

A Monte Carlo Simulation of the Tax Burdens and Impacts Associated With Common Intergenerational Family Farm Transfer Strategies

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This paper utilizes a Monte Carlo approach to simulate intergenerational farm property transfers within the context of four common succession strategies across a series of ordinary income and capital gain tax rates. Ordinary income/expenses accompany these intergenerational transfers in the form of interest income and the potential for depreciation recapture and capital gain income for all sales between the parties where transaction prices exceed basis and financing is utilized. Finally, post-transfer depreciation charges for the successor may accompany the usage of the family farm assets exchanged. The findings highlight the fact that transfers through estates represent the best pure tax outcomes (lowest aggregate tax burden), while sales transactions involve the highest tax burden. The conclusion is that it would be prudent and well-advised for everyone contemplating or engaging in intergenerational family farm transfers to ensure that tax considerations represent a focus for evaluating, determining, and selecting the best timing and course of action.

Keywords: intergenerational farm property transfers, succession planning, tax burdens, Monte Carlo

INTRODUCTION

The family farm (IRC Sec. 2032A(e)(4)) is a time-honored tradition that has historically served as the bedrock of the U.S. economy. Since the Mayflower and the Pilgrims first landed on Plymouth rock, family farms have provided the ground upon which crops grew and the land for grazing/raising livestock to support their personal subsistence needs and supply goods to barter/sell/trade with others. While not as prevailing in today's international economy, the family farm economy was the U.S. economy at that time. It provided an income stream to support members of these original small business owners, and family farms were its most important player. Following the creation of the U.S. in 1776, the nation subsequently expanded across North America during and following the Civil War mainly through gifts of 160 acres of land (Homestead Act, 1862) to citizens to encourage their migration which seeded the creation of a vast network of rural family farms.

As the nation grew and the economy morphed into an industrial economy following the Civil War and into the 20th century, family farms began to witness a diminished economic role. Large cities formed, and the migration of people from the farm to the cities was blooming. Retailers, wholesalers, and manufacturers formed the core of the players in this new and evolving economy. While the family farms' economic significance was reduced, the family farm prevailed as the primary food source for U.S. residents as it continued to represent the initial entry point for food stocks into the economic supply chain. Even in the late 20th and early 21st centuries, as the economy entered the "Internet of Things" world, effectively realigning how the economic activity would be conducted in the business-to-consumer (B2C) and business-to-business (B2B) supply chains, family farms retained their critical position in raising and providing crops and livestock for delivery to the entry point for these critical market chains.

What has dramatically changed over the last 30 years in the U.S. is the advent of large farm corporations within the farm community. These entities are characterized by owners who are not producers in the traditional sense; therefore, they are not subsumed within the term family farms. They have paved the way for many family farms to become extinct. While these new market participants present many challenges for the remaining family farms, the most significant is that of pure economies of scale. As with all business environments, the most significant player in the room becomes dominant (if not monopolistic) and controls the pricing environment (inputs and outputs) in a manner that is often detrimental to smaller players. It is the classic example of Walmart moving into a small town; the local economy is changed forever and not always for the better.

U.S. politicians have consistently indicated and provided strong and endearing support for family farms. They have offered, proposed, and advocated a view of the future where family farms remain an essential part of our economy. Gale (1994) suggests that family farm succession to the next generation is the most important determining factor for industry structure. In support of this idea, Congress has promulgated many provisions that care for and encourage the profitability and continuity of the family farm as a way of life. Among these essential legislative efforts are provisions supporting agricultural pricing (and thus profitability), programs that have existed since the 1930s. Several set-aside programs, managed by the U. S. Department of Agriculture, target conservation efforts, delivering payments to farmers for the non-productive crop use of some of their acreage. This provides support to farmers that can permit them to retain property ownership while not crop farming for one or more years. Finally, long-standing income/gift/estate tax provisions have been codified that provide favorable tax treatment, if invoked by the family farm owner, to encourage the passage of family farms to future generations.

This paper considers how to minimize aggregate federal and payments when establishing the processes and procedures for passing the family farm to succeeding generations. At the risk of being redundant, the family farm owner must invoke these favorable tax treatments to actively seek out and manage the process in the most tax-favorable manner to the family unit. It does not simply happen; it means an active and aggressive posture that, as the great jurist Judge Learned Hand stated so elegantly encapsulated:

Anyone may so arrange his affairs that his taxes shall be as low as possible; he is not bound to choose that pattern which will best pay the Treasury; there is not even a patriotic duty to increase one's taxes. *Helvering v. Gregory*, 69 F. 2d 809, 810-11 (2d Cir. 1934).

LITERATURE REVIEW

A reasonable body of literature surrounds family farm succession planning and the variables influencing the decision-making process. Rodriguez-Lizano et al. (2020) and Suess-Reyes and Fuetsch (2016) provide comprehensive reviews of published articles that address farm succession. Two groups of researchers, social scientists and agricultural economists, have generally addressed the issue, with the existing literature being dominated by the former group (Kimhi and Lopez (1995), p. 3). Often these studies address both the need for and the sociological and economic impacts of family farm succession planning (intergenerational transfers and bequests). The most common type of succession planning for family farms

involves an intergenerational transfer between immediate family members (Cavicchioli et al. (2018) and Mishra and Ol-Esta (2008)).

Need is generally expressed as a function of wealth, with family farms having identified affluence exceeding that of their city-dwelling contemporaries (Mishra, El-Osta, and Shaik (2010)). Sociological impacts consider family and community dynamics. The economics literature contains several studies addressing farm succession within the confines of tax considerations, the primary focus of our research effort.

Boehlje and Eisgruber (1972) developed an analytical, probabilistic model of important family and estate characteristics focusing attention toward the development of a comprehensive plan targeted at ensuring proper economic management (growth and expansion) of the farm enterprise during and after the lifetime of the estate owner. Consideration was directed at legal consequences of intergenerational transfers, such as taxes, but these were not a truly significant or important factor in the analyses. The most significant finding of this study within the tax domain, flows from its inclusion of “substantial amounts of gifts (as part of the best estate management strategy” (p. 466) permitting a conclusion that “the traditional estate planning rule of thumb that gifts should not exceed the annual exclusion or lifetime exemption (are) not supported by this study” (p. 471).

Tauer (1985) discusses the use of life insurance acquired by on-farm heirs to fund the acquisition of off-farm heir’s interests (bequests) in farm property at the death of the patriarch/matriarch founders. “The importance of an orderly transfer of farm property to on-farm heirs is well known” (p. 60). Boehlje and Eisgruber (1972) did not include life insurance, in any form or manner, as a consideration in their assessment. It is well known and understood that adequately structured life insurance ownership/beneficiary combinations present significant tax planning opportunities that operate effectively and efficiently to limit tax transfer payments at death. While Tauer considers the use of this funding mechanism within the context of policy ownership by the successor on-farm heirs on the life of the patriarch/matriarch, only limited consideration is given to the myriad tax planning scenarios accompanying life insurance. Nonetheless, a conclusion is offered that “life insurance appears optimal in many cases” (p.68).

Kimhi and Lopez (2008) considered farmers’ motivation concerning retirement decisions using a survey instrument administered in Maryland. Their results provide evidence that the decision to commence retirement is mainly driven by personal considerations, with only secondary importance being attributed to succession concerns. Importantly, they conclude that retirement and succession decisions in family farms are inseparable.

Hogge et al. (2017) describe a concerted effort in Idaho to educate farmers and ranchers on estate planning and succession. Several significant insights were garnered through implementing the educational program and assessing farmers’ survey results after they attended some or all of the training sessions. These include that most situations are similar (even given that most attendees deemed their situation to be unique before attending the program); participants learn from each other; the longer participants wait to initiate the process, the fewer options that exist; and that family dynamics (relationships) present the largest obstacles to commencing and completing effective tax planning. Open communication is critical to tax planning, and there appears to be a considerable opportunity to provide such training to farmers and ranchers.

Tetteh, J. and M. Boehlke (2019) offer a well-developed, but potentially deficient case study (the intergenerational farm transfer producer decision tool) modeling the timing of a transition from patriarch/matriarch to successor control. The primary research question addresses the overall wealth impacts that accompany varying transition timeframes over a 10-year period. The parties’ age and relative productivity, given their respective ages, along with successor financial draws upon farm income to support living expenses, are the primary variables under consideration, with some attention attended to estate and inheritance tax consequences. However, as will be clearly shown in our analysis, the question relative to transfer tax impacts is considerably more robust. While the timing may be critical from a naïve economic perspective, the type of transfer (sale, gift, or bequest) has profound, material, and significant impacts on the overall tax burden, especially when appropriate consideration is given to income tax effects.

RESEARCH DESIGN

There are many different opportunities and timings for intergenerational transfers across the family patriarch/matriarch's lifetime, including their final passing, that can be efficiently and effectively employed to support the continuance of the family farm. Depending upon one's tolerance for complexity, the combinations of alternatives and timings are almost limitless. However, all actions potentially have tax implications. It is without question insufficient and ill-advised to undertake any combination of entity formations and/or property sales, gifts, and bequests in a manner that does not place into appropriate consideration the substantial financial impacts of tax payments across the myriad federal tax schemes (income, sales and use, gift, estate, and inheritance). Several states have gift, estate, and inheritance tax schema. These later state-level taxes are often pejoratively referred to as "death" taxes. They represent additional considerations that will operate to increase aggregate tax payments in scenarios involving gifts and estates. The scenarios presented in this paper can be adjusted to include such transfer payments; however, to simplify the scope of this paper and remove the complexity of locality, they are being ignored at this time.

In order to evaluate these various intergenerational transfer options and their associated tax planning opportunities, a set of four scenarios have been designed that target combinations of property sales, gifts, and bequests without the context of individual income tax planning without granting consideration to the opportunities presented using various business entity formation techniques (e.g., partnerships, corporations, LLCs). Additionally, and importantly, the emotional and longitudinal maximization of economic outcomes (across the joint lifetimes of the transferor and transferee) discussed in the literature are not the subject of this effort. Our attention is directed at the immediate, in a relative sense, economic and financial impacts, as highlighted by aggregate tax payments, that are associated with the adoption and implementation of a given course of action involving simple property sales, gifts, and bequests, not combinations of these choices. There are two parties to each intergenerational transfer, the patriarch/matriarch and the successor family member(s). In each case, the patriarch/matriarch is the owner of the family farm assets, and the successor is the next generation owner(s) of the family farm.

A Monte Carlo simulation is utilized to evaluate four transfer alternatives across a series of tax rate combinations involving ordinary income (seven rates) and capital gain income rates (three rates) for the patriarch/matriarch and ordinary income rates (seven rates) for the successor. The same seven ordinary income tax rates in effect for the 2023 tax year are 10%, 12%, 22%, 24%, 32%, 35% and 37%. The capital gains tax rates are 0%, 15% or 20% on assets held for longer than a year. In total, 147 combinations of transfer outcomes are assessed for each of the four types of intergenerational transfers placed in consideration.

Four intergenerational transfer scenarios are placed into consideration. Several simplifying assumptions are required to present a straightforward, yet informative, overview of the federal tax concepts and opportunities for family farm succession planning. As with all property transfers and tax consequences, many complicating interactions exist. Our overt desire is to remove the complexities and discuss the basics to best inform the involved parties; therefore, in the interest of offering a clear and complete discussion, the following generalizations are assumed for each of the Scenarios placed in consideration:

- The patriarch/matriarch wishes to determine the best way to transfer ownership of the family farm to their child as they retire.
- *The best possible way is* that option that results in the most significant aggregate consolidated lifetime transfer of assets (i.e., minimize taxes) to the successor.
- We assume that the patriarch/matriarch family farm enterprise exhibits no pre-existing asset ownership differentials between the father and mother. In simple terms, both parties own the family farm's assets equally.
- The primary and overriding concern of the patriarch/matriarch is to ensure that the descendant who wants to carry on the family farm is placed in the best possible financial position across their lifetimes through the demise of the last surviving founder of the family farm. The order

of passing for these parties is irrelevant as the family farm corpus will transfer to the successor descendant either directly upon the passing of the first spouse (1/2 interest) or indirectly through a step-transfer at death involving a conveyance to the surviving spouse, which would be followed by a 100% transfer of the farm corpus to the successor descendant at the passing of the survivor.

- Simply stated, the desire and focus of all parties is on maintaining the family farm as a “going concern” in a manner that best approximates its existence at or near the retirement of the patriarch/matriarch combination.

Two parties are involved in each transfer scenario, the family patriarch/matriarch (founders of the family farm or transferor) and the successor (child, son, daughter, grandchild) who will manage the enterprise into the future or transferee. For the current situation, the following family composition is stipulated:

- Heinrich and Frederika Smothers, age 70, have operated a successful and profitable dairy farm operation as sole proprietors over the past five decades, reporting positive taxable income on their annual tax returns.
- No other patriarch/matriarch assets, such as the farmstead home, vehicles, retirement funds (e.g., 401(k)), investment accounts, off-farm residence, vacation home, timeshares, or other personal assets, are placed in consideration within this analysis. For several of these excluded assets, special consideration is needed in transferring their ownership at end-of-life, discussions beyond the scope of the current paper.
- Their son Igor, age 50, has worked as an employee and successor in training on the family farm for 30 years. He desires to acquire the family farm as a “going concern” as his parents enter retirement. He expects the dairy operation to continue to be profitable under his management.
- The family farm corpus consists of these assets as of the date that the tax planning scenarios are first placed under consideration:
 - 160 acres of farmland (FMV = \$1.6M; Cost = \$160,000)
 - Farm Buildings (FMV = \$400,000; Cost = \$250,000; Adjusted Basis = \$0)
 - Equipment (FMV = \$500,000; Cost = \$200,000; Adjusted Basis = \$0)
 - 200 head of dairy cattle (all raised)

Finally, and importantly, Gift and Estate taxation only come into consideration if the aggregate gifts and estate transfers exceed the current federal exemption amount of \$12.06 million for individuals and \$24.12 million for married couples filing jointly. In 2023, it is \$12.92 million and \$25.84 million, respectively. For each of the four scenarios under consideration, it is assumed that the aggregate gift and estate transfers will be below the exemption amount and, therefore, will not generate gift or estate tax consequences. All rates and exemptions represent the present tax system and are assumed to remain consistent across the planning horizon.

SCENARIO #1: FAIR MARKET VALUE (FMV) SALE OF ALL FARM ASSETS DURING THE LIFETIME OF THE PATRIARCH/MATRIARCH

There is no more effective and efficient way of transferring the family farm to an intergenerational succeeding party than simply arranging to complete a sale between the interested parties. Mishra et al. (2003) report that 17 percent of respondents indicated an intent to sell the farm at retirement, with no distinction being made between fair market value versus a bargain purchase price. The payments between the parties provide positive cash flow to the transferor to support their decision to withdraw from active participation and their expenses in retirement. It is a clean and clear conveyance often accompanied by the advantages associated with a Contract for Deed. Under a Contract for Deed, the patriarch/matriarch combination provides financing, where financing is required to assist the descendant successor in the form of an installment sales with deferred revenue recognition for the transferor under the provisions of IRC Sec.

453 (Saymaz (2020)). The patriarch/matriarch is assured that the family farm will remain in the family through additional restrictions on the future land sale.

In contrast, the family farm remains under Contract for Deed. The interest rate charged in this transaction can be low relative to the market rates but not a bargain, thus assisting the purchaser without creating income tax issues for the patriarch/matriarch. The overall length of the contract can be extended if desired, with re-financing parameters that would permit outside financing and, therefore, liquidity for the seller should that be desirable in the future (e.g., buyouts for off-farm children upon passing). All in all, on its surface, not a bad outcome. Yet from an aggregate tax perspective, no scenario could be more punitive to the family farm enterprise and the desire to transfer the most significant set of assets to the successor so that the family farm remains a “going concern” substantially as it exists.

An outright sale of the family farm assets (corpus) always requires a serious review of the income taxation impacts. In the case of a family farm, the immediate and deferred tax costs can be quite significant, and the timing of such tax payments is critical to all parties. Land prices have significantly increased over the past several decades. These increases mean that most, if not all, family farms have realized economic accretions in wealth but have not recognized these gains on their individual income tax returns. Often the patriarch/matriarch has a meager cost/adjusted basis in the farm realty being sold, a built-in gain scenario from a tax perspective. Buildings and equipment that fit under the provisions of IRC. Secs. 1245 and 1250, located on or used within the family farm enterprise, will have been depreciated by the patriarch/matriarch over several tax years, often reaching a fully depreciated status before an intergenerational transfer. Yet, like the land, the values of these objects may have increased over time or at least not diminished to a zero state as could be indicated by a fully depreciated status. A sale of land or depreciable property will likely trigger gain recognition for income tax purposes, and the timing for reporting of these gains will have important implications for cash flow to both the seller and the buyer. Depreciation will often need to be immediately recaptured, leading to a significant first-year tax bill, regardless of when the purchaser will make payments to the seller. This reality represents a non-trivial concept. Suppose a Contract for Deed sale includes a combination of realty, buildings, and equipment and the payments are set up in equal installments across the contract years. In that case, the skewing of revenue recognition through depreciation recapture could place the seller in a significant negative cash flow situation in the first year.

Before the sale is designed and completed, several important considerations present themselves. First and most importantly, an appraisal must be undertaken by a competent, knowledgeable, and independent party. This will not be cost-free, but it is imperative for valuation purposes and as a framework for successful discussions with tax authorities should that need to present itself into the future. Second, any depreciable property that exists on the land, such as buildings, fences, driveways, wells, irrigation units, and the like should be separately identified, cataloged, and individually listed within the confines of the written sales agreement. The fair market values determined during the appraisal will provide a good starting point and final determination of cost assignments for all acquisitions. The assigned fair market values will certainly impact gain determination and will determine a cost basis for the items for depreciation purposes. Third, everyone must be aware that following this pathway triggers income tax consequences to the seller that could be avoided through alternative approaches. Indeed, there may be some circumstances where income recognition is not a critical factor; for example, if the seller has significant existing Net Operating Loss (NOL, IRC Sec.172) that could serve to offset some or all of the tax implications. Generally, these unique scenarios will not be in play.

A summary of the critical and material tax outcomes that accompany the adoption of this method of property transfer includes:

- Will generate federal taxable income and, therefore, income tax payments for patriarch/matriarch across the years of the Contract of Deed.
- Two types of federal taxable income for the seller: ordinary income (interest and depreciation recapture) and capital gain.
- Interest income will be generated for the patriarch/matriarch while interest expense will accrue to the successor. These income attributes need not be considered in our scenarios as the tax payments will offset the tax savings.

- Depreciation recapture will be recognized and reported in the year of sale, thus requiring immediate tax payments regardless of the timing of the payments relative to the sale (perhaps negative cash flow in the year of sale).
- Successor federal taxable income impact: depreciation deductions based on fair market value of assets at date of transaction.

Clearly, and certainly, this strategy can be satisfying for all parties and will get the job done visibly during the lifetime of the patriarch/matriarch family farm. However, the tax impacts for the patriarch/matriarch are considerable, and the opportunity for the successor to benefit from a second round of depreciation on buildings and equipment is there, but it may be seriously restricted. Table 1 presents the percentage of the initial family farm assets that would be transferred to the successor upon adoption of this strategy within the confines of the various potential combinations of income tax rates. Panel 1, upper left corner, combines a patriarch/matriarch ordinary income tax rate of 10% with capital gain tax rates of 0, 15, and 20% (across the top row) and various successor ordinary income tax rates (down the column). The range of asset transfer outcomes is from a high of 113.41% to a low of 86.93%. Panels 2 to 7 address the differing patriarch/matriarch ordinary income rates in a similar manner. Of the 147 possible outcomes, 47 (31.97%) lead to the transfer of 100% or more of the initial farm asset corpus. Across the universe of transfer/tax rate combinations, the highest initial farm asset corpus transfer is found in Panel 1 with the lowest in Panel 7. Finally, the empirical findings confirm the intuitive assumption that higher taxes rates on the patriarch/matriarch are more punitive to sales transactions of this type, while concurrently higher ordinary income tax rates on the successor are more favorable to the successor when coupled with larger post-acquisition depreciation deductions that accompany a higher property tax basis.

SCENARIO #2: BARGAIN PURCHASE SALE OF ALL FARM ASSETS DURING THE LIFETIME OF THE PATRIARCH/MATRIARCH

In a sales situation between related parties, a time-tested strategy targeted at lowering the cash flow consequences to the successor is to offer a bargain purchase price for any or all of the assets. This is particularly true for the land component. The payments between the parties, although lower than that of a fair market value sale, still provide some positive cash flow to the seller to support their decision to withdraw from active participation and their expenses in retirement. While such a “nice guy” stance is feel-good for the parties, tax law does not deem it as such. A bargain purchase invokes a gift tax scenario. The difference between the property’s fair market value and its reduced acquisition price is considered a gift between the parties. It is taxable within the gift and estate tax paradigm.

This approach requires that a gift tax return be filed. All of the edification concerning a fair market sale using a contract for deed provided concerning Scenario #1 are reiterated here. Specifically, the necessity for an appraisal and an appropriate allocation of amounts to assets is critical. Additionally, if the bargain purchase (gift) component occurs within 3 years of the death of the person granting the gift, then the clawback provisions of the estate tax will come into play, potentially increasing estate taxation.

A summary of the critical and material tax outcomes that accompany the adoption of this method of property transfer includes:

- Will generate federal taxable income and, therefore income tax payments for patriarch/matriarch across the years of the Contract of Deed.
- Two types of federal taxable income for the seller: ordinary income (interest and depreciation recapture) and capital gain.
- Interest income will be generated for the patriarch/matriarch while interest expense will accrue to the successor. These income attributes need not be considered in our scenarios as the tax payments will offset the tax savings.
- Depreciation recapture will be recognized and reported in the year of the sale, thus requiring immediate tax payments regardless of the timing of the payments relative to the sale (perhaps negative cash flow in the year of sale).

- Successor federal taxable income impact: depreciation deductions based on bargain purchase pricing.

TABLE 1
SCENARIO #1 – PURCHASE OF FAMILY FARM ASSETS

PM Ordinary Tax Rate	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate	XX	PM Ordinary Tax Rate	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate
	0	15	20				0	15	20	
	10	102.41	90.80				86.93	10	XX	
	103.22	91.61	87.74	12	XX		99.56	87.94	84.07	12
	107.30	95.69	91.81	22	XX		103.63	92.02	88.15	22
	108.11	96.50	92.63	24	XX		104.44	92.83	88.96	24
	111.37	99.76	95.89	32	XX		107.70	96.09	92.22	32
	112.19	100.57	96.70	35	XX		108.52	96.91	93.04	35
	113.41	101.80	97.93	37	XX		109.74	98.13	95.37	37
12	102.07	90.46	86.59	10	XX	35	98.24	86.63	82.76	10
	102.89	91.28	87.41	12	XX		99.06	87.44	83.57	12
	106.96	95.35	91.48	22	XX		103.13	91.52	87.65	22
	107.78	96.17	92.30	24	XX		103.94	92.33	88.46	24
	111.04	99.43	95.56	32	XX		107.20	95.59	91.72	32
	111.85	100.24	96.37	35	XX		108.02	96.41	92.54	35
	113.07	101.46	97.59	37	XX		109.24	98.46	94.87	37
22	100.41	88.80	84.93	10	XX	37	97.91	86.30	82.43	10
	101.22	89.61	85.74	12	XX		98.72	87.11	83.24	12
	105.30	93.69	89.81	22	XX		102.80	91.19	87.31	22
	106.11	94.50	90.63	24	XX		103.61	92.00	88.13	24
	109.37	97.76	93.89	32	XX		106.87	95.26	91.39	32
	110.19	98.57	94.70	35	XX		107.69	96.07	92.20	35
	111.41	99.80	95.93	37	XX		108.90	98.13	94.53	37
24	100.07	88.46	84.59	10	XX					
	100.89	89.28	85.41	12	XX					
	104.96	93.35	89.48	22	XX					
	105.78	94.17	90.30	24	XX					
	109.04	97.43	93.56	32	XX					
	109.85	98.24	94.37	35	XX					
	111.07	99.46	95.59	37	XX					

Indeed, it is certain that this strategy can satisfy all parties as the “feel good” element cannot be underestimated or overstated. Table 2 presents the percentage of the initial family farm assets that transfer to the successor upon adoption of this strategy within the confines of the various potential combinations of income tax rates. Panel 1, upper left corner, combines a patriarch/matriarch ordinary income tax rate of 10% with capital gain tax rates of 0, 15, and 20% (across the top row) and various successor ordinary income tax rates (down the column). The range of asset transfer outcomes is from a high of 113.44% to a low of 89.63%. Panels 2 to 7 address the differing patriarch/matriarch ordinary income rates similarly. Of the 147 possible outcomes, 53 (36.05%) lead to the transfer of 100% or more of the initial farm asset corpus. Across the universe of transfer/tax rate combinations, the highest initial farm asset corpus transfer is found in Panel 1, with the lowest in Panel 7. Finally, the empirical findings confirm the intuitive assumption that higher taxes rates on the patriarch/matriarch are more punitive to sales transactions of this type. In

comparison, concurrently, higher ordinary income tax rates on the successor are more favorable to the successor when coupled with more significant post-acquisition depreciation deductions that accompany a higher property tax basis.

And, as with Scenario #1, this asset transfer mechanism will get the job done visibly during the lifetime of the patriarch/matriarch family farm. However, the tax impacts for the patriarch/matriarch remain considerable. The successor's opportunity to benefit from a second round of depreciation on buildings and equipment is restricted by a lower post-acquisition tax basis. This is generally a better outcome than Scenario #1, as some income tax impacts are exchanged for a zero-gift tax liability.

SCENARIO #3: FULL AND COMPLETE GIFT OF ALL FARM ASSETS DURING THE LIFETIME OF THE PATRIARCH/MATRIARCH

Some succession plans favor gifting rather than the sale of family farm assets. A gifting plan can be developed, transferring ownership using the annual gift exclusion, currently \$17,000 per year per recipient. Using a combination methodology, the patriarch/matriarch can transfer \$68,000 per year to the successor and their significant other. A larger sum could be invoked through the use of grandchildren. Over a series of years, this can amount to a considerable and tax-wise transfer in the aggregate. The choice of gifting favors those who have accumulated sufficient wealth and do not require payments to support them in retirement (Saymaz (2020)).

A summary of the essential outcomes that accompany the implementation of this method of property transfer includes:

- The intergenerational transfer is completed during the lifetime of the patriarch/matriarch. The process of transfer is completed on the date of the gift. Witnessing this outcome (perhaps as a method of rewarding the successor) may be extraordinarily important to the founders of the family farm. These desires may override any other personal and tax concerns.
- Key: Provides no funding for patriarch/matriarch in retirement.
- No federal income tax payment is required for the patriarch/matriarch.
- Carryover basis for a successor; therefore, future depreciation deductions for a successor will likely be highly restricted, if not zero.

The tax impacts associated with intergenerational property transfers for the patriarch/matriarch are minimized under this strategy. There will be no income tax due from the patriarch/matriarch upon the gifting, whether under a yearly program, in one event, or in combination. The successor will receive a carryover basis in the land, buildings, and equipment transferred and, therefore, will not have many opportunities for taking depreciation deductions. Such a carryover basis in the land will result in significant taxable income should a subsequent sale be completed. On the other hand, if the successor maintains ownership for a lifetime, then transfers the land to their children through inheritance, the issue of carryover basis becomes less significant.

One hundred (100) percent of the initial family farm asset corpus will be transferred to the successor under each of the 147 tax combinations, as there are no income tax impacts for either the patriarch/matriarch or successor associated with such a strategy. Of the 147 possible outcomes, 147 (100.00%) lead to the transfer of an amount exactly equal to the initial farm asset corpus. A better result than that of either Scenario #1 or Scenario #2, as the income tax impacts associated with sales, are exchanged for zero gift tax liabilities.

TABLE 2
SCENARIO #2 – BARGAIN PURCHASE OF FAMILY FARM ASSETS

PM Ordinary Tax Rate	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate	XX XX XX	PM Ordinary Tax Rate	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate
	0	15	20				0	15	20	
	10	102.44	92.83				89.63	10	XX	
	103.26	93.65	90.44	12	XX		99.67	90.06	86.86	12
	107.33	97.72	94.52	22	XX		103.75	94.14	90.93	22
	108.15	98.54	95.33	24	XX		104.56	94.95	91.75	24
	111.41	101.80	98.59	32	XX		107.82	98.21	95.01	32
	112.22	102.61	99.41	35	XX		108.64	99.03	95.82	35
	113.44	103.83	100.63	37	XX		109.86	100.25	97.04	37
12	102.12	92.51	89.30	10	XX	35	98.37	88.76	85.56	10
	102.93	93.32	90.12	12	XX		99.19	89.57	86.37	12
	107.01	97.40	94.19	22	XX		103.26	93.65	90.44	22
	107.82	98.21	95.01	24	XX		104.07	94.46	91.26	24
	111.08	101.47	98.27	32	XX		107.33	97.72	94.52	32
	111.90	102.29	99.08	35	XX		108.15	98.54	95.33	35
	113.12	103.51	100.30	37	XX		109.37	99.76	96.56	37
22	100.49	90.88	87.67	10	XX	37	98.04	88.43	85.23	10
	101.30	91.69	88.49	12	XX		98.86	89.25	86.04	12
	105.38	95.77	92.56	22	XX		102.93	93.32	90.12	22
	106.19	96.58	93.38	24	XX		103.75	94.14	90.93	24
	109.45	99.84	96.64	32	XX		107.01	97.40	94.19	32
	110.27	100.66	97.45	35	XX		107.82	98.21	95.01	35
	111.49	101.88	98.67	37	XX		109.04	99.43	96.23	37
24	100.16	90.55	87.35	10	XX					
	100.98	91.37	88.16	12	XX					
	105.05	95.44	92.24	22	XX					
	105.87	96.26	93.05	24	XX					
	109.13	99.51	96.31	32	XX					
	109.94	100.33	97.13	35	XX					
	111.16	101.55	98.35	37	XX					

SCENARIO #4: BEQUEST OF ALL FARM ASSETS AT THE PASSING OF BOTH THE PATRIARCH AND MATRIARCH

Estate and inheritance transfer taxes are generally believed to be easy to avoid, and avoidance is widespread. They have been characterized as “voluntary,” and as a result, a large industry of tax advisors, CPAs, and lawyers has developed in the U.S. to support this approach to tax planning (Cooper, 1977). Nevertheless, many farm families and their advisors are unfamiliar with and ill-advised in this regard. Thus, they face a great opportunity to simply engage in a transfer that does not meet their expectations or desires. Mishra et al. (2003) report that 18 percent of respondents indicated an intent to rent out the farm assets at retirement. Further, 26 percent of respondents indicated an intent to turn over the management and operation of the farm while retaining ownership during their retirement. This desire shows a strong, but not absolute, preference towards transfers of property rights at death. This is a good news/bad news scenario as it concurrently suggests that many family farms will be transferred either through sales (fair value or bargain purchase) or gifts as alternatives to bequests at death.

A business owner can simply transfer the business and its underlying assets to a successor at death through the use of a testamentary transfer (last will and testament). A testamentary will is a last will and testament. It is a legal document used to transfer holdings through an estate to other people or organizations after the death of the person who makes the will and to appoint guardians for minor children, name the executors who carry out the will's directions, and set up trusts for beneficiaries. Any person over the age of majority who is of sound mind can legally draft a will. There are several significant advantages. First, income taxation on the realized but not recognized appreciation gains, particularly as they relate to land appreciation, are not subjected to tax. Second, the successor receives a stepped-up basis for all property, meaning a second round of depreciation on IRC Sec. 1245 and 1250 assets. Finally, the patriarch/matriarch maintains control of the business and its income throughout their lifetime (Saymaz (2020)).

A summary of the essential outcomes that accrue to this method of property transfer includes:

- The intergenerational transfer is completed following the lifetime of the patriarch/matriarch. This outcome is a matter of faith in the legal system and the executor of the will, as the family farm founders will not overtly witness the final transfer.
- Rental agreements during the retirement years provides funding to the patriarch/matriarch.
- Rental income is generated to the patriarch/matriarch but offset by rental expense to the successor. Therefore, no income tax implications need to be placed in empirical consideration as they offset each other.
- Family farm assets are fully and completely passed through bequests within the context of a Last Will and Testament.
- Stepped-up basis to the successor for inherited family farm assets.
- Opportunity to take a full second round of depreciation on buildings and equipment using a new fair market value basis.

As previously stated, the lifetime gift and estate tax exemption for 2022 is \$12.06 million for individuals and \$24.12 million for married couples filing jointly. For 2023, it is \$12.92 million and \$25.84 million, respectively. More than 100.00% of the initial family farm asset corpus will be transferred to the successor under each of the 147 tax combinations, as there are no income tax impacts for the patriarch/matriarch with such a strategy. Concurrently, as the successor obtains a stepped-up basis, the higher the successor's ordinary income tax rate, the more benefit they will obtain post-acquisition through depreciation deductions. The 7 outcome alternatives (one for each patriarch/matriarch ordinary tax rate) include 104.07, 104.89, 108.86, 109.78, 113.04, 113.85, and 115.07, revealing that of the 147 possible combination outcomes, 147 (100.00%) lead to the transfer of 100% or more of the initial farm asset corpus.

RESULTS AND DISCUSSIONS

So, what is the best way to complete an intergenerational transfer of a family farm? There is no clear answer to this question that satisfies every unique situation and every possible combination of family traits, personal interests, and desires. For the scenarios discussed here, it was stipulated that the primary desire was to transfer ownership to a succeeding generation with the lowest aggregate tax cost to all parties to the completed transaction as result of the transfer method chosen. To that end, the Monte Carlo simulations strongly suggest an evident preference as follows:

- Scenario #1 - For most situations, the absolute **worst** course of action. The fewest possible tax combinations lead to the transfer of 100% or more of the initial family farm asset corpus. The average transfer outcome is 96.86 percent (\$2,615,227).
- Scenario #2 – Outperforms Scenario #1 in terms of 100% or more transfer combinations. The average transfer outcome is 98.47 percent (\$2,658,762).
- Scenario #3 – Generally superior to Scenarios #1 and #2 with all transfer combinations exactly achieving the 100% boundary. The average transfer outcome is 100.00 percent (\$2,700,000).
- Scenario #4 - For most situations, the absolute **best** plan of action. The most significant number of possible tax combinations leading to a transfer of 100% or more of the initial family farm

asset corpus with all combinations resulting in such an outcome. The average transfer outcome is 109.95 percent (\$2,968.689).

Additional evidence of the order of preference for the four scenarios can be gathered through consideration of the tabulations presented in Table 3. It provides a cell-by-cell comparison of the four scenarios for each combination of scenario and tax rates in a ranked ordering from best to worst outcome. Scenario #4 is ranged as best outcome in all combinations. Concurrently, Scenario #1 is worst for 98 of 147 (66.67%) possible combinations with gifting exclusively claiming any spots foregone by Scenario #1. This provides strong evidence of property transfer at death being financially superior, given our primary objective, over the outcomes associated with property sales at fair market value or bargain purchase price. Scenarios 2 is generally superior to Scenarios #1 and #3 for situations where capital gains tax rates are low. Interestingly, Scenario 3 is ranked as the second-best alternative in 99 of the 147 (67.35%) of the possible tax permutations indicative of its preferential outcome when compared to Scenarios 1 and 2.

The empirical findings presented in this research expand upon, and generally confirm, the assertions of noted Iowa State University AgEconomist Neil Harl who states:

To sum up, from a tax perspective, there is little doubt which would be the most advantageous in terms of family wealth: Holding the farmland or ranchland until death is far and away the best strategy. There may, however, be other pressing objectives—such as generating funds to pay assisted living expenses. Interestingly, this strategy is what many decedents, deep down, want to pursue. They typically like land ownership, it provides a steady supplement to their other income, and they usually have confidence in their land as an investment (Harl (2015), p. 26).

CONCLUSIONS AND LIMITATIONS

The primary objective of this research is to be informative to all interested parties at a reasonable level of depth. The interested parties include farm family members, their advisors (banking, legal, and tax), tax educators, and their students. For the first two groups, well-founded discussions based on facts are necessary to ensure the transfer of the family farm is accomplished in the best manner possible. This paper presents a straightforward and understandable rendition of the empirical tax impacts associated with common asset transfer strategies. It can be used to understand and focus discussions on asset transfers within the income, gift, and estate tax schemes for the latter two groups of interested parties. The initial discussion of tax consequences can be combined with a complete discussion of the other vital inputs to designing and executing property transfers.

As with all research and the subsequent application of its findings, several specific limitations must be kept in mind. First, most family farm transfers will not reach the point of taxation for federal estate tax purposes. It is always prudent to attempt to consume any permitted tax deductions/exclusions entirely, and total consumption of the unified estate and gift tax credit may be wise. Under this course of action, sales or gifting during one's lifetime may be prudent. Second, it is important to understand that all situations are unique and complicated. These complications can and often do have significant impacts on decision-making and must be considered. Neil Harl, the preeminent farm economist, lawyer, and scholar, offered a thoughtful viewpoint on these essential concerns and a perspective that is chock full of wisdom and a lifetime of experience. It is a must-read for family members and advisors who will provide input to succession planning for family farms. Aiken and Vyhnalek (2012) provide an excellent summary of his thoughts. "In general, the will decision should not be based solely on economic considerations but also on the sociological and psychological characteristics of the family to reduce conflicts among family members and guarantee equitable (not necessarily equal) distribution of the property" (Boehlje and Eisgruber (1972), p. 471).

**TABLE 3
CELL-BY-CELL SCENARIO COMPARISONS**

PM Ordinary Tax Rate	Asset Composition	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate	Asset Composition	PM Ordinary Tax Rate	PM Capital Gain Tax Rate			Successor Ordinary Tax Rate
		0	15	20				0	15	20	
		10	Phase 1	4,2,1,3				4,3,2,1	4,3,2,1	10	
		4,2,1,3	4,3,2,1	4,3,2,1	12	XX		4,3,2,1	4,3,2,1	4,3,2,1	12
	10	4,2,1,3	4,3,2,1	4,3,2,1	22	XX		4,2,1,3	4,3,2,1	4,3,2,1	22
		4,2,1,3	4,3,2,1	4,3,2,1	24	XX		4,2,1,3	4,3,2,1	4,3,2,1	24
		4,2,1,3	4,3,2,1	4,3,2,1	32	XX		4,2,1,3	4,3,2,1	4,3,2,1	32
		4,2,1,3	4,3,2,1	4,3,2,1	35	XX		4,2,1,3	4,3,2,1	4,3,2,1	35
		4,2,1,3	4,3,2,1	4,2,1,3	37	XX		4,2,1,3	4,2,1,3	4,3,2,1	37
12		4,2,1,3	4,3,2,1	4,3,2,1	10	XX	35	4,3,2,1	4,3,2,1	4,3,2,1	10
		4,2,1,3	4,3,2,1	4,3,2,1	12	XX		4,3,2,1	4,3,2,1	4,3,2,1	12
		4,2,1,3	4,3,2,1	4,3,2,1	22	XX		4,2,1,3	4,3,2,1	4,3,2,1	22
		4,2,1,3	4,3,2,1	4,3,2,1	24	XX		4,2,1,3	4,3,2,1	4,3,2,1	24
		4,2,1,3	4,2,3,1	4,3,2,1	32	XX		4,2,1,3	4,3,2,1	4,3,2,1	32
		4,2,1,3	4,2,1,3	4,3,2,1	35	XX		4,2,1,3	4,3,2,1	4,3,2,1	35
		4,2,1,3	4,2,1,3	4,2,3,1	37	XX		4,2,1,3	4,3,2,1	4,3,2,1	37
22		4,2,1,3	4,3,2,1	4,3,2,1	10	XX	37	4,3,2,1	4,3,2,1	4,3,2,1	10
		4,2,1,3	4,3,2,1	4,3,2,1	12	XX		4,3,2,1	4,3,2,1	4,3,2,1	12
		4,2,1,3	4,3,2,1	4,3,2,1	22	XX		4,2,1,3	4,3,2,1	4,3,2,1	22
		4,2,1,3	4,3,2,1	4,3,2,1	24	XX		4,2,1,3	4,3,2,1	4,3,2,1	24
		4,2,1,3	4,3,2,1	4,3,2,1	32	XX		4,2,1,3	4,3,2,1	4,3,2,1	32
		4,2,1,3	4,2,1,3	4,3,2,1	35	XX		4,2,1,3	4,3,2,1	4,3,2,1	35
		4,2,1,3	4,2,1,3	4,3,2,1	37	XX		4,2,1,3	4,3,2,1	4,3,2,1	37
24		4,2,1,3	4,3,2,1	4,3,2,1	10	XX					
		4,2,1,3	4,3,2,1	4,3,2,1	12	XX		Scenario #1 = 1			
		4,2,1,3	4,3,2,1	4,3,2,1	22	XX		Scenario #2 = 2			
		4,2,1,3	4,3,2,1	4,3,2,1	24	XX		Scenario #3 = 3			
		4,2,1,3	4,3,2,1	4,3,2,1	32	XX		Scenario #4 = 4			
		4,2,1,3	4,3,2,1	4,3,2,1	35	XX					
		4,2,1,3	4,2,3,1	4,3,2,1	37	XX					

In closing, it is generally a worthwhile and reasonable objective to attempt to complete the maximum transfer of assets between family members through a plan of action that limits exposure to tax complications and payments. There is no compelling reason, legally or ethically, to invite the government to be a party to this highly personal matter. To accomplish this outcome, it is necessary to consider a portfolio of wealth transfer options and to determine the best estimate of net-of-tax outcomes associated with each alternative. This was the subject, the reason, and the goal for the empirical assessments provided within this paper. They will provide a basis for discussion and a solid platform on which to build alternatives for consideration and assessment of the various pathways forward. Proactive steps form the passageway through which successful succession plans are executed. As Judge Learned Hand pontificated in his widely recognized, often cited, and simply down-to-earth manner:

Over and over again, courts have said that there is nothing sinister in so arranging one's affairs as to keep taxes as low as possible. Everybody does so, rich or poor; and all do right, for nobody owes any public duty to pay more than the law demands: taxes are enforced exactions, not voluntary contributions. To demand more in the name of morals is mere cant. *Commissioner v. Newman*, 159 F2d 848 (1947).

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