Marginal Rates Under the TCJA

Reed Shuldiner

University of Pennsylvania Carey Law School

Follow this and additional works at: https://scholarship.law.upenn.edu/faculty_scholarship

Part of the Economic Policy Commons, Law and Economics Commons, Law and Society Commons, Taxation Commons, Taxation-Federal Commons, and the Tax Law Commons

Repository Citation

This Article is brought to you for free and open access by Penn Carey Law: Legal Scholarship Repository. It has been accepted for inclusion in Faculty Scholarship at Penn Carey Law by an authorized administrator of Penn Carey Law: Legal Scholarship Repository. For more information, please contact PennlawIR@law.upenn.edu.
Marginal Rates Under the TCJA

by Reed Shuldiner

On its face, the Tax Cuts and Jobs Act (P.L. 115-466) appears to offer an across-the-board reduction in individual marginal rates along with an additional 20 percent reduction in rates on unincorporated business income. Such a description oversimplifies the effect of the act. In fact, the rate reductions in the TCJA are uneven and play out in surprising ways. For example, the new rate structure raises rates on some taxpayers and shows a strong preference for married taxpayers over unmarried taxpayers, expanding marriage bonuses and corresponding singles penalties.

Examination of the new deduction for unincorporated business income suggests that the effect of the deduction goes well beyond a 20 percent reduction in marginal rates on business income. The deduction has the effect of not only lowering rate schedules but also shifting brackets. As a result, rates on business income can drop by well over 20 percent, and rates on nonbusiness income are also reduced for business owners. On the other hand, the phaseouts built into the new provision have the opposite effect, increasing marginal rates on business and nonbusiness income — in some cases to more than 60 percent.

This report also looks at the preexisting rules for capital gains and notes the surprising fact that the presence of capital gains can increase rates on ordinary income, despite the apparent separation between the computation of tax on ordinary income and capital gains. This leads to odd results, such as that in the presence of capital gains, increasing ordinary income can lower ordinary income rates.

Comparing Rates Under Old and New Law

It is difficult to directly compare rates under old and new law because the definition of taxable income is not the same. Because my intention is to focus on changes to rates and not changes to the tax base, I ignore both changes to the definition of gross income and changes to itemized deductions. I take into account the standard deduction and, under old law, one or two personal exemptions depending on marital status because I view those provisions as integral to the rate structure. I assume old-law personal exemptions are phased out smoothly over the phaseout range and...
therefore have the effect of increasing marginal rates by approximately 1.1 percent per exemption. Given that the TCJA generally increased gross income and reduced itemized deductions, my calculations overstate the benefits of new law. For the time being, I also assume that none of the income consists of capital gains or qualified business income. The treatment of both types of income is discussed extensively below. It is also necessary to specify filing status. For this section I compare rates for married individuals filing joint returns (hereinafter simply “married”) and for unmarried individuals other than heads of households (hereinafter “unmarried” or “single”). Doing so allows me to focus not only on changes in marginal rates but also on changes to marriage penalties and bonuses. In subsequent sections, for ease of presentation, I limit the analysis to married taxpayers.

Figure 1 shows marginal rates for married taxpayers as a function of taxable income under old law (Line A) and new law (Line B). As expected, marginal rates are almost always lower under new law by an amount that ranges from 1 to 9 percentage points. The exceptions are for the 10 percent and 35 percent brackets, which are unchanged over substantial regions.

---

1.1 percent = 33 percent * $4,150/$125,000. For married taxpayers, the phaseout is partially in the 35 percent bracket, implying an effective rate of 1.2 percent per exemption, or 2.4 percent for a married couple. I do not take into account the overall limitation on itemized deductions, which would increase the marginal rate an additional 0.99 percent to 1.19 percent depending on the taxpayer’s bracket.


All figures are based on 2018 numbers. For new law, the rate schedule is provided in section 1(j). For old law, the rate schedule takes into account inflation adjustments for 2018 as determined before the enactment of the TCJA. See Rev. Proc. 2017-58, 2017-45 IRB 489.

If the phaseout of the personal exemptions is ignored, the new 35 percent bracket includes a region of the old 33 percent bracket and therefore represents an increase in marginal rates under new law.
Figure 2 shows marginal rates for unmarried taxpayers. As with Figure 1, Line A represents old law, and Line B represents new law. Figure 2 suggests a different story for unmarried taxpayers. As with married taxpayers, the 10 percent bracket is mostly unchanged, and tax rates are reduced in the old 15 and 25 percent brackets. Starting in the old 28 percent bracket, however, the relationship between new law and old law flips. For an extended range of income, from the start of the new 32 percent bracket (an adjusted gross income of about $170,000) to the start of the old 35 percent bracket (an AGI of about $430,000), the rates under new law exceed the rates under old law.\(^5\)

Figure 3 shows the tax savings under new law relative to old law as a function of AGI. Line A shows the savings for married taxpayers, and Line B shows the savings for unmarried taxpayers. Line C is explained below. As before, I focus only on rate changes, the repeal of the personal exemption, and the standard deduction.

The savings for married and unmarried taxpayers are starkly different. For married taxpayers, the tax savings line is relatively straight, rising at roughly a constant percentage of income. For unmarried taxpayers, the savings initially rise in proportion to AGI, but at about $170,000 the savings start to fall and drops close to zero at about $430,000. This drop in tax savings for unmarried taxpayers follows from the fact that marginal rates are higher in this range under new law. After about $430,000 the new rates are lower than old rates, and the tax savings begin to rise parallel to, but well below, the savings for married taxpayers.

\(^5\) The old 35 percent bracket is difficult to see in Figure 2 because it extends from an AGI of $431,450 to only $433,200 before increasing to 39.6 percent.

\(^6\) There is a minor exception. In the AGI range from about $205,000 to $220,000, the old rate is 33 percent and the new rate is 32 percent.
Why were unmarried taxpayers treated more harshly than married taxpayers? Presumably, that decision came from a desire to further reduce marriage penalties implicit in the rate structure. Explaining the changes requires a little background. The question of how marriage should affect tax liability has been a long-standing problem for the federal income tax. In an individual-based system, such as the Social Security payroll tax, tax liability is independent of marital status. In a system of joint filing, however, the tax effect of marriage will depend on the size of the married brackets relative to the unmarried brackets, and on the relative income of the two individuals.

If the married brackets are equal to the unmarried brackets, marriage will have no effect on a single-earner couple but will generally increase the tax liability of a two-earner couple. This marriage penalty will be largest for equal-earner couples. At the other extreme, if the married brackets are equal to twice the unmarried brackets, marriage will have no effect on an equal-earner couple but will generally decrease the tax liability of an unequal-earner couple. This marriage bonus will increase the more uneven the earnings of the two individuals, and it will be largest for single-earner couples.

In between the extremes of equal brackets and double brackets, the mix between marriage penalty and marriage bonus will depend on the balance of income between the two individuals. The more equal their incomes, the more there will tend to be a marriage penalty. The more unequal the incomes, the more there will tend to be a marriage bonus.

The flip side of a marriage bonus is, of course, a singles penalty (and the flip side of a marriage penalty is a singles bonus). Thus, there is an unavoidable trade-off: the narrower the married
Married individuals filing jointly were taxed on a percent of the unmarried brackets. Congress compromised and set married brackets at 167 percent across brackets. In TRA 1986 Congress married and unmarried brackets varied over time for unmarried taxpayers. The relative size of the married and unmarried brackets varied over time and across brackets. In TRA 1986 Congress compromised and set married brackets at 167 percent of the unmarried brackets. The effect of that compromise along with a relatively flat rate structure was to moderate both the marriage bonus (singles bonus) and the marriage penalty (singles penalty).

Over time the compromise broke down in two ways. As more and more married couples became dual earners and tax rates rose after TRA 1986, complaints about the marriage penalty grew. Congress responded in 2001 by moving back to the 200 percent standard, but only at lower income levels. For married taxpayers, the standard deduction, the newly introduced 10 percent bracket, and the existing 15 percent bracket were each set to double the unmarried amounts. At the other end of the income scale there was severe bracket compression. In an extreme example, when President Clinton called for a 10 percent surtax on “millionaires” in 1993, it was triggered at $250,000 for both married and unmarried taxpayers.

By 2018 the relationship between the brackets was set to be as shown in Table 1. Only the 25 percent bracket remained at 167 percent, the TRA 1986 standard. The lower brackets and the standard deduction were each set at double for married taxpayers. The upper brackets went in the opposite direction. The 28 percent, 33 percent, and 35 percent brackets were set at 122 percent, 100 percent, and 113 percent of their respective individual brackets. Thus, old law was a combination of no marriage penalty and generous marriage bonuses at lower income levels with significant marriage penalties at upper income levels. Using 2018 inflation-adjusted figures, the maximum marriage penalty because of the rate structure had risen to more than $34,000. Also, the threshold for the overall limitation on itemized deductions for married taxpayers was set at only 120 percent of the unmarried level, potentially adding about $2,500 to the marriage penalty.

The TCJA greatly expanded the marriage bonus region and correspondingly shrunk the marriage penalty. Under new law, all brackets up until the 35 percent bracket have married cutoffs that are 200 percent of the unmarried cutoffs. It is only the line between the 35 percent and 37 percent brackets where a marriage penalty remains. For unmarried taxpayers, the 37 percent bracket starts at $500,000, while for married taxpayers the bracket starts at $600,000, only 120 percent of the unmarried level. Thus, the 35 percent married bracket ends $400,000 short of the

---

7 See section 1 before amendment by section 803(a) of TRA 1969 (P.L. 91-172). There was a second rate schedule for heads of households. 8 See section 2 before amendment by section 803(b) of TRA 1969. 9 Compare section 1(a), with section 1(c) as amended by section 101(a) of TRA 1986 (P.L. 99-514), and see section 63(c)(2) as amended by section 102(a) of TRA 1986. 10 Congress had earlier responded by enacting a two-earner deduction in 1981. See former section 221, added by section 103 of the Economic Recovery Tax Act of 1981 (P.L. 97-34). The deduction was repealed in 1986. See section 131(a) of TRA 1986. 11 Compare sections 63(c)(2), 1(f)(1), and 1(f)(8) as amended by sections 301, 101, and 302, respectively, of the Economic Growth and Tax Relief Reconciliation Act of 2001 (P.L. 107-16).

12 Compare section 1(a), with section 1(c), as amended by section 13201(a) of the Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66). The 39.6 percent bracket represented a 10 percent surcharge on the 36 percent bracket. See Gwen ifill, “Few to Pay More in Income Taxes, President Insists,” The New York Times, Feb. 17, 1993, at A1 (“Administration officials said such a tax would probably affect only millionaires.”). 13 In this report I consider marriage penalties only from the rate brackets, the standard deductions, and a few key phaseout provisions. There are other examples of marriage penalties and bonuses throughout the code. In particular, the earned income tax credit imposes substantial marriage penalties on low-income taxpayers. See section 32. 14 $2,535 = 39.6 percent * (3 percent * (2 * $266,700 - $320,000)). The personal exemption phaseout also had a marriage penalty, but by the time a couple’s income reached the level necessary to trigger the maximum marriage penalty, the personal exemptions would have been fully phased out regardless of whether they were married. See sections 151(d)(3)(A) and 68(b)(1). 15 The repeal of the overall limitation on itemized deductions further shrinks the marriage penalty. See section 68(f).
$1 million that would be available to two high-earning single individuals. Under new law, a marriage penalty can occur for two individuals only if their combined taxable income exceeds $600,000, and the maximum marriage penalty is $8,000, less than one quarter the maximum penalty under old law.16 Along with a reduction in marriage penalties for relatively

16 $8,000 is equal to the 2 percent rate differential between the 37 percent and 35 percent brackets times the $400,000 difference between the married bracket and twice the single bracket. The TCJA also eliminated the marriage penalty in the phaseout of the child credit. Compare section 24(b)(3) (threshold of $400,000 for married taxpayers is 200 percent of $200,000 threshold for unmarried taxpayers), with section 24(b)(2) (threshold of $110,000 for married taxpayers is 147 percent of $75,000 threshold for unmarried taxpayers).
equal-earner couples, the TCJA increased marriage bonuses for unequal-earner couples. Under old law, the maximum marriage bonus was $13,373. Under new law, the maximum marriage bonus has increased substantially to $30,750. The TCJA has come close to returning to the pre-TRA 1969 treatment of married couples.

It was because of marriage penalties being decreased and marriage bonuses increased that rate reductions for unmarried taxpayers necessarily had to be less generous than rate reductions for married taxpayers. After all, the flip side of a marriage bonus is a singles penalty. Consider again Figure 3, this time comparing Line A with Line C. Line A, remember, shows the tax savings for a married couple. Line C shows the tax savings for an equal-earner unmarried couple with the same aggregate income. The two lines are identical up until an AGI of $177,450. That is the point at which under old law an equal-earner married couple hit the top of the 25 percent bracket and began to pay a marriage penalty. The TCJA’s removal of the marriage penalty meant that from that point on, the act’s treatment of married couples was relatively more generous than its treatment of unmarried couples.

Marginal Rates by Income Type

The analysis so far has compared marginal rates and tax burdens on ordinary income under the TCJA and prior law. In this section, I broaden the focus on the TCJA to consider marginal rates on different classes of income, examining in particular the new qualified business income (QBI) deduction’s effect on marginal rates. Section 199A provides a deduction for 20 percent of QBI. It is natural to think of the provision as simply reducing marginal rates by 20 percent. For example, the 35 percent bracket would become the 28 percent bracket. In fact, the situation is more complicated. Because section 199A operates by reducing taxable income, it can have the secondary effect of shifting the taxpayer into a lower bracket, and the rate reduction for QBI can therefore exceed 20 percent. Moreover, the reduction in taxable income can shift the rate bracket for other types of income, both ordinary income and capital gain. As a corollary, the marginal rate on all types of income depends on the balance of business income to nonbusiness income. That makes any discussion of marginal rates more complicated.

For example, consider two taxpaying couples, both married with no children, both taking the standard deduction, and both with $24,000 of ordinary income offset by the standard deduction. I use the term “ordinary income” here to refer to income such as wages and interest that qualifies for neither long-term capital gains rates nor the QBI deduction under section 199A. Assume the first couple, whom I call Wage Couple, has additional wages of $77,400. Assume the second couple, whom I call Business Couple, has additional QBI of $77,400.

Wage Couple will be at the threshold of the 22 percent bracket. Therefore, their marginal rate on incremental income will be:

- Ordinary income: 22 percent
- Business income: 17.6 percent (80 percent * 22 percent)
- Capital gains: 15 percent

By contrast, Business Couple will still be well within the 12 percent bracket because they will get a deduction of 20 percent of their business income. Therefore, their taxable income will be only $61,920. Their marginal rate on incremental income will be:

- Ordinary income: 12 percent
- Business income: 9.6 percent (80 percent * 12 percent)
- Capital gains: 0 percent

Business Couple’s 9.6 percent marginal rate on QBI represents a 45 percent reduction in Wage Couple’s 22 percent marginal rate on ordinary income, rather than a 20 percent reduction as

---

17. The maximum bonus was reached under old law when an individual earning at least $493,050 married an individual with zero income because it allowed full use of the married standard deduction and all brackets below 39.6 percent.

18. The maximum bonus is reached when an individual earning at least $624,000 marries an individual with zero income because it allows full use of the married standard deduction and all brackets below 37 percent.

19. The top of the 25 percent bracket was $156,150. Adding the standard deduction ($13,000) and two personal exemptions ($4,150 each) gives a total of $177,450.

20. In this section I assume that the W-2 constraint is not binding and that the business activity is not a specified service trade or business. See section 199A(b)(2) and (d)(2). I consider those restrictions infra.
might be expected. Moreover, Business Couple’s marginal rate on ordinary income, such as interest on a savings account or wages, is 10 percentage points lower than Wage Couple’s rate on the same income. And Business Couple could earn more than $15,280 in capital gains and pay no tax, while Wage Couple would pay $2,292 in capital gains tax on the same income.  

Figure 4 shows marginal rates on incremental ordinary, business, and capital gains income for married taxpayers whose baseline income is either ordinary or QBI. Lines A, C, and E (the solid lines) assume a baseline of ordinary income (like Wage Couple), and lines B, D, and F (the dashed lines) assume a baseline of QBI (like Business Couple). Consider first the solid lines that assume an ordinary baseline. Line A is simply the statutory rates in section 1(j) and shows the marginal rate on $1 of additional ordinary income. Line C shows the marginal rate on $1 of business income given that all other income is ordinary and is simply 80 percent of Line A. Finally, Line E is the marginal rates on $1 of capital gains given a baseline of ordinary income. Line E reflects the capital gains rates and brackets in section 1(h) as amended by section 1(j)(5).

Now compare the dashed lines that assume a QBI baseline. In each case the assumption is that other than $24,000 of ordinary income offset by the standard deduction, all income is QBI. As a result, taxable income is reduced by 20 percent, which has the effect of shifting the rate brackets to the right. The rightward shift is by a constant factor of 1.25 and therefore increases with income. Moreover, the rate brackets are shifted to the right not only for business income (Line D) but also for ordinary income (Line B) and capital gains (Line F). The new QBI deduction thus offers a double benefit: It not only lowers the marginal rate within each bracket but also delays the start of each new

\[ $15,280 = $77,200 - $61,920. \]  
See infra note 40 (discussing the fact that the 15 percent bracket starts at $77,200 rather than $77,400, as might be expected).
bracket. And this second benefit is shared with ordinary income and capital gains.\textsuperscript{22} Figure 4 shows the brackets on incremental income assuming that QBI makes up all (dashed lines B, D, and F) or none (solid lines A, C, and E) of the taxpayer’s baseline income. If the taxpayer’s baseline income consists of a mix of ordinary income and QBI, the start of each bracket will be shifted somewhere between the solid and dashed lines.

Effect of the Phaseout of the QBI Deduction

The discussion so far has assumed away significant constraints on the QBI deduction. In this section I focus on two constraints: the treatment of specified service businesses and the W-2 constraint. To generate QBI, a business cannot be a specified service trade or business.\textsuperscript{23} A specified service trade or business is a trade or business described in section 1202(e)(3)(A), applied without regard to the words “engineering” and “architecture,” or a business that involves the performance of services consisting of investing and investment management; trading; or dealing in securities, partnership interests, or commodities.\textsuperscript{24} Section 1202(e)(3)(A) includes:

\begin{quote}
any trade or business involving the performance of services in the fields of health, law, [engineering, architecture,] accounting, actuarial science, performing arts, consulting, athletics, financial services, brokerage services, or any trade or business where the principal asset of such trade or business is the reputation or skill of 1 or more of its employees.\textsuperscript{25}
\end{quote}

The statute, however, provides an exception to the specified service disallowance based on the taxpayer’s taxable income (computed without regard to the section 199A deduction).\textsuperscript{26} For married taxpayers, the specified service exception does not apply if taxable income is less than $315,000, and the deduction is phased out on a pro rata basis between $315,000 and $415,000.\textsuperscript{27} Any time there is a phaseout of a tax benefit (or phase-in of a tax penalty), the effect is to increase effective marginal rates over the phaseout range. The computation of marginal rates is made more complicated given that the W-2 constraint is phased in over the same range over which the exception to the specified services disallowance is phased out. For now, I assume that the W-2 constraint is nonbinding and therefore can be ignored. Below, I consider the effect of a binding W-2 constraint.

The specified service phaseout affects the marginal rate on both ordinary and business income as long as the taxpayer has any business income. The extreme case is when all the taxpayer’s income (beyond the standard deduction) is business income. In that case the effective marginal rates on incremental ordinary and business income in the phaseout range can be expressed as follows:

\begin{align*}
t_{\text{ord}} &= t_{g1}(TI) \left( 1 + 0.2 \frac{B}{R} \right) \\
t_{\text{bus}} &= t_{g1}(TI) \left( 1 - 0.2 \frac{\Theta + R - B}{R} + 0.2 \frac{B}{R} \right) \\
TI &= B \left( 1 - 0.2 \frac{\Theta + R - B}{R} \right)
\end{align*}

where,

\begin{align*}
t_{\text{ord}}, t_{\text{bus}} &\rightarrow \text{effective marginal rate on incremental ordinary and business income} \\
t_{g1}(TI) &\rightarrow \text{statutory marginal rates on ordinary income at the current level of taxable income} \\
TI &\rightarrow \text{taxable income after the allowance of the section 199A deduction} \\
B &\rightarrow \text{the amount of QBI (all of which is assumed to come from specified service activities)} \\
\Theta, R &\rightarrow \text{the phaseout threshold and range}
\end{align*}

\textsuperscript{22} Although not shown, the effects on unmarried taxpayers are qualitatively similar.
\textsuperscript{23} See section 199A(d)(1)(A).
\textsuperscript{24} See section 199A(d)(2).
\textsuperscript{25} Section 199A(d)(2)(A) also modifies the rule in section 1202(e)(3)(A) to consider the reputation of owners as well as employees. Read literally, a specified service business includes a firm providing engineering or architectural services so long as the principal asset of the firm is the reputation of its employees or owners. That interpretation would likely treat most engineering and architectural firms as specified service businesses and would not seem to be the intent of the drafters.
\textsuperscript{26} See section 199A(d)(3) and (g)(2)(B).
\textsuperscript{27} See section 199A(d)(3) and (e)(3). The phaseout threshold and range for unmarried taxpayers is half of the amounts for married taxpayers.
In both cases, the term $t_{g}(T1) (0.2 \ B/R)$ reflects the increase in tax liability because of the pro rata loss of the QBI deduction over the phaseout range. For the effective marginal rate on business income, $t_{bus}$, the additional term $t_{g}(T1)(0.2(\Theta + R - B)/R)$ reflects the reduction in marginal rates from the non-phased-out portion of the QBI deduction.

Figure 5 shows the effect of the phaseout on effective marginal rates. Consider first the left portion of the graph up to $315,000 in prededuction taxable income, the threshold for the specified service phaseout. Given the assumption that the taxpayer’s baseline taxable income is all QBI, the left portion of the graph is identical to lines B, D, and F (the dashed lines) in Figure 4. Line A of Figure 5 shows the marginal rate on ordinary income and is a shifted version of the statutory rate tables. Line B shows the marginal rate on business income, and its height is simply 80 percent of the solid line. Line C shows the unshifted statutory ordinary income rate for reference purposes. For example, Line C jumps from 12 percent to 22 percent at $77,400, while Line A jumps at $96,750.\(^{28}\)

At $315,000, the phaseout of the QBI deduction starts, and it continues for $100,000 until income reaches $415,000. Once income exceeds $415,000, the QBI deduction has been fully phased out. At that point the effective rate on both ordinary and (specified service) business income have merged with the statutory rate on ordinary income.

The range of greatest interest is the phaseout range. Starting at $315,000, for every $1,000 dollars in incremental earnings — whether ordinary or business earnings — the taxpayer loses 1 percent of the entire QBI deduction. That has the effect of immediately increasing the marginal rate by about 15.1 percentage points, leading to marginal rates of 39.1 percent on ordinary income rather than the statutory rate of 28 percent on ordinary income.

\(^{28}\) $96,750 - 1.25 \times 77,400.$
24 percent. Incremental business income is taxed at a rate of 34.3 percent. Capital gains income does not trigger the phaseout of the section 199A deduction because taxable income for this purpose does not generally include capital gains.

The marginal rates in the phaseout range are not constant, however, continuing to climb between $315,000 and $415,000. As can be seen from the graph, the marginal rate on each type of income creeps up and then jumps in two steps, like a poorly constructed staircase with tilted treads and uneven risers. The upward slope between the jumps is generated because as the amount of business income increases, so does the tax cost of phasing out the deduction. The jumps are caused by the lagged increases in the statutory rate. For example, there is a jump at about $357,000 of QBI that is a delayed reaction to the increase in statutory rates from 24 percent to 32 percent that occurs at a taxable income of $315,000. The 8 percentage point increase in the statutory rate causes a 13.7 percentage point increase in the effective marginal rate on ordinary income and a 12.8 percentage point increase in the effective marginal rate on business income.

By the end of the phaseout range, the marginal rates have risen substantially, with the rate on both ordinary and business income rising to a peak of 64 percent. Note that the effective rate increases with both the rate of the business deduction and the phaseout threshold. In the version of the TCJA originally passed by the Senate, the deduction rate was 23 percent and the phaseout began at $500,000. Under the Senate bill, the effective marginal rate would have been as high as 83 percent.

So far, I have effectively ignored the W-2 constraint by assuming it is not binding. Section 199A limits the QBI deduction from each qualified business to the greater of:

- 50 percent of the W-2 wages; and
- 25 percent of the W-2 wages plus 2.5 percent of the unadjusted basis of qualified property.

As with the specified service exception, the W-2 constraint is phased in for married taxpayers between $315,000 and $415,000 of taxable income, determined without regard to the section 199A deduction. The allowable deduction during the phaseout range is the weighted average of the unconstrained and constrained deductions, with the weights based on the percentage of the way through the phaseout range. Assuming the W-2 constraint is binding, the deduction during the phaseout range can be expressed as the following formula:

\[(1 - p) (0.2B) + p (W2)\]

where:

- \(p\) → the percentage of the way through the phase-in region
- \(B\) → the amount of QBI
- \(W2\) → the amount of the W-2 constraint

If the business is also a specified service business, the specified service disallowance and the W-2 constraint are phased in at the same time. The QBI deduction can then be expressed as:

\[(1 - p) (1 - p) (0.2B) + p (W2)\]

Figure 6 shows the effect of both the phase-in of the W-2 constraint and the phaseout of the specified service allowance on the amount of the QBI deduction. Figure 6 assumes that after an amount equal to the standard deduction, all the taxpayer’s income is from a qualified business. Line A shows the section 199A deduction without regard to either limitation — it is simply 20

---

29 15.1 percent = 24 percent * (0.2 * $315,000/$100,000). 34.3 percent = 80 percent * 24 percent + 15.1 percent.
30 See section 1(b). See the discussion of capital gains in the next section for a description of how section 1(b) operates.
31 64 percent = 35 percent * (1 + (0.2 * $415,000/$100,000)).
32 See the version of section 199A(a)(2) and (e)(2)(A) in section 11011 of H.R. 1, as passed by the Senate on December 2, 2017. The effective rate decreases with the length of the phaseout range. The phaseout range was the same in the Senate bill and the final legislation.
33 See section 199A(b)(2)(B). The term “W-2 wages” is defined to include both wages and elective contributions to section 401(k) plans and similar plans. See section 199A(4)(A), cross-referencing section 6051(a)(3) (wages within the meaning of section 3121(a)) and section 6051(a)(8) (elective deferrals). Nonelective deferrals are not counted.
34 See section 199A(b)(3).
35 \(P = \frac{\text{Taxable Income - Threshold}}{\text{Range}}\). The expression (1 - \(p\)) is defined as the “applicable percentage” by section 199A(d)(3)(B).
36 See section 199A(d)(3)(A)(ii) (providing a rule for the interaction between the specified service phaseout and the W-2 constraint phase-in). If the income is from a specified service business and the W-2 constraint is not binding, the allowable deduction is (1 - \(p\)) (0.2B).
percent of income. Line B shows a hypothetical W-2 constraint arbitrarily set at $30,000.

Lines C, D, and E show the phaseout or phase-down of the deduction under different assumptions. Line C assumes that the W-2 constraint is binding at $30,000 and that the income is not from a specified service business. Line D assumes the W-2 constraint is not binding but that the income is from a specified service business. The specified service phaseout is more steeply sloped than the W-2 constraint phase-in because of the assumption that the W-2 constraint is greater than zero. If the W-2 constraint were zero (rather than $30,000), lines C and D would be identical. Both are bowed out because the amount of business income is assumed to be increasing and, therefore, the underlying deduction is increasing while it is being phased out. Line E assumes both that the W-2 constraint is binding at $30,000 and that the income is from a specified service business. The combined phaseout is steeper than the phaseout from either provision taken alone and is bowed in because of the interaction effect of the two restrictions.

Figure 7 shows the marginal rates on ordinary and business income that flow from the assumptions that the W-2 constraint is fixed at $30,000 and that all the income (after the standard deduction) is from a specified service business. Figure 7 should be compared with Figure 5, which shows the same information assuming that the W-2 constraint is not binding. As shown in Figure 6, the effect of the combination of the specified service phaseout and the phase-in of a binding W-2 constraint is to accelerate the phaseout of the deduction. This acceleration results in a front-loaded increase in the effective marginal rate. As the phaseout progresses, the effective rate declines steeply, only to jump up again as each new partially shifted bracket is entered. At the start of the phaseout, the taxpayer is in the 24 percent bracket but faces a marginal rate on ordinary income of 47 percent. The marginal rate on ordinary income declines to 44 percent and, at
the start of the 32 percent bracket, jumps up again to 58 percent. It then declines steeply to 45 percent. At the start of the 35 percent bracket, the marginal rate jumps to 49 percent and declines again to 46 percent by the end of the phaseout range. The marginal rates for QBI are lower but follow the same pattern, reaching a peak of 55.4 percent.

The shape of the marginal rate curve depends on the assumed W-2 constraint. In the extreme, if the W-2 constraint is zero, the marginal rates on ordinary income in the phaseout range would look a little steeper than in Figure 7, with slightly higher peaks for ordinary income of 54 percent and 62 percent for the 24 percent and 32 percent brackets, and a lower peak of 42 percent corresponding to the 35 percent bracket. The peak rate on QBI would be 59 percent. Between a constraint of $30,000 and no constraint, the shape of the marginal rates shifts gradually from that shown in Figure 7 to that shown in Figure 5.

**Effect of Capital Gains on Ordinary Income Rates**

The discussion in the previous sections focused on the effects of the QBI deduction and the interaction between that deduction and marginal rates on other types of income. It makes clear that there can be complex and presumably unintended interactions between the marginal rates on different types of income. It also emphasizes that the statutory rates are just a starting point in determining effective marginal rates. In this section I examine whether there are similar interactions between the special rates on capital gains and the marginal rates on ordinary income. I show that there is in fact an interaction and provide a few examples of how it can play out.

First, it is worth reviewing the basic rules for the taxation of capital gains, which were not substantially changed by the TCJA. Generally, under section 1(h), tax is computed by first subtracting net capital gains (defined to include...
qualified dividends) from taxable income to calculate ordinary taxable income.\textsuperscript{37} Tax on ordinary taxable income is computed based on the section 1 ordinary rates. Tax on net capital gains is computed at three rates: 0 percent, 15 percent, and 20 percent.\textsuperscript{38} Under prior law, the starts of the 15 percent and 20 percent capital gains brackets were tied to the starts of the 25 percent and 39.6 percent ordinary income brackets.\textsuperscript{39} Under the TCJA, the capital gains brackets have become unmoored from the ordinary income brackets. For married taxpayers in 2018, the 0 percent bracket ends at $77,200, and the 15 percent bracket ends at $479,000.\textsuperscript{40} In determining the rate on capital gains, however, net capital gains are stacked on top of ordinary taxable income. In other words, ordinary taxable income effectively displaces lower-bracket capital gains. Total tax liability is the sum of the tax on ordinary taxable income plus the tax on net capital gains.\textsuperscript{41}

Given that capital gain income is stacked on top of ordinary income, it is not surprising that increasing a taxpayer’s ordinary income can increase the taxpayer’s marginal rate on capital gains. For example, if a married couple has $70,000 of taxable income, their marginal rate on capital gains is zero. If the couple earned an additional $10,000 in ordinary income, their marginal rate on capital gains would be increased to 15 percent.

By contrast, given that the tax on ordinary income is computed after subtracting capital gain from taxable income, it might seem that the amount of capital gains would have no effect on the marginal rate on ordinary income. That facile conclusion is false as can be seen by a simple example comparing two couples, Ordinary Couple and Capital Couple. Ordinary Couple has ordinary taxable income of $70,000 and no capital gain. Their marginal rate on ordinary income is 12 percent based on their statutory bracket. Capital Couple has the same $70,000 in ordinary income but also has $10,000 in capital gains. Consider the effect on Capital Couple’s tax liability of earning another $1 of ordinary income. As with Ordinary Couple, their marginal rate on ordinary taxable income based on the ordinary tax brackets is 12 percent. Thus, the direct effect of earning another $1 is a tax of 12 cents. But there is also an indirect effect: The additional $1 of ordinary income displaces $1 of capital gains that had been taxed at 0 percent and pushes it into the 15 percent capital gains bracket, thus increasing Capital Couple’s tax liability by another 15 cents. Combining both the direct and indirect effects, the addition of the capital gains income increases Capital Couple’s effective marginal rate on ordinary income to 27 percent rather than the 12 percent rate faced by Ordinary Couple.

The size of the indirect effect is determined by the difference between the marginal rate on the taxpayer’s last dollar of capital gain and the marginal rate on their first dollar of capital gain, and it can take one of four values: 0 percent, 5 percent, 15 percent, or 20 percent. The indirect effect is 0 percent when the first and last dollar of capital gains are in the same bracket. It is 15 percent or 20 percent when the first dollar is in the 0 percent bracket and the last dollar is in the 15 percent or 20 percent bracket, respectively. The indirect effect is 5 percent when the first dollar of capital gain is in the 15 percent bracket and the last dollar of capital gain is in the 20 percent bracket. For QBI, the indirect effect would be 80 percent of the indirect effect for ordinary income because each dollar of QBI displaces only 80 cents of capital gains.

Taking into account the indirect effect of capital gains on ordinary income leads to surprising implications, of which I suggest three. First, increasing the amount of capital gains can increase the marginal rate on ordinary income. Second, increasing the amount of ordinary

\textsuperscript{37} Net capital gain is defined by section 1221 (netting rules) and section 1(h)(11) (inclusion of qualified dividends).

\textsuperscript{38} I am ignoring special categories of net capital gain that are taxed at 25 percent and 28 percent. See section 1(h)(6) (unrecaptured section 1250 gain) and 1(h)(4) (28 percent rate gain). I am also ignoring any effects that operate through increasing AGI.

\textsuperscript{39} See section 1(h)(1)(B)(i) and (C)(ii)(I).

\textsuperscript{40} See section 1(h)(1)(B)(i) and (C)(ii)(I).

\textsuperscript{41} See section 1(j)(5)(B)(i), with section 1(j)(2)(A). The effect is to create a brief range where the capital gains rate of 15 percent exceeds the ordinary rate of 12 percent.

\textsuperscript{42} Although not usually expressed this way, the tax on capital gains can be computed as the tax on all taxable income at capital gains rates minus the tax on ordinary taxable income at capital gains rates. Total tax liability, therefore, can be computed as the tax on ordinary taxable income computed at ordinary rates plus the tax on all taxable income at capital gains rates minus the tax on ordinary taxable income at capital gains rates.
income can decrease the marginal rate on ordinary income. Third, holding total income constant, increasing the proportion of income in the form of capital gains can increase the marginal rate on ordinary income.

The first implication is shown by the example of Ordinary Couple and Capital Couple. Adding $10,000 in capital gains to Ordinary Couple turned them into Capital Couple and increased their marginal rate on ordinary income from 12 percent to 27 percent by increasing the indirect effect from 0 percent to 15 percent.

A slight modification of the same example can be used to show the second implication — that increased ordinary income can lead to lower marginal rates. Assume that Capital Couple earns an additional $10,000 in wages. Their ordinary income will now be $80,000 and place them in the 22 percent bracket. Looking only at this direct effect, their marginal rate on ordinary income will have increased 10 percentage points. But given their increased ordinary income, their first and last dollar of capital gain are now in the same bracket and, therefore, the indirect effect will have dropped from 15 percent to 0 percent. Taking both effects into account, their marginal rate will have dropped from 27 percent to 22 percent because of earning another $10,000 of ordinary income.42

The third claim — that holding income constant, increasing the percentage of capital gain can increase the marginal rate on ordinary income — can be shown by a similar comparison. Compare two couples, each with $80,000 of taxable income. Assume the first couple has $78,000 in ordinary income and $2,000 in capital gain, while the second couple has $70,000 in ordinary income and $10,000 in capital gain. The first couple will face a marginal rate on ordinary income of 22 percent, consisting of a direct effect of 12 percent and no indirect effect. The second couple with only $70,000 of ordinary income will face a marginal rate of 27 percent: a direct effect of 12 percent from applying the ordinary rate brackets, and an indirect effect of 15 percent from having capital gain straddling the 0 percent and 15 percent brackets. Thus, the couple with a smaller proportion of ordinary income will have the higher tax rate on ordinary income.

These surprising results all flow from the way that capital gains are stacked on top of ordinary income. They demonstrate how, as the tax code becomes ever more complex, its different parts can interact in unexpected ways.

42 As a more extreme example, if the couple’s ordinary taxable income was increased from $70,000 to $77,200 (rather than to $80,000), they would still be in the 12 percent bracket, and their direct marginal rate on ordinary income would still be 12 percent, while their indirect effect would be 0 percent. Thus, the addition of $7,200 in ordinary income would have lowered their marginal rate on ordinary income from 27 percent to 12 percent.