them on their way to establishing a new lifestyle, which will mean new basic expenditures and additional investment in human capital. At low wage levels a rise will result in only a small increase in the rate of demand growth, but as the wage rises further this will speed up, and then finally slacken off, as the majority of eligible households will have moved. The shape of the curve will therefore be sigmoid. With normal assumptions, we can therefore expect these two curves to intersect once in the positive quadrant.

The third equation is a Verdoorn–Kaldor relationship between productivity growth, output growth, and the real wage, showing that output growth tends to raise both productivity growth and the real wage, which, in turn, raises the intersection of the previous two curves. In each of these equations, traditional rent has been introduced appropriately.

The rental equation then follows from the previous discussion, and tends to shift all curves down (as George would have argued). Given reasonable assumptions, then, these equations are likely to have a unique positive solution, stable by normal criteria (Nell 1998a). When solving the equations including rents the magnitudes depend on the rental coefficients, but it is clear that higher growth means higher rents (and so lower wages and/or profit rates than would have been possible with the surplus implied by that set of production coefficients, so also lower consumption and growth). But the main point is that higher growth leads to new and larger differentials, and therefore to higher rents. It is important, however, to remember that this is a real-side structural model, not a predictive one. It shows how things should work out, if activities are carried out as indicated—but without reference to the impact of finance.

Rents depend on growth, but in what ways is growth affected by rents—for example, inversely, by reducing aggregate demand? We have suggested that a rise in rents might reduce the rate of growth by shifting profits into the financial sector. George thought an increase in rents relative to other forms of income could have very deleterious effects, leading to increases in poverty, crime, and other social ills. And even if rents didn't rise as much as he thought, they might still have a negative economic impact—for example, rents could plausibly reduce consumer demand, on which growth depends.

Yet this effect might be weak, and would likely be different in different periods. For example, growth will probably not be (much) affected by rents in the era of the craft economy, first, because many rents will be "Georgian," meaning that average and marginal productivity *rises* and that differentials are created by innovation; and second—assuming rents are "Georgian," so that average productivity rises—because the negative effects on the mostly working-class payers of rent, reducing their consumption spending, will be pretty much offset by the positive effects on the middle-class businesses and landlords that are the collectors of rent, or beneficiaries of innovation, who may raise their spending. It could easily be a wash. Moreover, in this era, many rents, especially in agriculture, will be "notional"; that is, owners of family farms will find their land values have gone up. This will not directly affect behavior much.

In the era of mass production (and mass consumption) family farms will be consolidated into much larger farms—but still mostly privately held—and again, rents will be notional. But now urban and suburban rents will be important, with real estate developers collecting rents or dealing in land values, and with working- and middle-class families paying the rents. The effect will be a transfer of purchasing power from those with a high propensity to consume to a wealthier class with a lower propensity to consume. This can be expected to impose a drag on the economy, though possibly a small one, but it will certainly be offset in part, if not eliminated, by the fact that wages and salaries are set to cover living costs, including rents, for all but those at the bottom of the scale. (Moreover, rent controls are popular with voters!) On the other hand, a general rise in land values could, if other conditions are right, set off a development boom, providing a strong stimulus to the economy—though very likely an unstable one. In general, while rents could in principle have a feedback effect, lowering aggregate demand, contributing to stagnation, they do not seem to be a major factor. The overall effects could go either way, but for the most part seems to be small enough to ignore. But, as we shall see, this does *not* mean that rents are not important in the macroeconomic picture—far from it. That is the subject of Part III.