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Marx's General Rate of Profit Transformation: Methodological and Theoretical Obstacles – an Appraisal based on the 1864–65 Manuscript of *Das Kapital III*

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Introduction[1]

In part 2 of the third volume of *Capital*, Marx addresses the famous transformation of the rate of surplus-value into the general rate of profit. This chapter discusses Marx's 1864–65 manuscript on this issue – the text that Engels (selectively) used for his edition of *Das Kapital*, Volume III. We shall see that this text is a research manuscript rather than a near-to-final presentation of the matter, and

[1] I am grateful for the comments and discussion by the participants of the 2006 ISMT meeting in Bergamo. I have also benefited a lot from written comments by, and correspondence between, Chris Arthur, Fred Moseley and Tony Smith. As a result, I have added a completely new fourth section (against which, due to space limits, other parts of the original paper have been removed).

Note: References without mention of author (for example, M:272 or E:208) are to works of Marx as follows (full references are in the bibliography):

M Marx (1992M/1864–65): main manuscript for *Das Kapital*, Volume III (MEGA);
E Marx (1894E/~1864–65): *Das Kapital*, Volume III as edited by Engels (MEW);
F Marx (1894F/~1864–65): *Capital*, Volume III in the Fernbach translation.

The first date is the date of first publication; the second indicates the year(s) of composition of the manuscript. A tilde [~] before the second date means that the text is roughly based on that manuscript.

Within citations, italics are always in the original. Any underlining is my emphasis. Unproblematical insertions in quotations are in square brackets. Comments are in curly brackets. The indication 'mt' after a page number (for example, 370-mt) means 'my translation'. Within my translations, the original German term also appears, in curly brackets.

that Engels polished up this preliminary status of the manuscript – in this I merely confirm the view of the MEGA editors.

The assessment of Marx's transformation procedure hinges very much on our view of the method he adopted. Two main alternative interpretations of the method are set out in the third section, below. Even if only one of those would make Marx's transformation procedure methodologically legitimate, we shall see in the fourth section of this chapter that, paradoxically, it is not obvious that Marx intended to adopt this method. Thus the main object of this chapter is to lift the discussion on the 'transformation problem' to a more fundamental level.*

The published drafts for part two of Das Kapital, Volume III

Engels edited the text of part two of *Das Kapital*, Volume III from a 1864–65 manuscript by Marx. For the main argument of this chapter it is important that this manuscript thus dates from before the final manuscript of 1866–7 for the first edition of *Das Kapital*, Volume I (1867).[2]

The transcript of the German 1864–65 manuscript was first published in 1992 (MEGA II/4.2). There is no (published) English translation. A 1857–8 manuscript, the *Grundrisse*, contains notes concerning the problematic of this part.[3] A more mature – though relatively short – draft dates from 1861–3, and was first published in 1980 (MEGA II/3.5), with the first English translation in 1991.[4]

Other relevant texts, published for the first time in 2003, can be found in MEGA II/14. This includes a substantial manuscript dating from 1875 as well as four shorter texts from (probably) 1871?, 1873–5?, 1877–82 and 1878? (see pages 227–8 below for a note on especially this last ms).[5]

A final number of eleven draft texts for *Das Kapital*, Volume III (dating from 1867–8) is to be published in MEGA II/4.3. With that, the publication of Marx's manuscripts for the work will be complete (Vollgraf and Roth, 2003, p. 382).

From reading the 1864–65 manuscript, it is obvious that it reports preliminary investigations; it includes 'try outs' together with mistakes of which the author at some point becomes aware. In Engels' manner of carrying out his editorial work, this investigative character of the text has been polished away; hence it has seemed for over a century that much of *Das Kapital*, Volume III

[2] Kopf *et al.* (1983, pp. 15*–16*).

[3] Relevant are especially pp. 373ff. and 434ff. of the English edition.

[4] For a comparison, the 1861–3 draft consists of 35 printed pages (MEGA); the 1864–65 draft has 285 printed pages (MEGA); the final text of *Das Kapital*, Volume III, as edited by Engels (including texts by Engels) is # pages (MEGA) (220 pages in the MEW edition).

[5] The annotations to the texts (for example, text variations, crossings-out, dating and contextualization) by Vollgraf and Roth (2003) are of superb scrutiny and scholarship.

(and II) was in an almost finalized state –including its part 2. I am of course not the first to observe this (see, for example, Vollgraf and Jungnickel (1994) and Heinrich (1996); cf. the chapters by Roth and Heinrich in this volume). In fact, there was no simple solution to the problem that faced Engels: most of the drafts were not in a readable state for non-specialists. The problem is that, given the solution he adopted, he gave very ill warning as to his interventions.[6]

A note on Marx's method in Capital

Although in my view, the project of Marx's *Capital* is based methodologically on a development from Hegel's Systematic Dialectics (cf. the chapter by Arthur in this volume), the main argument of this chapter does not need this stringent position. Instead, I just emphasize one, less controversial, aspect of Marx's method in *Capital*, namely that it proceeds by way of *conceptual development*. Between the three volumes of *Capital*, as well as within each one, we have a movement of 'levels of abstraction', running from abstract, relatively indeterminate, general and simple concepts to increasingly concrete, determinate, particular and therefore complex concepts. At the earlier levels, certain complexities are suppressed, or 'bracketed'. Each time it is the 'insufficiency' of the earlier-level presentation that drives the text on to the introduction of further complexities. (For the purposes of this chapter, these levels of abstraction may even be interpreted in terms of a movement from 'simple models' to 'complex models', in the course of which initial ceteris paribus assumptions are increasingly dropped.)

A formal presentation of alternative interpretations of Das Kapital Volume I categories from the perspective of those of the Das Kapital, Volume III manuscript

Rate of surplus-value and rate of profit

In this section I use the following four main concepts and definitions. Circulating capital (k):

$$k_i = c_i + v_i \qquad \text{[definition]} \quad (13.1)$$

[6] Heinrich (1996) writes about the whole of the manuscript for *Das Kapital*, Volume III: 'there are modifications to the original text on practically each page that have not been indicated. Hardly one paragraph remained as Marx had written it. Engels's modifications are not confined to "stylistic" matters [...] [T]he 1894 edition was an extensive adaptation of Marx's manuscript, and Engels did not inform the readers about the true extent of his adaptation [...] The interventions [...] offer solutions for problems which the manuscript left open [...] and in some passages they even change the argumentation of the original text, if this obstructs Engels' interpretations.' (pp. 456, 459, 464). See also the extensive comments by Vollgraf and Jungnickel (1994) about Engels' mark on the text ('Engels left only few of Marx's sentences untouched' – p. 47-mt).

where c and v are the parts invested in means of production and in labour-power (the wages sum of wl). For simplicity, we abstract throughout, like Marx, from fixed capital and from differences in turnover time.[7] The subscript i refers to a specific sector of production (later, the subscript j will refer to any other sector).

The rate of surplus-value (s'):

$s'_i = f(e^*_i)$ [explanation – pro memory] (13.2a)

$s_i = s'_i v_i$ [explanation; here reduced to definition] (13.2b)

Capital, Volume I posits surplus-value (s) and its increase as the driving force of capital. The focus of the middle part of *Capital*, Volume I is the *explanation* of surplus-value in terms of labour-time, and of the productive forces of labour operating on the means of production.[8] The *rate* of surplus-value (s') is the concentration of these explanatory determinants. Here, as for Marx in the *Kapital*, Volume III manuscript, all this explanation is assumed. Thus we have s' as a determinant for s. It remains to be seen (cf. the subsections below) *how* it is also a determinant for profit (r) and the rate of profit (r'):

$r'_i = r_i/k_i$ [definition] (13.3)

The spectrum of wages is posited synchronically equal for all sectors ($w_i = w$), hence:

$wl_i = v_i$ [approximation] (13.4)

For the sake of brevity, I posit throughout this section a number of assumptions without further argument. For our purposes, there are three types: 'simplifications' serve to make a problem tractable; the same applies to 'stage simplifications' (these, however, are dropped in a later stage) ; 'approximations' {Annäherungen} set out the uninhibited result of forces (tendency laws).

The assessment of Marx's general rate of profit transformation in the 1864–65 draft for part 2 of *Das Kapital*, Volume III depends very much on the view of how the categories presented in this part are connected to those of *Capital*, Volume I. We shall see, in the fourth section of this chapter, that Marx is aware of the importance of the connection, and how he hesitates about the part 2 consequences (his self-interpretation!) for the, then, draft of *Das Kapital*, Volume I. Both in order to shortcut the discussion in the next section, and

[7] Relating to (uniform) turnover time, there is a problem with Equation (13.1) that I set aside for the purposes of this chapter (see Reuten, 2006).

[8] Marx's explanation is discussed in Reuten (2004).

because the categorical connections are not obvious, the current section sets out a brief formal presentation of the two main alternatives. Note that a formal presentation necessarily loses conceptual richness; on the other hand, once quantitative matters are involved – as is the case here – it is a means of precision.

For the purposes of this section, I reduce Marx's complex method of many stages (levels of abstraction) to simply *two* stages: that of *Capital*, Volume I and of part 2 of *Capital*, Volume III. The movement to the later stage is one of increasing determination (concretion or completion).

In considering surplus-value and production, we can, of course, not get around exchange and prices. We assume that 'market prices' converge to what I provisionally call 'supply prices' (and what Marx was to call 'production prices' in *Capital*, Volume III). We want to explain production ($x = pq$) in terms of these convergence prices (p). In principle, we can adopt two methods, and we can take these as possible interpretations of the two stages referred to. I call them 'the method of concretion' and 'the method of completion'. For both methods, we shall be concerned throughout with *synchronic* matters only (some synchronic uniformity of sectors of production may go along with diachronic change).

[CC-1] Method of Concretion at Volume I level: Abstract Explanandum

Before we reach the explanation of the prices, p, we first explain an abstract approximation of them, labelled 'pi' (π), whence we also have an abstract approximation of production: πq. Thus we have an abstractum, or theoretical construct. (This may be interpreted as a systematic-dialectical stage; or also as a theorization of variables constructed in an (ideal) experimental constellation, so reaching ceteris paribus conditions.) In brief, we posit:

$$\pi_i q_i = k_i + s'_i v_i \qquad \text{[explanation of a construct/abstractum] (13.5)}$$

Via the moment of $s'_i v_i$ this incorporates the explanation represented by Equations (13.2a and 13.2b). We proceed by adding two simplifying assumptions. First, that of synchronically uniform rates of surplus-value:

$$s'_i = \mathbf{s}' \quad \text{(for all } i\text{)} \qquad \text{[simplification or approximation] (13.6)}$$

A key question is whether this is indeed a simplifying assumption or rather an approximation of a systemic force (see pages 216–18, 222–23, 227–28). Second, that of synchronically uniform compositions of capital:

$$(k/v)_i = \mathbf{k/v} \quad \text{(for all } i\text{)} \qquad \text{[stage simplification] (13.7)}$$

Dividing (13.5) through v_i, and making use of (13.6) and (13.7), we have:

$$\pi_i q_i / v_i = \mathbf{k}/\mathbf{v} + \mathbf{s}/\mathbf{v} \quad \text{(for all } i\text{)} \qquad \text{[implication] (13.8)}$$

Because $wl_i = v$ (equation 13.4), then substituting wl_i for v_i, and multiplying by w, we also have:

$$\pi_i q_i / l_i = \mathbf{k}/\mathbf{l} + \mathbf{s}/\mathbf{l} \quad \text{(for all } i\text{)} \qquad \text{[implication] (13.9)}$$

In the way I have presented it here, it is the *implication* of the construct that its prices (π) are proportional to labour commanded (Smith) as well as to labour embodied (Ricardo).

Even if Marx introduces the (general) rate of profit only in *Capital*, Volume III, another *implication* is that we have *uniform rates of profit*, since (cf. equation 13.3):

$$\mathbf{r}'_i = \mathbf{s}' v_i / k_i = \mathbf{s}'/(k_i/v_i) = \mathbf{s}'(\mathbf{k}/\mathbf{v}) \qquad \text{[implication] (13.10)}$$

(This is roughly how I interpreted *Capital*, Volume I until my study of the 1864–65 manuscript discussed in this chapter.[9] In a later section (see page 222) we shall see that this interpretation makes Marx's *Das Kapital*, Volume III manuscript transformation procedure methodologically mistaken.)

[CC-2] Method of concretion at Volume III level: concretion

We drop the construct π and proceed to 'production prices' (p). We assume that real market prices converge to these production prices ('centres of gravitation').

Variant (a)

Marx (at some point, see pages 224–25) defines this constellation as follows.

- Analogous to the πq equation (13.5):

$$p_i q_i = k_i + s'_i v_i \qquad \text{[explanation] (13.11)}$$

Via the moment of $s'_i v_i$ this again incorporates the explanation represented by equations (13.2a and 13.2b).

- Rates of profit converge to uniform rates:

$$\mathbf{r}'_i = \mathbf{r}' \quad \text{(for all } i\text{)} \qquad \text{[approximation] (13.12)}$$

[9] I feel constrained to stress that an interpretation may be truthful as an interpretation, but that this does not imply that the interpreter agrees with what is interpreted.

- Non-uniform compositions of capital (thus (13.7) is dropped). Hence, in general:

$(k/v)_i \neq (k/v)_j$ [empirical observation] (13.13)

- Uniform rates of surplus-value (thus (13.6) is maintained):

$s'_i = s'$ (for all i) [simplification or approximation] (13. 6) = (13.14)

Because of the diverging k/v there is no labour commanded or labour embodied proportionality for the production prices p (we merely have $p_i q_i / v_i = (k/v)_i + s'$). Marx is aware of and explicit about this. Rather more problematical is the fact that the combination of the three restrictions in (13.12), (13.13) and (13.14) is impossible.

$r'_i = s' v_i / k_i = s' / (k/v)_i$ [implication] (13.15)

Thus $r'_i \neq r'_j$. We can have uniform profit rates only with either (1) both of s' and (k/v) uniform (the πq constellation); or (2) both of them non-uniform.

Variant (b): reconstruction of variant (a)

The obvious way to mend the incompatibility is to reconstructively drop the (simplifying) assumption of uniform rates of surplus-value in equation (13.14).[10] So we have:

$s'_i \neq s'_j$ [empirical observation] (13.14*)

Whence we derive:

$r'_i = \mathbf{r}' = (s'_i v_i)/k_i$ (for all i) [implication] (13.15*)

In this reconstruction, the *micro* equality of profits and surplus-value ($r = s$) is maintained;[11] by implication we also have the macro $R = S$. Each at this level.

Variants (a) and (b)

Instead, Marx endeavours to get around the incompatibility via a macro–micro détour in which he transposes quantities between the two levels, and that, in effect, results in:

$r'_i = \mathbf{r}' = [(s' v_i) + \delta_i]/k_i$ ['methodologically illegitimate detour'] (13.15**)

(with the aggregate sum of the δ_i amounting to zero).

[10] The theoretical ground for this reconstruction is in the productive force and the degree of intensity of labour (cf. *Capital*, Volume I, ch. 15) as discussed in Reuten (2004, esp. pp. 136–41).

[11] That is, prior to the introduction of finance and interest.

However, within the constellation of the Concretion Method this is methodologically illegitimate (though not for the reasons usually stated). Since the two explananda, πq and pq, are non-identical, transposition of quantities from one level to the other makes no sense. (Certainly, it does make sense to apply the qualitative conclusions from the earlier level to quantification at the lower level – that is, as long as any ceteris paribus conditions of the earlier level allow for it.)

[CP-1] Method of completion at Volume I level: partial explanation of 'concretum'

There is also a very different interpretation of what happens at *Capital*, Volume I level. In this alternative we have no π construct but start immediately with the convergence price p (and hence pq), thus prices of production – even if these are explicitly called this only at Volume III level. However, given that we have the same set of simplifying assumptions as in [CC-1] (equations 13.6 and 13.7) we have approximations for the explanation of p, leaving some of p unexplained. (On page 225 we shall see that Marx at some point leans towards this (self-)interpretation. Fred Moseley (see, for example, Moseley, 2000) seems to be proposing something similar. For each I am not sure they would draw all of the consequences.) Thus p is explained in successive stages – here, reduced to two. Until we reach a full explanation we have an unexplained part u.

$$p_i q_i = k_i + s'_i v_i + u_i \qquad \text{[partial explanation]} \quad (13.16)$$

As in CC-1, the moment of $s'_i v_i$ incorporates the explanation represented by equations (13.2a and 13.2b). Again, we proceed by adding on the two simplifying assumptions of synchronically uniform rates of surplus-value, and of synchronically uniform compositions of capital:

$$s'_i = \mathbf{s'} \quad \text{(for all } i) \qquad \text{[simplification/approximation]} \quad (13.6 =)(13.17)$$

$$(k/v)_i = \mathbf{k/v} \quad \text{(for all } i) \qquad \text{[stage simplification]} \quad (13.7 =)(13.18)$$

Here, however, we have from the beginning no labour commanded or labour embodied proportionality because of the factor u:

$$(p_i q_i)/v_i = \mathbf{k/v} + \mathbf{s/v} + u_i/v_i \qquad \text{[implication]} \quad (13.19)$$

(cf. (13.8) and (13.9) above). It has been argued (for example, by Moseley) that *Capital*, Volume I, merely provides a partial explanation of prices (in a different way, of course, nor does CC–1 provide a full explanation).[12]

[12] As a corollary, it may be noted that, as against CC-1, there is at *this* point no implication of (implicit) uniform profit rates.

[CP-2] Method of completion at Volume III level: completion

Rates of profit converge to uniform rates:

$$r'_i = \mathbf{r}' \quad \text{(for all } i\text{)} \qquad \text{[approximation] (13.12)=(13.20)}$$

Hence we have for (what is now explicitly thus called) prices of production:

$$p_i q_i = k_i + r_i \qquad \text{[accounting identity / empirical observation] (13.21)}$$
$$p_i q_i = k_i + \mathbf{r}' k_i \qquad \text{[putative explanation] (13.22)}$$

This is a putative explanation pending the determination of r'.
Again, we have non-uniform compositions of capital (thus the simplifying assumption in Equation (13.18) is dropped):

$$(k/v)_i \neq (k/v)_j \qquad \text{[empirical observation] (13.13) = (13.23)}$$

The uniform rates of surplus-value thesis in Equation (13.17) is maintained; however, given Equation (13.22), it is considered to play no (new) role *at the current level.*

$$s'_i = s' \quad \text{(for all } i\text{)} \qquad \text{[simplification/approximation] (13.17)}$$

Reordering Equations (13.20)–(13.22) we have:

$$r'_i = \mathbf{r}' = r_i/k_i \quad \text{(for all } i\text{)} \qquad \text{[implication] (13.24)}$$

Because the *pq* in the two price equations (13.16) and (13.22) are on the same plane, it is now methodologically legitimate to transpose quantities from the one level to the other (CP-1 and CP-2). (Cf. the Marx/Engels (in)famous aggregation tables of *Capital* Volume III, chapter 9.)

Substituting (13.16) and (13.2b) into (13.21), we have:

$$r_i = s_i + u_i \qquad \text{[implication] (13.25)}$$
$$r_i = s'_i v_i + \mathrm{u_i} \qquad \text{[implication] (13.26)}$$

In fact, this is a shortcut for Marx's aggregation tables. However, it deserves a serious warning (and here the usual critiques come in), namely that it is *assumed* that the unexplained factor of u_i concerns, and so is to be allotted to, profits rather than (in part) any other factor in equation (13.16).
We now aggregate surplus-value (S) and profits (R):

$$S = \Sigma s_i \qquad \text{[aggregation] (13.27)}$$

$$R = \Sigma r_i \qquad \text{[aggregation] (13.28)}$$

Next, it is posited that S explains, and fully determines, R:

$$R = S \quad \text{(right-to-left determination)} \qquad \text{[derived explanation] (13.29)}$$

(The explanation is derived from the set of equations (13.1)–(13.4) and (13.16)–(13.28).)
We also aggregate equation (13.25) into:

$$R = S + U \qquad \text{[aggregation] (13.30)}$$

Because theoretical priority is given to (13.29), we have:

$$U = 0 \qquad \text{[theory decision] (13.31)}$$

Finally, the sector u_i 's are determined via the rate of profit criterion. From (13.24)–(13.26) we have:

$$r'_i = \mathbf{r}' = (\mathbf{s}'v_i + u_i)/k_i \qquad \text{[implication] (13.32)}$$

Hence:

$$u_i = \mathbf{r}'k_i - \mathbf{s}'v_i \qquad \text{[implication] (13.33)}$$

Some conclusions and a preview

1. The latter equation (13.33) is the *'tache de beauté'* of this CP set up. The u_i 's are determined by the 'general rate of profit', instead of the rate of profit being fully determined by explanatory entities. Two objections may be raised against this alleged blemish. One is that we have a simultaneous determination. The other, as argued by Marx, is that, at a still lower level of abstraction, the u_i 's are determined by competition (see pages 224–25).
2. Remind Marx's equation (13.15**) from CC-2 that I qualified as 'methodologically illegitimate' (a qualification that I maintain, that is within the Concretion Method). We had:

$$r'_i = \mathbf{r}' = [(\mathbf{s}'v_i) + \delta_i]/k_i \qquad \text{(13.15**)}$$

   Its outward appearance is similar to (13.32).
3. In Variant (b) of CC-2 – that is, my reconstruction of Variant (a) – we have the rate of profit fully determined without any transformation 'problem':

$$r'_i = \mathbf{r}' = (s'_i v_i)/k_i \tag{13.15*}$$

4. In my view, CC-1 is the better *interpretation* of *Das Kapital*, Volume I, published by Marx in 1867!, and revised shortly before publication. In my view, CP-2 is the better *interpretation* of Marx's manuscript for part 2 of *Das Kapital*, Volume III, written in 1864–65! (at least up to some point of the manuscript – see pages 225–27).
5. How is this so? This is methodologically inconsistent! Yes. Because of this problem, the following section is rather complex. My hypothesis is as follows. The 1864–65 manuscript for part 2 initially followed the path of the 1861–3 manuscript, which is in line with CP-2 – that is, the 'chapter 9' transformation procedure (see pages 224–25). Then, reflecting on this transformation procedure in Marx's 'chapter 10', he became increasingly worried about what he had been doing in terms of his manuscript for *Das Kapital*, Volume I (see page 225 ff).[13] Engels, however, in his editing of the 1864–65 manuscript for 'his' *Das Kapital*, Volume III, polished away these worries whence we have the 'CP-2' result.
6. Each of [CC-1 with CC-2] and [CP-1 with CP-2] is consistent. The usual post-Marx solutions to the transformation problem obviously took Engels' version of *Das Kapital*, Volume III for granted, and then combined the 'theoretical domain' of CC-1 with that of CP-2, which is methodologically inconsistent. If one would want to use the 'domain' CP-2 (not only for a solution to the transformation problem but also for any other quantitative matters) then one is bound to CP-1.

The 1864–65 manuscript and the text of Capital, Volume III, part 2

General outline

Regarding part 2 (originally a 'chapter') of the 1864–65 manuscript, Engels left unchanged the main chapter *structure* of the text for his *Capital*, Volume III edition (chapters 8–12); however, there are changes of order within the chapters as well as texts that have disappeared altogether. For the convenience of the reader, I therefore refer in this section to the *Capital*, Volume III chapters.

At the very opening of part 2 (chapter 8) we immediately find the crucial assumption of a uniform rate of surplus-value, for all of part 2 (M: 212; E: 151;

[13] Another problem is that the penultimate manuscript for *Das Kapital*, I is missing. We just do not know to what extent – if at all – Marx adapted his text as a consequence of the worries mentioned.

F: 241),[14] and this is repeated regularly throughout the part. According to this manuscript, it is not just a simplifying assumption but rather a *law*. In 'Chapter 10' Marx writes that competition between labourers gives rise to:

> a general rate of surplus-value – tendentially that is, as for all economic laws; we posit it as a *theoretical* simplifying presupposition; in fact it is the actual presupposition of the capitalist mode of production even if inhibited by practical frictions [...] in theory we assume that the laws of the capitalist mode of production develop in their pure form {rein}.' (M: 250-mt; cf. E: 184, F: 275)

Given this assumption/law the terrain of the problematic for part 2 is defined by the prevalence of non-uniform compositions of capital (ratio's of k/v) between sectors of production, or also non-uniform turnover times of capital – which offers the same problematic (M:216). Thus whereas *Capital*, Volume I, parts 4, 5 and 7 treat the diachronic change of the capital composition (with any divergences between sectors 'bracketed') the current part makes the reverse assumption: constant though diverging.

Part 2 comprises three main chapters (chs 8–10) that in my view should be considered together (the two smaller chapters (11 and 12) may be regarded as 'addenda'). I begin with a brief outline of these three chapters before discussing some of the details.

In chapter 8, Marx sets out the constellation that results from the assumptions just indicated. These, together with the assumption that commodities are sold 'at their values' [presumably equation (13.5)] would result in differing rates of profit between sectors (M: 223–4) [cf. equation (13.10)]. This constellation, however, does not exist in reality (M: 229–30). Hence the presentation is insufficient.

Therefore the next chapter (ch. 9) must widen the theoretical terrain. Marx introduces a new concept 'production price'; 'its presupposition is the existence of a *general rate of profit*' (GRP) (M:234). Thus Marx *posits* in chapter 9 the 'production price' [cf. equation (13.11)/(13.22)]. He indicates that this is 'a transformation of value' ('eine verwandelte Form des Werths' – M:239; E:173) but nevertheless carries out a quantitative *substitution* between the two levels of abstraction! This is a problem *if* his method is the Method of Concretion (see page 215 ff), which is the hypothesis from which I start.

The point is that the status of *this* transformation is very different from the *purely conceptual* one that Marx presented in part 1, and in which no quantitative

[14] I write 'uniform'; the manuscript has 'constant' and 'given'. The manuscript has 'chapter'; Engels apparently forgot to change this into 'part'.

differences are involved. Consider, for example, the following quotation from its chapter 2:

'while surplus-value and profit are in fact the same – they are *numerically* identical – profit is still for all that a transformation {verwandelte Form} of surplus-value' (M:64; see E:58, F:139). Or , from chapter 1:

'Materially {Stoff; stofflich} considered [...] the *profit* [...] is not different from the *surplus-value* itself. Hence its absolute magnitude is not different from the magnitude of the surplus-value [...] it is however a *transformation* {verwandelte *Form*} of the latter' (M:8–9-mt)[15]

For the part 1 transformation, no new quantitative determinations appear. However, as Marx was well aware, for his part 2 transformation there are different quantities ($\pi_i q_i \neq p_i q_i$ and $k/v \neq k_i/v_i$ and $s'v_i \neq \mathbf{r}'k_i$), at least for the micro level. Thus he substitutes quantities of a theoretically insufficient constellation (πq) into that of a theoretically enriched, more concrete, constellation (pq). On the basis of the Method of Concretion, this would be very awkward. Then the problem is not primarily that the two famous conditions of aggregation (of $\Sigma\pi q = \Sigma pq$ and $R = S$) are mathematically incompatible (as stressed in the literature on the issue). No, the primary problem is that of conceptually incompatible quantities.[16] (Note that for post-Marx solutions to 'the' transformation problem, there is potentially the same pitfall.)

It is especially in chapter 10 that Marx reflects on, and questions, what he had accomplished in the previous chapters, including the consequences for his self-interpretation of the concept of value set out in his manuscripts.

Chapter 8: the problematic

I now move on to the relevant details. I begin by recapitulating the important point about chapter 8 that was been made above. This chapter sets out the following five assumptions/theses (M:223–4, 229–30):

[A] assume commodities are sold 'at their values' [presumably πq; see equation (13.5)];

[B] assume equalized rates of surplus-value [$s'_i = s'_j$];

[C] we have diverging compositions of capital [$(k/v)_i \neq (k/v)_j$];

[D[a]] hence [A]–[C] equal capitals produce unequal surplus-value or profit [$(s/k)_i \neq (s/k)_j$];

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[15] This text appears on the opening pages (pp. 2–3) of the manuscript; apparently it is omitted in Engels' text.

[16] A similar critique was made earlier by Hartmann (1970, p. 370): 'The mistake made by Marx was the mistake of viewing a transcendentally early (category) as identical to a transcendentally late one.' Smith (1990, p. 168) adds: 'This goes against one of the basic canons of systematic theories of categories.' (Hartmann is cited from Smith.)

[D^b] therefore we have diverging rates of profit [$r'_i \neq r'_j$];
[E] in fact, however, we have (tendentially) equalized profit rates [$r'_i = r'_j$].

These five assumptions/theses are inconsistent. At least one of them must be wrong, and it remains to find out which one(s). Analytically, and I repeat *analytically*, this set up might make sense. (Chapter 8 makes sense generally – also in that there are no deviations from the later *Capital*, Volume I terminology.)

Chapter 9: a cheerful accommodation for the inconsistency

Chapter 9 sets up a *possible* constellation accommodating the inconsistency (this is my interpretation); however, in any case it is obvious that the text is investigative (*Forschung*) not presentational (*Darstellung*).[17] As it turns out ,Marx's set up is much along the lines of his earlier 1861–3 manuscript.

The chapter starts by repeating the assumption about the rate of surplus-value – [B] above. Marx also introduces a number of simplifying assumptions, such as the full and linear depreciation of fixed capital within the year, and equal turnover times (M:230–1).

Next he sets out the famous three schemes (M:231–3). (The first and second schemes apply assumptions/theses [A]–[D];[18] the third scheme is the one where Marx introduces prices of production as diverging from value [Equation (13.11)/(13.16)]. He drops sales at value, [A] introduces (instead) production prices and so gets rid of diverging profit rates [D^b]. He does so with hardly any argument: 'Their presupposition [i.e. of production prices] is the existence of a general rate of profit [...] In reality the very different profit rates [...] are by way of *competition* equalized into a *general rate of profit* ..."' (M:234-mt; cf. E:167, F:257).

Note that he maintains the disproportional production of surplus-value [D^a] (M:234–5).

However [A] is not really dropped. At this point in the text, Marx posits one of the famous two aggregate equalities – that is, that of 'values' and production prices (perhaps $\Sigma pq = \Sigma \pi q$). The aggregate equality of profits and surplus-value ($R = S$) is posited throughout.[19]

As indicated, from the point of view of the Method of Concretion, these equalities make no sense. Not so much because of an analytical mistake (the standard critique), but because of a methodological mistake: the 'values' [πq] ('values' in Marx's terminology at this point) have no concrete existence, hence

[17] Cf. Vollgraf and Roth (2003, p. 385).

[18] In the second scheme, the silly addition of profit rates (to 110 per cent) is Engels' (F:256).

[19] When he posits $\Sigma pq = \Sigma \pi q$ (presumably) he feels there is a difficulty (M:236–7; E:169; F:259); M:241–3 on the same theme.

they are quantitatively incompatible with (more) concrete existants. From the point of view of the Method of Completion there would not be such problem; however, at this point in the text I am still assuming that Marx has adopted the Method of Concretion.

Finally, for chapter 9 I draw attention to the passage were Marx seems quite happy about what he has achieved so far, declaring that the current presentation 'reveals for the first time [...] the inner connection' between value and production price, and between surplus-value and profit (M:245; cf. E:178 and F:268).

Chapter 10: gloomy reflection

In Chapter 10, however, the scene seems much more gloomy and dismal. After two pages connecting the two chapters, Marx posits two research questions, one immediately after the other (I call these Question 1 and Question 2):

> {Question 1} *The really difficult question here is this: how does this equalization of profits or this emergence {Hertstellung} of the general profit rate come about, since it is evidently a result and cannot be a point of departure.*
>
> It is clear first of all that an assessment of commodity values, for example, in money, can only be the result of their exchange, and that, when we presuppose such assessment, we have to consider them as the outcome of *actual exchanges of commodity value against commodity value.* {Question 2:} *But how could this exchange of commodities against their actual values have come about?* (M:250-mt; cf. E:183–4, F:274–5 italics added)

It is especially at this point in the text that the reader (I) may start doubting if Marx indeed *aims to adopt* (remember this is a research manuscript) the Method of Concretion. Note the 'actual exchanges' ('wirklicher Austausche') which especially for a Hegel-inspired scholar cannot leave room for compromises. So do we bid 'πq' farewell?

Marx devotes about 20 pages to Question 2, before he gets to the first question. The answer to Question 1 (M:269–70; E 205–7; F:297–8) is rather limited. We learn mainly that capital moves from low to high profit rate spheres and that the thus affected supply in relation to demand establishes the transformation of values into production prices. This answer is far more problematical than it might perhaps seem at first sight. (The process briefly described *here* is not problematical – such movement of capital and labour is also part and parcel of classical political economy, and of many economics paradigms after it.) The problem is that Marx must rely, so it seems, on a *historical* process to set out a *systematic* problem! The movement of capital is a continuous *systemic* process. However, the implication of Marx's set up is that the GRP 'transformation' is of the past. Marx is aware of this, as we can infer from the fact that he realizes that Question 1 cannot properly be answered before Question 2.

By this time – that is, when he finally gets to Question 1 (page M:269) – I guess that Marx had run out of steam as a result of being disillusioned by the consequences of his chapter 9 outline (1864–65) – that is, the answer to Question 2.

On to Question 2: how could the *actual* exchange of commodities against their *actual* values $\{\pi q\}$ have come about? Marx repeats (M:250) that such an exchange (given the equalized rate of surplus-value assumption, as he once again stresses) would result in unequal rates of profit – which is counterfactual.[20] Obviously, the production prices of the research manuscript for chapter 9 put the (current) *Capital*, Volume I, chapter 1 presentation – of commodity exchange according to value – into question in a rather disastrous way.[21] It is clear from the text that Marx was much bothered by this. My reading is that Marx sets out, in a unsystematic way, a number of analytical consequences of where he has got to, together with some possible ways out. We find, for example, a model-like case in which workers own the means of production and exchange products according to their value; then a move to a 'historical transformation'; next a long detour on *market* value and supply and demand generally, without coming to the point (in his work of 1896, all this was rightfully ridiculed by Böhm-Bawerk in this context).[22]

The 'try out' of the historical transformation especially is inconsistent with the chapter 9 procedure.[23]

On page M:267 (E:203; F:294) Marx finally arrives at a systematically, and thus methodologically, relevant statement. Note that he uses the kind of 1859 (or 1867) terminology of exchange (Engels puts the following in the past tense, suggesting an even more direct reference to *Capital*, Volume I, chapter 1):

> In considering money, it is assumed that commodities are sold at their values, because there is no foundation {Grund} to consider prices deviating from value since the concern is just the changes in form that commodities have to undergo when they are turned into money and then transformed back into commodities again [...] it is completely irrelevant for them *as such* [the commodities] whether the realised commodity price is *below* or

[20] Note that, for the following 20 pages, Engels maintains the structure of Marx's text.

[21] Instead of *Capital*, Volume I, chapter 1, we can take the 1859 *Critique* as a reference point. On page M:257 (E:191–2) Marx refers to this work (note that the 1864–65 manuscript for *Capital*, Volume I is lost – see Kopf *et al.*, 1983. pp. 15*–16*).

[22] Böhm-Bawerk, of course, read the text as a final document – that is, as polished by Engels.

[23] Engels, on the other hand, seems to have liked the idea. It has given rise to a historical, as against a systematic, interpretation of *Capital*, Volume I, chapter 1 – rightly criticized by Arthur (1997). Such an interpretation, however, cannot save the chapter 9 procedure (even neglecting the latter's internal problems of the two conditions).

> *above* their value. The *value* of the commodity as groundwork {Grundlage} remains important, since money can only be developed conceptually from this foundation {Fundament}, and *price*, in its general concept {seinem allgemeinen Begriff nach}, is only valeur monetisie [monetised value; the two words appear in French]. (M: 267-mt; see E:203, F:294–5)

Methodologically, this is fine. I believe this sheds light on what Marx (with the 1859, or later, text in his mind) intended to do in the 1867 text. It is a *conceptual* presentation in stages of complexity. So finally it seems that Marx leans back to the Method of Concretion?

In fact, Marx shows here (implicitly that is) that the chapter 9 procedure makes no methodological sense. An abstract magnitude of value cannot be put into quantitative equality with the magnitude of some concretum.

I round off this section with a comment on Engels' editorial work. Quite apart from all my methodological critique on chapter 9 as addressed above, Engels seems to have misjudged Marx's own critique on that chapter in his chapter 10 manuscript (and Engels' polishing work made all this worse). Thus Engels provided intelligent people like Böhm-Bawerk with plentiful opportunities to point out inconsistencies – inconsistencies that Marx himself in fact laid bare.

Notes on a small 1878 manuscript: diverging rates of surplus-value

My suggestion that Marx was not happy with the chapter 9 manuscript is sustained by the fact that he kept returning to the matter in manuscripts after the publication of *Capital*, Volume I (see pages 212–13 above) even if without substantial progress (that is, in the MEGA II/14 manuscripts). However, I should like draw attention to a hint in Marx's final manuscript on the issue (Marx, 2003f/1878?).[24] This is a small manuscript of six pages dating probably from 1878 (see Vollgraf and Roth, 2003, p. 697). Consider the following passages:[25]

> *For [the] calculation of the rate of profit that the social capital yields it was assumed {angenommen}, 1) that the rate of surplus-value uniform for the different heaps of capital {Kapitalmassen} in different branches of industry, 2)* and *neglecting* turnover, *i.e. the turnover of the social capital over the year posited = 1.*

[24] If we neglect the 25 lines of algebra which is the content of a manuscript from probably 1877–82.

[25] It is extremely difficult to translate these texts. Marx's texts are unpolished and continuously mixed with shorthand phrases.

> In fact, for the different heaps of capital, *different rates of surplus-value and different turnover times.* (158-mt)

The clarification following this (after seven printed lines on the calibration of turnover times) is very interesting. Note Marx's usage of the term pure (*rein*), which he reserves for law-like entities:

> These are just differences {Differenzen} emerging from the pure economic conditions, namely *different* {verschiedne} *magnitudes of the capitals invested in business sectors, different rates of exploitation of labour-power, different turnover times.* However [there are] other aspects of the equalisation such as unattractiveness, danger and standing of the work. (158-mt)

This text is ambiguous. With some hesitation I opt for the interpretation that the text emphasized by Marx in the second quotation sums up the pure conditions. (In the alternative interpretation, the two assumptions of the first citation would presumably be the 'pure conditions'. However, it would then be most puzzling as to how these could turn into their exact opposite.)

Remember quotation on page 222, above, from the 1864–65 manuscript (p. 250) where Marx posited the uniform (general) rate of surplus-value as part of the 'pure' constellation. Thirteen years later, if my interpretation above is correct, non-uniform rates of surplus-value are seen as being part of the theoretically *pure* constellation – whereas the competition between labourers has become a subordinate factor. Then even Marx's reason for the troubling 1864–65 chapter 9 type of procedure evaporates.

Conclusions

We have seen that the assessment of Marx's GRP transformation procedure in chapter 9 of his 1864–65 research manuscript for *Das Kapital*, Volume III hinges on the interpretation of the general method he adopts for the three volumes of *Capital*. If the adopts the Method of Concretion (cf. page 215 ff, above) then the procedure is illegitimate. The problem centres on the two equations for 'value' and 'price of production', each posited at a different level of abstraction. Then the mistake is to transpose quantities between these levels. If Marx adopts the Method of Completion, the procedure is legitimate, though not without problems. More important, it would make much of *Capital*, Volume I problematical.

We have seen that in the course of writing chapter 10 of the research manuscript, Marx became increasingly worried about the consequences of chapter 9. For over 15 pages it seems that Marx is leaning towards the Method of Completion. However, towards the end of the chapter, he apparently reverts to 'the Method of Concretion', so leaving the chapter 9 procedure up in the air. This conclusion applies to the manuscript. On the basis of 'Engels'' text (as well as his interpretation of part 1 of *Capital*, Volume I) the Method of Completion is fairly consistent for most of part 2 of *Capital*, Volume III.

The problem for the interpretation of Marx's work, and for the further development of marxian theory after Marx, is not that Marx encountered a big problem that he did not solve. The problem is that Engels, in his editorial work, polished away most of Marx's worries and so made it appear as if *Das Kapital*, Volume III was a near-to-final text instead of just a research manuscript on this issue.

We also saw (see page 218 ff) that the very reason for Marx's troubling 1864–65 chapter 9 type of procedure is in fact the thesis of a uniform rate of surplus-value. If that thesis is dropped, there is in fact no transformation 'problem'. In reference to Marx's brief last manuscript on the issue, we saw in the final section above that there is some (thin) evidence that Marx might have been about to set out on this track.

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[26] First English translation Ernest Untermann, 1909.

[27] MEGA: Marx–Engels–Gesamtausgabe (1975–97) Dietz Verlag, Berlin; 1998-present Akademie Verlag, Berlin).

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