Roy Harrod and Joan Robinson: Correspondence on Growth Theory, 1965-70

Edited by Daniele Besomi

Editorial Introduction

Joan Robinson and Roy Harrod began exchanging letters in 1931, and sporadically kept in touch throughout their entire working life. Their correspondence, however, was not a continuous flow but was rather occasional in origin. It was often spurred by some writing of one of them on which the other commented. The topics, accordingly, vary: the very first exchange regarded imperfect competition theory in the early 1930s, and included population, technological progress and growth theory. While Harrod was a good hoarder and kept almost every written piece of paper that passed through his hands, Joan Robinson did not preserve everything. A number of her exchanges with Harrod are therefore fragmentary, with Harrod's part of the correspondence missing. As Robinson rarely dated her letters, it is sometimes difficult to make full sense of what is extant among Harrod's papers.

The correspondence presented here, dating from 1965 to 1970, was occasioned by an article by Harrod and a later one by Robinson. Fortunately it can be understood in most details in spite of having been preserved only by Harrod, for he made copies of some of his letters and kept some notes from which his comments can be reconstructed. Both exchanges concern growth theory, in particular Joan Robinson's reading of Harrod's contribution which gave Harrod the feeling he was misinterpreted.[1]

Most letters belonging to this exchange are presented here in full, with only a few exceptions where unrelated materials have been omitted. The second part of this correspondence overlapped with exchanges with the editor of the *Economic Journal*, which was to publish the article that gave rise to the exchange, a rejoinder and a further reply (references are given in the brief presentations preceding each exchange); only a significant excerpt of one of Harrod's letters to him is reproduced, while the other letters, regarding procedures or accompanying drafts, are referred to where relevant.

All letters reproduced here are housed among the Harrod Papers, Chiba University of Commerce, Ichikawa, Japan;[2] all file numbers refer to this collection. No letters belonging to this exchange were found among the Robinson Papers at King's College, Cambridge. I am grateful to Chiba University of Commerce for permission to cite from Harrod's writings, and to the Provost and Scholars of King's College for permission to cite from the unpublished writings of Joan Robinson, of which they own the copyright.

The following symbols have been used:

<+> indicates missing or illegible words.
<but> indicates «but» as the best conjecture for illegible words.
[ ] indicate the editor's expansion of abbreviations.
\# after the sender's address, indicates that the letter was written on letterheaded paper, and the author has not specified his or her address otherwise.

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1 For context and an evaluation of this correspondence see D. Besomi, 'Roy Harrod and Joan Robinson on Thriftiness and Growth. An Introduction to their Correspondence, 1965-1970', in this issue.

2 For a description of the seven collections of Harrod's papers in five repositories see D. Besomi, 'The Papers of Roy Harrod', *History of Economics Review* 37, Winter, pp. 19-40.

First Exchange: On Saving and Growth

The first exchange, December 1965 to February 1966, originated from a comment by Joan Robinson on a point raised by Harrod in a review of Kaldor's Essays on Economic Policy. *The correspondence is almost one-sided: four letters from Robinson to Harrod, and only one from Harrod to Robinson, are extant. In her replies to Harrod, however, Robinson summarises his argument, which can thus be partially reconstructed (see D. Besomi, 'Roy Harrod and Joan Robinson on Thriftiness and Growth. An Introduction to their Correspondence, 1965-1970', in this issue). The main issue raised here, whether a high rate of saving causes a high growth rate, was also taken up in the second exchange.*

1. Robinson to Harrod[1]

62 Grange Road, Cambridge[#]
8 December [1965][2]

Dear Roy,

I much enjoyed your review of Kaldor in E.J.[3] but I was disconcerted by your remarks about $P/K = G/\alpha$.[4, 5] I have always maintained that altho' your formula *seemed* to be saying that 'the rate of growth depends on the fraction of income saved' you never intended to throw the General Theory out and say that saving governs investment.

I thought your last piece admitted the necessity for an independent propensity to accumulate.[6] Combining this with the Treatise view of profits,[7] you get <the>[8] idea that accumulation *causes* the share of saving to be what is required *via* its effect on the rate of profit.

I have always regarded this as a necessary <requirement> of your original theory and I am sorry to see that you do not reg<ard it>[9] so.

I agree <+>[10] Treatise saving was conceived in terms of windfalls, but a moment's thought shows that the same idea comes in to comparisons of steady growth rates.

Your objection that in a static state profit would be zero[11] suggests that according to your theory $I = sY$ either (a) a static state is impossible or (b) in a static state income would be zero.

But I do not think this kind of argument is cogent because I don't think that profit & wages would exist in a static state any way – it would be <+>[12] as a co-op.

Yours

Joan

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1 Autograph letter signed, 6 pages on 3 leaves; file IV-1089-1107.

2 Year not indicated; inferred from context.

3 R.F. Harrod, '*Essays on Economic Policy*. By N. Kaldor', *Economic Journal* 75, December 1965, pp. 794-803. The passage referred to is on p. 801.

4 *P* indicates profits, *K* the volume of capital, *G* the growth rate *I*/*K*, and α the proportion of profits saved. This formula is obtained under the assumption that the proportion of other incomes saved is *nihil*.
5 Commenting on Kaldor's statement that 'In commonsense terms this means that the rate of profits depends on the growth of the economy and the proportion of profits saved', Harrod writes: 'This is a *causal* statement, and, as such, cannot be inferred from a truism. If we reverse the causation, (5a) [the equation cited by Robinson] reduces to the old platitude that in an economy in which no "regulatory" steps are taken – and these are implicitly ruled out by Mr. Kaldor's equation – the rate of growth depends on the fraction of income saved. (A steady rate of growth is throughout implied.)'
6 Probably refers to Harrod's discussion of the supply of savings in 'Second essay in dynamic theory', *Economic Journal* 70, June 1960, pp. 277-93.
7 Refers to Keynes's distinction between a 'normal' remuneration of entrepreneurs (that giving them no motive to increase or decrease their scale or activity) and windfalls, that is, entrepreneurs' remuneration exceeding or falling short of normal (*A Treatise on Money*, London: Macmillan, 1930, pp. 112-13).
8 The paper is torn in correspondence of this word.
9 The paper is torn in correspondence of this point.
10 The paper is torn in correspondence of this point.
11 'Incidentally by equation (5a) the rate of profit in a stationary economy *must* be zero' (Harrod, review of Kaldor, p. 801).
12 The paper is torn in correspondence of this point.

2. Robinson to Harrod[1]

as from 62 Grange Rd., Cambridge
20 December 1965

Dear Roy,

The passage I referred to was where you say that $p = g/s_p$ is no more than the commonplace that the rate of growth depends on the proportion of income saved. (p = rate of profit, s_p saving out of profits).[2]

This, like your original formula $g = s/v$, appears to support the view that saving governs investment, which is certainly not what you mean. I thought that in your last contribution to the subject you agreed that a separate propensity to accumulate is needed to make the system work.[3] Our formula for the rate of profit is a most useful and necessary development of your theory. It is not mere formalism but a causal relation. If g or $(1 - s_p)$ were greater the rate of profit would be greater, and it cannot be greater unless.

Saving out of wages etc. are only minor complications.

I hope this gets through Christmas post.

Yours

Joan

1 Typed letter signed, one page; file IV-1089-1107.
2 The passage, from Harrod's review of Kaldor, p. 801, is quoted in footnote 4 to letter 1. Robinson has changed the symbols: s_p is equivalent to α in the previous letter (and in Kaldor's book), and obviously $p = P/K$.
3 See footnote 6 to letter 1.

3. Robinson to Harrod[1]

62 Grange Road, Cambridge[#]
10 January 1966

Dear Roy,

I fear we do not yet agree. You say that a high *s* requires a high *g* (*v* being given) but it does nothing to cause a high *g*. I rescue you from this dilemma by saying that *g* is the independent factor and *s* will accommodate[2] to it via the share of profits. Your theory is a projection into the long run of the paradox of the General Theory, not a reversal of it.

Yours always
Joan

Several pieces bearing on this in my vol. III of Collected Papers.[3]
J.

1 Typed letter signed, one page, in IV-1089-1107.
2 Ts: «be accommodate».
3 J.V. Robinson, *Collected Economic Papers*, volume 3, Oxford: Blackwell, 1965. The pieces referred to are 'Equilibrium growth models' (originally published in the *American Economic Review*, June 1961), 'Harrod's knife-edge', 'Solow on the rate of return' (previously published in *Economic Journal*, June 1964), 'Robinson on Findlay on Robinson' (previously in *Economica*, November 1963) and, less specifically, 'Pre-Keynesian theory after Keynes' (*Australian Economic Papers*, 1965).

4. Harrod to Robinson[1]

1 February 1966

I still think we may agree! […] I agree fully that a high *s* does nothing to cause a high *g*.

I am never quite sure what relation my steady[2] growth has to your golden age. Anyhow, it is an abstract construction like the stable equilibrium of static economics. It may never actually occur.

What I say is that a high *s* determines a high value for *g* in this abstract construction. To determine the value of a term in an ideal construction is quite different from causing something to happen.

The ideal construction relates, of course, to a fully capitalist system, in which there is no public tinkering with *s*.

1 Typed letter, unsigned carbon copy, one page; file IV-1089-1107.
2 Ts: «study».

5. Robinson to Harrod[1]

62 Grange Road, Cambridge[#]
2 February 1966

Dear Roy,

The difference is that with your *s* there is only one steady rate of growth possible, whereas with ours steady growth is possible at any rate provided that the real wage is not too low.

What is the point of making a less natural assumption which leads to logical difference when the more natural assumption is free from them.

Yours
Joan

I am not opposing your theory, I am improving it.

1 Typed letter signed, one page, in IV-1089-1107.

Second Exchange: On Joan Robinson's 'Harrod after 21 years'

A second exchange of correspondence was generated by Joan Robinson's submission to the Economic Journal *of an article titled 'Harrod after Twenty Years', and was further ignited by some passages on Harrod in Robinson's* Economic Heresies, *written as a follow-up of the debate. On 22 August 1969 Charles F. Carter, the editor of the* Economic Journal, *sent Harrod a draft of Robinson's article, in case there were problems of interpretation.*[1] *Harrod's first letter to Joan Robinson was not found, but some reading notes are extant, from which his initial argument may be inferred. Harrod preserved copies of most of his replies to Joan Robinson, so that the exchange is almost complete.*

Robinson's article was eventually published, with only minor changes with respect to the draft, in the September 1970 issue of the Economic Journal, *under the title 'Harrod after twenty-one years' (pp. 731-7). Harrod's rejoinder, 'Harrod after twenty-one years. A comment', as well as a Reply by Joan Robinson 'Harrod after twenty-one years. A reply', were appended to Robinson's article (pp. 737-41 and p. 741, respectively).* Economic Heresies *was published by Macmillan in 1971.*

1 The draft and Carter's letter are in file IV-1089-1107; a second copy, with some annotations in Harrod's hand, is in HP V-124: it was sent by Carter on 13 November 1969.

6. Harrod, Reading Notes on Robinson's 'Harrod after 21 years'[1]

P. 1, line 5. The 'fluke' relates not to the 'natural' or desirable rate, but to the 'warranted' or equilibrium rate.[2]

Para 2.[3] In my book these terms s and v (which I call C) <+> determine the warranted, not the possible rate. The C as defined was given a suffix thus, C_r. s should also have been given one and has been in subsequent publications. Both were intended to express equilibrium positions. Absolutely indispensable for my argument was another equation expressing what actually happens at any time and is a book-keeping identity. It *must* be true.

Para 3[4] is true provided that possible growth is taken to mean equilibrium growth and not natural growth.

p. 2 Broken Para at top.[5] I do not use the concept K in my <+> treatment. It does not come into my reasonings. 'g' (what sort of g) '$= I/K$' implies that the incremental product of capital = the average product of capital. There is no reason [why] this should be so in the real world; I would call it a 'fluke' if it were so. Of course one could introduce it as a simplifying assumption. In my work I have always sought to avoid simplifying assumptions, as leading us away from the real world.

P. 2. line 3.[6] My v (viz. C) is not K/Y, but $I/\Delta Y$, a very different thing.

Line 5.[7] $gv = I/Y$, only if v and I are *ex post* or book-keeping values, not as intended values. In my equilibrium, as distinct from self-identical equation, there must be a reference to the tendency to *save*.

Page 3. Line 10.[8] Assumes investment = average capital/output ratio. And whole argument.

Page 4 line 1.[9] Cannot accept.

Page 5 Last para and p 6 top.[10] <deny>.

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1 Autograph reading notes, 2 pages; file HP V-124.

2 Robinson began her article by noting that ‘No one would disagree with the contention of Harrod’s *Towards a Dynamic Economics* that an uncontrolled capitalist economy is unlikely to maintain a steady rate of growth at some “natural” or desirable rate, but his contention that is *logically* impossible (except by a fluke) was found to be startling’ (‘Harrod after twenty-one years’, pp. 731-2). The passage was not amended in the printed version.

3 Robinson, ‘Harrod after twenty-one years’, p. 732, first full paragraph. The passage remained unaltered.

4 Robinson, ‘Harrod after twenty-one years’, p. 732, second full paragraph. This passage also remained unaltered.

5 Robinson, ‘Harrod after twenty-one years’, p. 732: ‘when s is the overall proportion of income saved, $s = I/Y$. The value of the stock of capital at the ruling rate of profit is K. The growth rate, g (assumed to be constant through time, is equal to I/K; v, or K/Y, is the ratio of the value of the stock of capital (at the ruling rate of profit) to the net income of a year and gv is identical with I/Y’.

6 The passage is cited in the preceding note.

7 The passage is cited in note 5 to this document.

8 Robinson, ‘Harrod after twenty-one years’, p. 733: ‘Whatever I/Y may be, P/Y, and therefore s, is equal to it; the rate of profit on capital is identical with the growth rate.’

9 Robinson, ‘Harrod after twenty-one years’, p. 734: ‘When $s_w = s_p$ we are on Harrod’s knife-edge; I/Y is limited to the value of s’. In the printed version, the word ‘on’ was replaced by ‘confined to’.

10 Robinson, ‘Harrod after twenty-one years’, last paragraph on p. 735 and first full paragraph on p. 736.

7. Robinson to Harrod[1]

Faculty Board of Economics and Politics, University of Cambridge[#]
2 September 1969

Dear Roy,

Many thanks for your letter. I was considering the topic rather in the light of recent discussions than as a work of scholarship. However I will put in the note that you suggest.[2]

I am concerned entirely with the formula for steady growth whereas you seem to be thinking rather of the trade-cycle aspect. An increase in investment with given *physical* capital increases prospects of profit and may encourage further investment if expectations are influenced by present experience.

I have to introduce K because I have introduced into your system the rate of profit on capital which you do not mention. I am afraid that if you do not agree that on the extreme classical assumption $g = \pi$[3] I am entirely far away from your line of thought.

Yours

Joan

1 Typed letter signed, one page; file IV-1089-1107.

2 Harrod seems to have complained that Robinson only referred to his 1948 book *Towards an Economic Dynamics* (London: Macmillan), while his propositions were printed almost a decade earlier. Accordingly, Robinson added the following lines to footnote 1 to p. 732 of 'Harrod after twenty-one years': 'There have been twenty-one years of discussion of Harrod's model but it has been in existence for thirty years, as it was originally put forward in "An essay in dynamic theory", *Economic Journal*, March 1939'.

3 See the passage cited in footnote 8 to Harrod's reading notes (item 6).

8. Harrod to Charles F. Carter (excerpt)[1]

[7 November 1969][2]

She refers again to my 'knife-edge'.[3] This is of more importance to cycle theory than to the theory of steady growth. There will be found to be deeper contradictions than that set out in the knife-edge proposition, for instance a fiscal policy (budget deficit or reduction of surplus) designed to stimulate actual growth reduces the equilibrium rate of growth, and conversely. I am working on a new edition of 'Towards a Dynamic Economics',[4] which I expect to be nearly double the length of the old one; many sections of the old will be omitted.[5]

1 Typed letter, carbon copy, of which only the last page is extant in file HP V-124.

2 The undated letter probably accompanied Harrod's Rejoinder to Robinson's article. C.F. Carter, the Editor of the *Economic Journal*, had written to Harrod on 16 October that Joan Robinson had made some footnote changes to her article, but refused to accept the suggested disclaimer; he thus offered to publish a brief note for publication in the December 1970 issue (Robinson's article was expected to go in in September). A note in Harrod's hand on Carter's letter stated 'A[nswered] on Nov. 7', suggesting that this is the date of this letter.

3 See the passage cited in footnote 9 to Harrod's reading notes (item 6).

4 London: Macmillan, 1948.

5 This was eventually published as *Economic Dynamics*, London: Macmillan, 1973.

9. Harrod to Robinson[1]

The Old Rectory, Holt, Norfolk
20 December 1969

My dear Joan,

I should like you to see my note about your article on me. I wrote it on the invitation of Charles Carter & sent it off to him not long ago.[2] I foolishly forgot to have three copies typed and at the moment am away from my files. I would get an extra copy made after Christmas; or Charles Carter would doubtless provide a xerox.

As you know from my earlier letter[3] I hold that your article, although it uses my name, has very little reference at all to my ideas. I pointed this out to Charles Carter, when he asked me about the matter. Carter proposes to publish my comment if I recall aright, in the issue next following the one containing your essay.[4] Although this plan did not seem perfect, it seemed good enough.

But something has happened since then that has altered my views. I have read the earlier sections of Morishima's book on growth theory,[5] which may prove to be a work of some importance. He there attributes to me views that have a family resemblance to those which you have attributed to me, but which have no relation to the views that I hold and have published. Now, I am sure that what you write is more important than what Morishima may write. But there is this all important difference. Morishima is a third party who has based his ideas about me on what *you* have said that I think and not on what *I* have said that I think. Thus an outside scholar uses you as authority for what I hold instead of studying my own works. Thus the situation is becoming intolerable, especially as you have so greatly misrepresented my view – doubtless unwillingly.

I have of course written to Morishima pointing out that I am not responsible for the views attributed to me by him in his book.[6]

I should like you to *help* me or to say what you prefer. I feel that I am entitled to ask Carter to get you to do one of two things.

1. To cut from your article all assertions about my views that I guarantee to be in fact incorrect. There might then be so little left in your article about *me* that you might think it suitable to take my name out of its title.

2. Leave your article and my comment as they stand, but allow a footnote to be appended to your article in the issue in which it appears to the effect that 'Professor Robinson has been good enough to let Sir Roy Harrod see her article. He has stated with regret that he cannot acknowledge as his own most of the views attributed to him by her in this article'.[7]

What do *you* feel?

Yrs

Roy

Of course if Carter publishes my rejoinder in the same issue as your article, there is no problem. But I think (probably for space reasons) that he does not intend to do that.

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1 Autograph letter, marked '*copy*', 2 pages on one leaf; file HP V-124.

2 See footnote 2 to letter 8.

3 The letter referred to is not extant.

4 See footnote 2 to letter 8.

5 M. Morishima, *Theory of Economic Growth*, Oxford: Clarendon Press, 1969, Ch. IV: 'Harrodian knife-edge in a Keynes-type "fixprice" economy'.

6 Harrod's letter to Morishima is not extant (Morishima, personal communication to the editor). In the second edition of his book (1970), Morishima introduced a Note clarifying the upshot of the exchange with Harrod: 'The changes [introduced in the second edition] are in relation to the views previously attributed to Sir Roy Harrod. He points out that, while some of these views have been attributed to him in other writings, authority cannot be found for them in his own works. Furthermore, the word "knife-edge" used in Chapter IV should be understood as a synonymous with instability and not as implying extreme instability. [….] Finally, I would like to express my sincere appreciation of the kindness and assistance which Sir Roy offered me in correcting some bibliographical slips in the previous impression of this book' (p. vii).

7 A letter to the same effect was written on the same day to Carter (Autograph copy in HP V-124). Harrod specified that 'What worries me is the idea that a third party

considered Joan a reliable authority on me & that this may become a habit'. Carter replied on 23 December 1969 (HP V-124) that the editorial board has decided to publish Harrod's rejoinder to Robinson's article immediately following it, commenting that this would correct Harrod's misapprehension far better than the suggested footnote.

10. Robinson to Harrod[1]

Faculty Board of Economics and Politics, University of Cambridge[#]
24 December 1969

Dear Roy,

I am sorry you should think I have done you wrong. My article was concerned with the question: when *s* is independent of the distribution of income, what determines the rate of profit?

As you rightly say in your comments,[2] you did not go into the theory of distribution in your treatment of the subject. It is precisely this that I hope to have added. (Your rate of interest is *not* the determinant of the rate of profit.)

Surely in your formula, $g = s/v$, $v = K/Y$,[3] and $g = I/K = S/K$[4]. Why do you object to *K*?

I enclose a note that I am submitting to Charles Carter and I am sending him a copy of this letter.[5]

Yours,
Joan Robinson

1 Typed letter signed, one page; file HP V-124.

2 Robinson probably refers to a letter not extant (possibly the one cited by Harrod in his letter 9 of 20 December), for in his rejoinder Harrod clearly stated that he had 'dealt very extensively with the mutual influence of growth rates and profits rates' in *The Trade Cycle* (Oxford: Clarendon Press, 1936), in particular on pp. 65-93 ('Harrod after twenty-one years. A reply', p. 737).

3 See, however, Harrod's comment (in his reading notes, item 6) on p. 2 line 3 of Robinson's draft. Robinson was somehow justified by Harrod's terminology ('capital-output ratio': Harrod, 'Themes in dynamic theory', *Economic Journal* 1963, p. 404) in interpreting *v* as she did, although the substance of Harrod's argument, referring to output growth *rates*, implies an incremental ratio.

4 Harrod consistently defined *g* as the rate of growth of output, not of capital; the two would only coincide if the capital/output ratio were constant.

5 The note was eventually published as 'Harrod after twenty-one years. A reply', *Economic Journal* 1970, p. 741.

11. Robinson to Harrod[1]

Faculty Board of Economics and Politics, University of Cambridge[#]
19 February 1970

Dear Roy,

As you are repudiating my attempts to develop your theory, I thought it best to write my position out in full. The enclosed is a draft of part of something I am writing now.[2] Could you return it to me with your comments?

Yours sincerely,
Joan

1 Typed letter signed, one page; file V-124.
2 Refers to a draft of the Chapter on 'Growth Models' (introductory paragraph and the section on Harrod) of J. Robinson, *Economic Heresies*, London: Macmillan, 1971. The draft is preserved in file V-124.

12. Harrod to Robinson[1]

27 April 1970

Once again your latest piece[2] misrepresents my views, I fear. I hope that, if you publish anything on these lines, you will state very clearly that this is my opinion.

I have given courses on growth theory, (including one this term at Penn University) as well as individual lectures in various universities, subjecting myself to lengthy cross-examinations,[3] and a book is in the course of preparation.[4] I am bound to say that I think it unfair that you should queer my pitch by persisting in attributing to me views that I repudiate. Don't misunderstand me. I don't object to criticism. But, if my name is mentioned, the views criticized ought to be mine and not something quite different.

It is impossible to expound my views without using at least three concepts for growth (G, G_w and G_n), three for saving (s, s_d, s_o) and two for the capital output ratio (C and C_r). There is also a C_o but that is not so central to my theories. Incidentally, I have always used the symbol C, not v, for the capital output ratio.

I add a few notes. (These do not cover the whole ground.)

1. Page 2. Line 12. A warranted rate *cannot* be high relatively to the desire of firms to accumulate.[5] By *definition* it reflects that desire.

2. Ditto. Line 14. A low warranted rate can stimulate growth in the short run only.[6]

3. Ditto. Line 19. My theory embraces the period in which the dynamic determinants[7] are unchanged. In this respect it is on a par with static theory. There is no need to introduce the K concept.[8]

4. Ditto. Last line. I have not assumed that the money prices of consumer goods are constant.[9]

5. Page 3. Line 6. I stress this aspect, but not at the expense of other aspects, which may be more important.[10]

6. Ditto. Line 8. I do not know what 'it' refers to.[11]

7. Ditto. Line 10. Not necessarily, if the 'given situation' is one of under-employment and 'level of profit' means its level per unit of capital.[12]

8. Ditto. Line 17. The warranted rate is clearly defined in economic terms and is not a metaphysical concept.[13]

9. Ditto. Last line but 3. Again the use of this misleading term, 'knife edge'.[14] As generally in statics, there is likely to be only one solution for the equilibrium position. Doubtless special assumptions could be made yielding multiple solutions. But I think you will find that they have to be unplausible.

10. Page 4. Line 6. Is 'g' warranted or actual? The actual rate cannot, of course, exceed the natural, if we start from full employment. (This paragraph, I take it, refers not to me, but to the 'neo-neoclassicals'.)[15]

11. Page 5. Line 6. It should be explained that a rise in *s promotes* growth when $G_w < G_n$ (the more frequent case). This greatly diminishes the paradox referred to in line 8. What remains of it is *pure Keynes*.[16]

12. Ditto. Last line but 3.[17] My central theories refer to a single point in time only.

13. Page 6. Line 4. If the share of profits increases, and if profit takers save more than others, then, ceteris paribus, the warranted growth rate accelerates. (G_w increases through time).[18]

14. Ditto. Line 5.[19] The natural growth rate does not of course depend on the rate of profit.

15. Page 7. Line 14. s_d is not likely to be independent of the share of profit.[20]

16. Ditto. Line 16. I apologize for this 'neglect'.[21] I had treated the matter very fully in 'The Trade Cycle'.[22]

17. Page 8. Line 13. Does this imply that there is a single monopoly embracing the whole economy?[23]

18. Page 9. Last line but 4.[24] Is 'the rate of profit' the actual rate realized on the minimum acceptable return on capital, 'MARC' – see my 'Money'?[25]

19. Page 10. Line 11.[26] The 'right' value of C_r depends on MARC having the 'right' value. The 'right' value of this in turn depends on the rate of decline through time of the (social) marginal utility of money. This is a very important feature of my theory. See my presidential to the R.E.S.,[27] and elsewhere.

20. Page 10. Line 12. I *hope* you mean by this that the idea that I imply a 'knife-edge' is a chimera.[28]

21. Page 10. Final paragraph. Is this aimed at me? I cannot affirm too strongly that I have *never* assumed that the ratio of net saving to net income is determined by the psychology of the households rather than the requirements of firms. It is determined by *both*.[29]

P.S. I had never seen this very nice tribute by Schumpeter (enclosed), *1946*,[30] which R. Hinshaw sent me last week. Perhaps at my advanced age it is about time that I took to being more 'selfish'.

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1 Typed letter (probably a carbon copy), not signed or initialled; file HP V-124.

2 Refers to a draft of the chapter in *Economic Heresies* in HP V-124, which was sent by Robinson on 19 February. The delay in the answer is due to Harrod's absence – he was Visiting Professor in Pennsylvania.

3 Some lecture notes, quite rough and sketchy, are extant among Harrod's papers (Chiba University of Commerce, files V-127/1 and following). They concern lectures delivered at Pennsylvania University in 1969 and 1970, at Rutgers (and perhaps also Iowa) 1969, Claremont (probably 1970), Maryland, Waterloo, Princeton (perhaps 1969), and Keio University in Japan. For a brief description of these lectures see D. Besomi, 'Harrod's discontent with Harrodian growth theory', in R. Leeson (ed.), *Economics Beneath the Surface: Archival Insight into the Evolution of the Subject*, Basingstoke: Palgrave Macmillan, 2007.

4 R.F. Harrod, *Economic Dynamics*, London: Macmillan, 1973.

5 Robinson, *Economic Heresies*, p. 110: 'A high warranted rate of growth (relatively to the desire of firms to accumulate) generates under-consumption and so reduces actual growth.'

6 Robinson, *Economic Heresies*, p. 110: 'A low warranted rate generates inflationary conditions and stimulates growth.'

7 In the *Trade Cycle* (Oxford: Clarendon Press, 1936, pp. 88-106), Harrod referred to the dynamic determinants as the variables affecting the value of the multiplier (propensity to save and share of profits in the national income) and of the acceleration coefficient (amount of capital used in production) and in turn depending on the

system's dynamics. In postwar years, the expression only occurs occasionally (in 'Domar and dynamic economics', *Economic Journal* 69, September 1959, p. 459, and 'Second essay in dynamic theory', *Economic Journal* 70, June 1960, pp. 279), but was taken up more frequently in the early 1970s ('Harrod after twenty-one years: A comment', p. 737; 'Reassessment of Keynes's views on money', *Journal of Political Economy* 78(4), August 1970, p. 619; 'Replacements, net investment, amortisation funds', *Economic Journal* 80, March 1970, pp. 25-6).

8 Robinson, *Economic Heresies*, p. 110: 'In long-period terms: the formula, $g = s/v$, is equivalent to $I/K = I/Y \cdot Y/K$'.

9 Robinson, *Economic Heresies*, p. 110: '(The money prices of consumers goods are assumed constant, so that values can be expressed in money)'.

10 Robinson, *Economic Heresies*, draft: 'The formula grew out of a trade-cycle theory and Sir Roy insists upon the aspect of this model which is concerned with instability. The main mechanism is of the "capital-stock-adjustment" type but it can equally well be interpreted in terms of expectations of profit'. Harrod annotated in the margin: 'That is one aspect'. In the printed version (p. 111) the beginning of the sentence was altered as follows: 'The main mechanism in the trade-cycle theory was of the "capital-stock-adjustment"….'.

11 This remark refers to the passage cited in the preceding note.

12 Robinson, *Economic Heresies* (p. 111): 'In any given situation, with given productive capacity, an *increase* in the rate of gross investment raises the level of current gross profits above what it was in the immediate past'.

13 Robinson, *Economic Heresies* (p. 111): 'The "warranted rate of growth" is a metaphysical concept'. Previously Robinson had defined the warranted rate as follows: 'It is the rate that they [the firms] would have to carry out in order to be satisfied, after the event, with what they have done, so as to be willing to continue' (p. 110). Compare this definition to the one originally given by Harrod: 'The warranted rate of growth is taken to be that rate of growth which, if it occurs, will leave all parties satisfied that they have produced neither more nor less than the right amount. Or, to state the matters otherwise, it will put them into a frame of mind which will cause them to give such orders as will maintain the same rate of growth' ('Essay in dynamic theory', *Economic Journal* 49, March, 1939, p. 16).

14 Robinson, *Economic Heresies* (p. 111; the passage immediately follows the sentence cited in the preceding note): 'It concerns the *existence* of a possible equilibrium path, not the stability of any path that an economy may be following. The problem of the knife-edge is the problem of the one and only possible value of g compatible with exogenously given values of s and v'. Harrod commented in the margin: 'self evident unless kinks. But this exactly analogous to static equilibrium'.

15 Robinson, *Economic Heresies* (pp. 111–2): 'When $v < s/n$, there is more saving than is needed to look after n, the natural rate of growth (presumably the argument always starts from a position of full employment); g then exceeds n'. Harrod noted in the margin: 'What is g and what n?'.

16 Robinson, *Economic Heresies* (p. 112): 'Thus a high value of s, for Harrod, plays just the opposite of its neoclassical role. For him, far from promoting a high rate of growth, it is an impediment to any growth at all'. Harrod noted in the margin: 'fully Keynesian'.

17 Robinson, *Economic Heresies* (p. 113): 'At any point on a path of steady growth that is actually being realized, the initial conditions, including the physical composition of the stock of equipment, must be compatible with the growth rate that is going on'. Harrod noted in the margin: 'Why? Repeatedly say that my equations relate to one point of time only'.

18 Robinson, *Economic Heresies* (p. 113): 'The rate of profit on capital and the share of wages and profit in net income are constant through time; the question which we have to consider is how they are related to *g*, *v*, and *s*'. Harrod noted in the margin: 'No. If share of profits increases G_w accelerates. G_w is not affected by changes (except in <detail>), e.g. if technology favours the rich man's goods'.
19 Refers to the latter part of the sentence cited in the preceding note.
20 Robinson, *Economic Heresies* (p. 114): 'On what assumption could we find *s*, the share of net saving in net income, to be given independently of the rate of profit on capital and the share of profit in net income?'.
21 Robinson, *Economic Heresies* (p. 114 – the passage immediately follows the one cited in the preceding note): '(Sir Roy discusses the influence of the rate of interest received by rentiers on the subjective desire to save but he neglects the effect of the distribution of income between wages and profits.)'.
22 R.F. Harrod, *The Trade Cycle. An Essay*, Oxford: Clarendon Press, 1936. In his rejoinder to Robinson, Harrod referred to his book in this connection, in particular to pp. 65-93 ('Harrod after twenty-one years. A reply', p. 737).
23 Robinson, *Economic Heresies* (p. 115): '….the firms (taken together) are free to make the level of prices and the rate of profit what they please by the level at which they set gross margins'.
24 Robinson, *Economic Heresies* (p. 116): 'Now consider the formula, $g = s/v$. The rate of profit may be supposed to have an influence upon *v*, the capital to income ratio, but this cannot be relied upon to get us the full knife-edge'.
25 R.F. Harrod, *Money*, London: Macmillan, 1969, pp. 204-5.
26 Robinson, *Economic Heresies* (p. 116): 'There is no way in which a rate of profit determined by short-period policy can be supposed to find the value that, if it obtained in long-period conditions, would be compatible with the right value of *v*'.
27 R.F. Harrod, 'Themes in dynamic theory', *Economic Journal* 73, September 1963, pp. 401-21.
28 Robinson, *Economic Heresies* (p. 116): 'Evidently the knife-edge is a chimera'.
29 Robinson, *Economic Heresies* (p. 116; the passage immediately follows the one cited in the preceding note): 'The problem is created by the unnatural assumption that *s*, the ratio of net saving to net income, is determined by the psychology of households rather than the requirements of firms'.
30 Probably refers to J.A. Schumpeter, 'John Maynard Keynes 1883-1946', *American Economic Review* 36(4), September 1946, p. 509: 'Mr. Harrod may have been moving independently toward a goal not far from that of Keynes, though he unselfishly joined the latter's standard after it had been raised. Justice imposes this remark. For that eminent economist is in some danger of losing the place in the history of economics that is his by right, both in respect to Keynesianism and in respect to Imperfect Competition'.

13. Robinson to Harrod[1]

Faculty Board of Economics and Politics, University of Cambridge[#]
29 April 1970

Dear Roy,

In my piece I tried to make clear the distinction between the views of Sir Roy, i.e. what you believe in 1970, and the Harrod model of 1949.[2] You now say that the warranted rate of growth represents the desire of firms to accumulate. That is to say, you make *s* govern accumulation. That is to say, you are trying to turn Harrod's theory into a pre-Keynesian theory. I will not have this at any price. Of course you can criticise me for misunderstanding Harrod. But I maintain that I understand him a lot better than Sir Roy does.

Yours always,

Joan

1 Typed letter signed, one page; file IV-1089-1107.

2 Robinson is surely referring to Harrod's *Towards a Dynamic Economics*, London: Macmillan, 1948.

14. Harrod to Robinson[1]

[not dated]

I have not changed my view in any respect as regards the subject matter of your letter of April 29 since 1939 – I do not know why you refer to 1949.[2] I do not recall anything that you have written that shows any understanding of my theory. It is a curious thing that so distinguished an economist as Joan Robinson should be so unscholarly as to comment on a writer's views that she has not read, or at least, has not read with sufficient care to be able to understand them. If you persist in misrepresenting me, I shall feel bound to state very plainly a painful matter, that you have persisted in misrepresenting my views without, it would seem, having taken the trouble to read what I have written. I suppose that more people read what you write than what I write, so that a number of people, including, for instance, Morishima[3], attribute to me a quite false version of what I have actually written. This is rather galling. It is not pleasant to have had ideas that one values and have them travestied.

Your letter continues to ignore the vital distinction between movements in actual growth and movements in warranted growth—both being quite different from natural growth, which is the essence of my theory. An increase at a point of time in the 'desire of firms to accumulate' is a depressant of actual growth. This is Keynes, and I remain a Keynesian in this respect. An increase in the desire of firms to accumulate, to the extent that this is not ephemeral and shortly to be reversed, raises the warranted rate. This is neither Keynesian nor anti-Keynesian, because it is a dynamic principle, and there is no dynamics in Keynes. I explained that there is no dynamics in Keynes in my lecture to the Econometric[4] Society (later published in Econometrica), in 1936.[5]

I suppose that what you call the 'desire of firms to accumulate' is what I would call 'savings by firms'. This is of course something quite different from the amount of net capital formation that firms authorise. The latter may be greater or less than their saving. It may be greater because firms may finance part of their net capital formation by raising money from the public by the issue of bonds or shares; thereby they mobilise for their own purposes the savings of such people. Alternatively, they may authorize an amount of capital formation which is less than what they save; in that case they may hold the difference as a cash balance or add to their portfolio of securities.

1 Typed letter , Carbon copy, two pages; file IV-1089-1107.

2 See note 2 to letter 13.

3 'Hiroshima' in the text; see above, letter 9.

4 Ts: «Econometrics».

5 Reference.

15. Robinson to Harrod[1]

from 62 Grange Road, Cambridge#
12 May 1970

Dear Roy,

I was very happy to get your last letter as it shows that we do not disagree after all. You say 'An increase at a point of time in the "desire of firms to accumulate" is a *depressant* of actual growth' and that it '*raises* the warranted rate'. Here 'accumulation' clearly means saving. This is precisely the way I have always interpreted your theory. However to understand a theory is not the same thing as to agree with it. I have always maintained that the actual rate of growth is determined by the investment decisions of firms and that when they *are* carrying out a rate of growth the saving will be adjusted through the distribution of income. My objection to what is known as the Harrod formula, $g = s/v$, is that s, the proportion of net saving in net income, is not given independently of g.

I admit that I did not take in the significance of your article of 1939 at the time.[2] I read your book with care and have many times remarked upon its great importance. You[3] published a review article in the E.J.[4] There is also a note in my *Accumulation of Capital*.[5] If you want to complain of my failure to read your book you should go to those sources rather than to my last article.

I do not see why you find it so painful to disagree with my interpretation (although it now seems that you do not disagree). I am sure our readers will derive innocent fun from the controversy between us.

Yours,

Joan

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1 Typed letter signed, two pages; file in IV-1089-1107.

2 R.F. Harrod, 'An essay in dynamic theory", *Economic Journal* 49, March, 1939, pp. 14-33.

3 Harrod, as editor of the *Economic Journal* at the time.

4 J.V. Robinson, 'Mr. Harrod's dynamics', *Economic Journal* 59, March, 1949, pp. 68-85.

5 J.V. Robinson, *The Accumulation of Capital*, London: Macmillan, 1956, pp. 404-6.

16. Robinson to Harrod (excerpt)[1]

Faculty Board of Economics and Politics, University of Cambridge#
21 May 1970

Dear Roy,

When you have time you might look at the Note on Harrod in my *Accumulation of Capital*.[2] I think this makes my position on the warranted rate of growth quite clear, and I have never changed it. [….]

Yours ever,

Joan

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1 Typed letter signed, two pages; file IV-1089-1107.

2 J.V. Robinson, *The Accumulation of Capital*, London: Macmillan, 1956, pp. 404-6.

17. Robinson to Harrod (excerpt)[1]

62 Grange Road, Cambridge[#]
1 June 1970

[….] I am glad we are now in agreement

Joan

1 Autograph postcard signed, back and front; file IV-1089-1107.